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Summary of EPA's Revised CSAPR Update for the 2008 Ozone NAAQS

On March 15, 2021, EPA released its final rule, "Revised Cross-State Air Pollution Rule Update for the 2008 Ozone NAAQS" (Final Rule).[1] EPA states that this Final Rule is intended to address the D.C. Circuit's remand of the Cross-State Air Pollution Rule (CSAPR) Update, which finalized Federal Implementation Plans (FIP) for 22 states to address their interstate transport obligations under the Clean Air Act (CAA) for the 2008 ozone National Ambient Air Quality Standards (NAAQS), as well as vacatur of the CSAPR Close-Out, which found that the CSAPR Update was a complete remedy of these obligations. Consistent with the proposal, EPA is:

- Finalizing its determination that for nine of the states for which the CSAPR Update was found to be a "partial remedy" (Alabama, Arkansas, Iowa, Kansas, Mississippi, Missouri, Oklahoma, Texas, and Wisconsin), the existing CSAPR Update FIPs (or subsequent State Implementation Plans (SIP)) for these states satisfy their interstate transport obligations for the 2008 ozone NAAQS and no further emission reduction requirements are needed;
- Finalizing its determination that for the remaining 12 states (Illinois, Indiana, Kentucky,[2] Louisiana, Maryland, Michigan, New Jersey, New York, Ohio, Pennsylvania, Virginia, and West Virginia), further ozone season NOx emissions reductions are required (see here for summary discussion);
- Promulgating new or revised FIPs for the 12 states to require electric generating units (EGUs) to participate in a new CSAPR NOx Ozone Season Group 3 Trading Program beginning with the 2021 ozone season with newly assigned state emissions budgets (see here for summary discussion and final budgets);
- Adjusting the Group 3 state budgets for 2022, 2023, and 2024 to account for fleet turnover (including system retirements) for all Group 3 states except Louisiana[3] (see here for summary discussion);
- Adjusting certain timing provisions (e.g., allowance allocation dates and recordation schedules) in other CSAPR programs and the Texas SO_2 Trading Program to align with timelines in the Group 3 trading program (see here for summary discussion);
- Finding that limits on ozone season NOx emissions from non-EGU sources are not required (see here for summary discussion); and

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1 Final Rule available here: https://www.epa.gov/sites/production/files/2021-03/documents/final_revised_csapr_update_-_prepublication_version_with_disclaimer.pdf.

2 Regarding Kentucky, EPA is finalizing an error correction for EPA's June 2018 approval of Kentucky's SIP. EPA had previously concluded that the CSAPR Update was a complete remedy for Kentucky based on modeling of the 2023 analytic year; however, in light of *Wisconsin* and *New York*, EPA determines that its basis for Kentucky's SIP approval has been invalidated.

3 For Louisiana, the emission budget setting process applies to 2021 and 2022 only, with the budgets held constant from 2022 onwards, as the Houston receptor is projected to achieve attainment in 2023.

- Determining that the NOx emission reductions "fully eliminate [the 12] states' significant contributions to downwind air quality problems for the 2008 NAAQS" (i.e., by the 2025 ozone season).

The Final Rule differs from the proposal in a few key areas, including:

- EPA has slightly adjusted the state budgets for 11 of the 12 states, reflecting increases to state budgets for some states (Indiana, Kentucky, Michigan, New York, Ohio, and Pennsylvania), decreases to some state budgets (Illinois, Louisiana, and Maryland), and both increases and decreases in certain years for Virginia and West Virginia. The state budgets for New Jersey did not change from the proposal. (See here for final budgets for all states.)
- While the Final Rule includes the proposed approach of optimizing existing selective catalytic reduction (SCR) controls and installing state-of-the-art NOx controls, EPA has added the optimization of existing selective non-catalytic reduction (SNCR) controls to the control strategy, representing a cost of $1,800 per ton of NOx reduced (see here for summary discussion).
- EPA has finalized two mechanisms for the conversion of Group 2 allowances to Group 3 allowances: (1) a certain number of allowances banked in 2017-2020 under the existing Group 2 trading program will be converted using a formula (expected to yield a ratio of 8:1) based on the remainder of the ozone season and the variability limits, and (2) designated representatives can request that an additional number of banked 2017-2020 Group 2 allowances be converted to Group 3 allowances at an 18:1 ratio (see here for summary discussion).

The Final Rule will take effect 60 days after publication in the Federal Register, which EPA expects will occur before the serious area attainment deadline for the 2008 ozone NAAQS—July 20, 2021. While the new Group 3 trading program will be implemented starting May 1, 2021 (the first day of the 2021 ozone season), EPA will issue supplemental allowances to ensure that the "enhanced" control stringency established in the Final Rule applies only after the Final Rule's effective date.

Background

The CAA's "good neighbor provision" requires states to prohibit emissions that contribute significantly to nonattainment, or interference with maintenance, in any other states with respect to any primary or secondary NAAQS. States are required to address interstate transport through SIPs. If a state does not submit an approvable SIP that addresses interstate transport, the CAA requires EPA to implement a FIP. Previous efforts to reduce regional ozone transport include the NOx SIP Call and the Clean Air Interstate Rule (CAIR). In 2011, EPA promulgated the original CSAPR to address the interstate transport contributions of 28 states for three NAAQS: the 1997 and 2006 fine particulate matter ($PM_{2.5}$), and the 1997 ozone NAAQS. CSAPR required reductions in emissions of SO_2, annual NOx, and ozone season NOx that were determined to significantly contribute to other states' nonattainment or interfere with other states' ability to maintain these air quality standards. EPA promulgated FIPs for each of the 28 states, which require EGUs in the covered states to participate in regional trading programs to achieve the necessary emission reductions.

In 2016, EPA promulgated the CSAPR Update to address interstate transport of ozone with respect to the 2008 ozone NAAQS. The CSAPR Update required NOx emission reductions from EGUs in 22 eastern states[4] during the summertime ozone season; however, EPA acknowledged that for 21 of the 22 states, this rule was only a

[4] 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.

"partial remedy" to address state transport obligations for the 2008 ozone NAAQS.[5] In 2018, EPA promulgated the CSAPR Close-Out, which concluded that implementation of the CSAPR Update fully addressed states' interstate transport obligations for the 2008 ozone NAAQS based on air quality analysis of the year 2023 and thus eliminated the obligation for EPA to issue FIPs for these states. Both the CSAPR Update and CSAPR Close-Out were challenged in the D.C. Circuit.

On September 13, 2019, the D.C. Circuit issued a unanimous decision in *Wisconsin v. EPA* regarding the CSAPR Update, holding that the rule was inconsistent with the CAA because it did not fully eliminate upwind states' significant contribution to nonattainment or interference with maintenance of the 2008 ozone NAAQS by "the relevant downwind attainment deadlines" in the CAA. On all other issues raised by petitioners, however, the Court agreed with EPA and upheld the CSAPR Update provisions and EPA's underlying approach in the rule. The Court remanded the rule to EPA without vacatur. On October 1, 2019, in *New York v. EPA*, the D.C. Circuit vacated the CSAPR Close-Out, finding it to be inconsistent with the *Wisconsin* holding because the rule analyzed the year 2023 rather than 2021 and failed to demonstrate that it was an impossibility to address significant contribution by the 2021 serious area attainment deadline ("the next applicable attainment date").

New York, Connecticut, New Jersey, Massachusetts, Delaware, and New York City initiated litigation in the U.S. District Court Southern District of New York challenging EPA's failure to promulgate FIPs to address interstate ozone transport from upwind states, and on July 28, 2020, the Court issued a decision establishing a deadline of March 15, 2021 for EPA to issue a final rule fully resolving good neighbor obligations under the 2008 ozone NAAQS for seven upwind states.[6] On October 15, 2020, EPA released its proposed rule, "Revised Cross-State Air Pollution Rule Update for the 2008 Ozone NAAQS."[7]

EPA Analysis of Interstate Transport Obligations

Consistent with the proposal, EPA analyzed states' interstate transport obligations using the same four-step good neighbor framework used in developing CSAPR and other rules addressing ozone transport.[8] In the Final Rule, EPA states it is applying the four-step framework "to respond to the D.C. Circuit's remand in *Wisconsin* and to revise the CSAPR Update with respect to the 2008 ozone NAAQS."

Identification of Downwind Receptors with Air Quality Issues

In the first step of the four-step framework, EPA performed air quality modeling to project ozone concentrations at air quality monitoring sites in 2021—the next relevant attainment deadline for the 2008 ozone NAAQS[9]—and identified downwind receptors that are expected to have problems attaining or maintaining the NAAQS.

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5 EPA found in the CSAPR Update that the finalized Tennessee emissions budget fully addressed Tennessee's good neighbor obligations with respect to the 2008 ozone NAAQS.

6 Illinois, Indiana, Michigan, Ohio, Pennsylvania, Virginia, and West Virginia. *New Jersey v. Wheeler*, No. 1:20-cv-01425 (S.D.N.Y. July 28, 2020).

7 Proposed rule available here: https://www.epa.gov/sites/production/files/2020-10/documents/revised_csapr_update_proposal_with_prepublication_disclaimer.pdf.

8 Four-step framework: (1) identify downwind receptors that are expected to have problems attaining or maintaining the NAAQS; (2) determine which upwind states contribute to these identified problems in amounts sufficient to "link" them to the downwind air quality problems; (3) for states linked to downwind air quality problems, identify upwind emissions that significantly contribute to downwind nonattainment or interfere with downwind maintenance of the NAAQS; and (4) for states that are found to have emissions that significantly contribute to nonattainment or interfere with maintenance of the NAAQS downwind, implement the necessary emissions reductions through enforceable measures.

9 The next relevant attainment deadline for the 2008 ozone NAAQS is July 20, 2021 for serious nonattainment areas.

Identification of Upwind States Linked to Downwind Air Quality Issues

In the second step, EPA used air quality modeling to determine which upwind states contribute to these identified problems in amounts sufficient to "link" them to the downwind air quality problems. To do this, EPA evaluated contributions relative to a screening threshold of one percent of the NAAQS (i.e., 0.75 ppb); states with contributions greater than or equal to one percent of the NAAQS were identified as warranting further analysis for significant contribution to nonattainment or interference with maintenance, and states with contributions less than one percent were considered to not significantly contribute. Based on this analysis using 2021 as the analytical year, EPA identified 12 "linked" states that warranted further analysis for significant contribution.

Identification of Emissions that Significantly Contribute to Downwind Air Quality Issues

In the third step, EPA used a multi-factor test, evaluating cost, available emission reductions, and downwind air quality impacts, to determine the amount of "linked" upwind states' emissions that "significantly" contribute to downwind nonattainment or maintenance. For its analysis, EPA applied the test to both EGU and non-EGU source categories and assessed potential emission reductions through 2025 (i.e., accounting for all years for which there is a potential remaining interstate ozone transport problem) to "ensure a full remedy in compliance with *Wisconsin.*"

In applying step three's multi-factor test to EGUs, EPA identified in the proposal a control strategy consisting of optimizing existing SCR controls and installing "state-of-the-art" NOx combustion controls (e.g., low-NOx burners, over-fire air) at EGUs, representing a cost of $1,600 per ton of NOx reduced. In response to comments received on the proposal, and further review by EPA of "available information," the Final Rule retains the proposed approach of optimizing existing SCRs and installing state-of-the-art NOx controls, but also adds the optimization of existing SNCR controls. EPA states that the optimization of SNCRs represents a cost of $1,800 per ton. In the Final Rule, EPA states that it "views $1,600 per ton for optimization of existing SCR controls and installation of state-of-the-art NOx combustion controls and $1,800 per ton for optimization of existing SNCRs as comparable for policy purposes."

EPA states that its evaluation shows that emissions budgets reflecting the optimization of existing SCRs and SNCRs and installation of state-of-the-art NOx combustion controls at EGUs "do not overcontrol upwind states' emissions relative to either the downwind air quality problems to which they are linked at step one or the one percent contribution threshold that triggers further evaluation at step two of the 4-step framework."

EPA also notes that two of the emissions controls in its EGU control strategy (e.g., SCR optimization and installation of state-of-the-art NOx controls) were also selected in the CSAPR Update, which was found to have served only as a "partial remedy" of states' interstate transport obligations. EPA makes clear that the Final Rule differs from the CSAPR Update because in the Final Rule, consistent with the proposal, EPA extends its evaluation of the reduction potential of these control strategies beyond 2017 in order to assess a "full remedy" (whereas the CSAPR Update only assessed strategies for the 2017 ozone season). EPA states that this updated analysis supports its conclusion that "these control strategies can provide additional cost-effective emissions reductions for the 2021 through 2024 ozone seasons."

Additionally, EPA states that while its analysis indicates that the majority of EGUs have already implemented these control strategies, "changes in the power sector since the 2017 ozone season and updated air quality and contribution analysis show that there is a demonstrated need to update the emissions budgets for these 12 states to incentivize ongoing operation of identified emission controls to fully eliminate significant contribution and interference with maintenance." EPA also finds that "many EGUs are already operating their existing SNCR controls to some extent but that additional cost-effective emission reductions for the 2021 through 2024 ozone

seasons are available," and "[t]aken together, the emission budgets established in this Final Rule reflect EPA's identified EGU control stringency of optimization of all existing post-combustion controls (SCRs and SNCRs) by the 2021 ozone season, and the installation of state-of-the-art NOx combustion controls by the 2022 ozone season."

EPA also applied step three's multi-factor test to non-EGU sectors and emissions sources but determined that ozone season NOx limits on such sources "are not required to eliminate 'significant' contribution or interference with maintenance under the 2008 ozone NAAQS" (see below for further information).

Final State Emission Budgets

Consistent with the proposal, EPA used the following process to determine state budgets (Table 1 includes the final budgets compared to the proposal):

- Project 2021 baseline emissions by adjusting the 2019 ozone season[10] to reflect announced and confirmed retirements, new builds, and retrofits that have already occurred.
- Adjust the baseline unit-level emissions and emissions rates to factor in application of the selected control stringency.
- Use IPM to capture the reductions expected from any generation shifting at the given cost threshold necessary for the respective mitigation technology to operate (constrained to within-state shifting).
- Additionally, to ensure a "full-remedy" that addresses upwind emission reduction potential beyond the initial budget year, adjust budgets for 2022, 2023, and 2024 to reflect unit retirements that are "known with sufficient certainty as of this final action."

In response to comments regarding the proposal's use of 2019 data to determine baseline emissions, EPA states that 2019 is the most representative historical year for informing the analysis, given the "unique Covid-related impacts on the power sector and energy market data" in 2020, including "significant" changes in natural gas prices, electricity demand profiles, and overall electricity demand.

However, for New York and Virginia, EPA notes some commenters stated that these two states are "differently situated" in that their emissions were higher in 2020 as compared to 2019 (whereas all other states' emissions were lower in 2020). Additionally, EPA received comments regarding the retirement of one unit at the Indian Point nuclear facility in 2020. Thus, in the Final Rule, EPA incorporated "upward adjustments" to the future year baseline values for New York and Virginia to reflect the incremental changes in heat input, generation, and emissions for 2020 relative to 2019 to account for these "atypical circumstances" and "2020 fleet dynamics."

In response to comments recommending that EPA use a multi-year historical baseline, EPA states this method would "dilute, rather than strengthen" the ability to capture the "most representative perspective of the current power sector," as it would include units that no longer exist, as well as outdated market conditions and regulatory landscapes.

[10] EPA notes that 2019 is "the most recent data whose representativeness was not called into question by the unusual circumstances of the Covid-19 pandemic."

Table 1: Final EGU NOx Ozone Season Emissions Budgets Compared to Proposal (NOx Tons)[11]

State	2021		2022		2023		2024		*Comparison to CSAPR Update Budgets for 2017*
	Final	*Proposed*	Final	*Proposed*	Final	*Proposed*	Final	Proposed	
Illinois	9,102	*9,444*	9,102	*9,415*	8,179	*8,397*	8,059	8,397	*14,601*
Indiana	13,051	*12,500*	12,582	*11,998*	12,553	*11,998*	9,564	9,447	*23,303*
Kentucky	15,300	*14,384*	14,051	*11,936*	14,051	*11,936*	14,051	11,936	*21,115*
Louisiana	14,818	*15,402*	14,818	*14,871*	14,818	*14,871*	14,818	14,871	*18,639*
Maryland	1,499	*1,522*	1,266	*1,498*	1,266	*1,498*	1,348	1,498	*3,828*
Michigan	12,727	*12,727*	12,290	*11,767*	9,975	*9,803*	9,786	9,614	*17,023*
New Jersey	1,253	*1,253*	1,253	*1,253*	1,253	*1,253*	1,253	1,253	*2,062*
New York	3,416	*3,137*	3,416	*3,137*	3,421	*3,137*	3,403	3,119	*5,135*
Ohio	9,690	*9,605*	9,773	*9,676*	9,773	*9,676*	9,773	9,676	*19,522*
Pennsylvania	8,379	*8,076*	8,373	*8,076*	8,373	*8,076*	8,373	8,076	*17,952*
Virginia	4,516	*4,544*	3,897	*3,656*	3,980	*3,656*	3,663	3,395	*9,223*
West Virginia	13,334	*13,686*	12,884	*12,813*	12,884	*11,810*	12,884	11,810	*17,815*
TOTAL	107,085	*106,280*	103,705	*100,096*	100,526	*96,111*	96,975	93,092	*170,218*

Source: EPA Final Rule, available at: https://www.epa.gov/csapr/state-budgets-under-revised-cross-state-air-pollution-rule-update*; Final CSAPR Update, available at:* https://www.govinfo.gov/content/pkg/FR-2016-10-26/pdf/2016-22240.pdf.

Control Strategy Timing

Consistent with the proposal, EPA notes in the Final Rule that while the new state budgets will be effective beginning with the 2021 ozone season, installation of state-of-the-art NOx combustion controls requires approximately "one to six months depending on the unit." Thus, EPA determined that it is not possible to install these controls on a regional scale by the 2021 ozone season, and the budgets for 2021 reflect only SCR and SNCR optimization at affected EGUs. The budgets for 2022 and subsequent years reflect both the continued optimization of SCRs and SNCRs and installation of "state-of-the-art" controls. In response to comments regarding the timeline to install these controls, EPA refers to comments it received during the CSAPR Update from the Institute of Clean Air Companies, which noted that it "generally takes 6-8 months" for the installation of new combustion controls (covering the time from bid evaluation through start-up of the technology).

Additionally, EPA notes that the Final Rule will become effective 60 days after publication in the Federal Register, which EPA expects will occur before the serious area attainment date for the 2008 ozone NAAQS (i.e., July 20, 2021). Accordingly, EPA has determined that "it is feasible for the EGUs subject to this rule to comply

[11] Note: The 2022 and beyond budgets incorporate the installation of NOx combustion controls; whereas, the 2021 budgets do not. Additionally, the 2024 emissions budgets apply to 2024 and each year thereafter.

with the enhanced stringency of the budgets and that there is sufficient time before the effective date to prepare to meet these budgets by either undertaking the emission control measures…or by taking advantage of compliance flexibilities available through the new interstate emissions trading program EPA is establishing."

Budget Adjustments Through 2024

Also consistent with the proposal, EPA determined that with the implementation of the identified control stringency for EGUs, downwind nonattainment and maintenance problems for the 2008 ozone NAAQS will persist through the 2024 ozone season (with the exception of Louisiana).[12] To comply with the "full-remedy directive" in the *Wisconsin* remand, EPA states it must address upwind emissions reduction potential beyond the initial year for which it is establishing emissions budgets.[13] Thus, consistent with the proposal, for upwind states that remain linked to downwind nonattainment and maintenance problems through the 2024 ozone season, EPA is adjusting these states' emission budgets to "incentivize the continued optimization of existing SCR and SNCR controls, and installation of state-of-the-art NOx combustion controls." The 2024 emission budgets will then continue to apply in each year thereafter.

Additionally, EPA is finalizing, as proposed, the budget-setting process in which budgets are adjusted in 2022, 2023, and 2024 "to account for future unit retirements and construction of new units that are known with sufficient certainty as of this final action." By doing this, EPA states it "will be accounting for scheduled fleet turnover."[14] EPA notes that prior interstate transport programs that did not account for this "lead to an erosion in the allowance price signal and hence a reduced incentive to take the mitigation measures identified in EPA's significant contribution determination (e.g., enhanced SCRs)."

EPA states that this adjustment method does not result in an increase of the stringency of the program in future years (i.e., it does not require any further emissions reductions than the control strategy represented by $1,800 per NOx ton achieves). Rather, "these budget adjustments account for pre-existing, on-going changes in the EGU sector, which if not accounted for, could significantly weaken the incentive to optimize existing SCR and SNCR controls and install or upgrade combustion controls." In addition, EPA notes that this methodology allows EPA to "best ensure the reductions available from the identified control strategy continue to be achieved to eliminate that state's significant contribution." In response to comments regarding the uncertainty of some scheduled retirements, and the "potential for them to be possibly altered pending information from regulatory agencies," EPA states that it is "using the best available data at the time of the Final Rule and that no retirement plans included in the Final Rule were contradicted by commenter data submitted on the [proposal]." EPA also notes that its future year baseline generation and retirement outlook for higher emitting sources "is likely conservative, as EPA does not assume any retirements beyond those that are announced," meaning that there will likely be more units that retire than those that are "subsequently unwound."

Generation Shifting

Consistent with the proposal and the CSAPR Update, the Final Rule evaluates emission reduction potential from generation shifting across the representative dollar per ton levels estimated for the other emission controls. EPA

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[12] For Louisiana, the emission budget setting process applies to 2021 and 2022 only, with the budget held constant from 2022 onwards, as the Houston receptor is projected to achieve attainment in 2023.

[13] In the CSAPR Update, EPA only established budgets based on its assessment of the 2017 analytic year and noted it would revisit future years at a later date, which was found to only be a "partial remedy."

[14] EPA provides the following illustrative example: if State X's budget was 100 tons in 2021, but there are 10 tons of emissions from a unit scheduled to retire at the end of the year and five tons expected from a new unit coming online, then State X's emissions budget for 2022 would reflect these scheduled changes by revising the budget from 100 tons to 95 tons (100 – (10 tons – 5 tons) = 95).

notes that there is more generation shifting at higher cost NOx-control levels, thus, "[i]t is reasonable for EPA to quantify and include the emission reduction potential from generation shifting at cost levels that are representative of the emission control technologies evaluated in the multi-factor analysis." EPA also notes that "[i]ncluding emission reductions from generation shifting is important, ensuring that other cost-effective reductions (e.g., fully operating controls) can be expected to occur in a competitive electricity marketplace where generation shifting will inevitably occur in response to pollution control requirements." Consistent with the proposal, EPA limits its assessment to generation shifting among EGUs in the same state "[a]s a proxy for limiting the amount of generation shifting that is feasible for the near-term ozone seasons." EPA states that this in-state limitation (which EPA sometimes refers to as re-dispatch) "represents a conservatively small amount of generation-shifting because it does not capture further potential emission reductions that would occur if generation was shifted more broadly among units in different states within the interconnected electricity grid."

In response to comments that EPA should have included additional reductions from generation shifting beyond those levels that are commensurate with the emission controls identified, EPA states that its approach "focuses on preserving the incentive for combustion and post-combustion controls to operate," and "[f]actoring generation shifting into the state emissions budgets helps promote an allowance price that will incentivize these controls to operate." EPA recognizes that higher levels of reductions through generation shifting are possible, and in the Regulatory Impact Analysis (RIA), EPA assessed a less-stringent control alternative for EGUs at $500 per ton based solely on generation shifting rather than any at-the-source control technology. However, in the Final Rule, EPA states that it "continues to stand by its discussion of its legal authority for and the technical viability of generation shifting as a method of emission reduction under the good neighbor provision, as set forth in the final CSAPR Update" (and which was not re-opened on remand).

Additionally, EPA states, consistent with the proposal, that further generation shifting than what is captured by EPA's methodology is "unnecessary" in the context of the resolution of good neighbor obligations. It is "EPA's judgment" in the Final Rule that "the capital intensive nature of new builds and the likely multi-year timeframe necessary for the permitting and construction of new units make generation shifting to new generating resources, beyond those already planned and included in the baseline, not possible before downwind receptors are already resolved" (i.e., by the 2025 ozone season).

In response to comments that EPA should not factor in any generation shifting, noting that "EPA rejected the use of generation shifting in rescinding the Clean Power Plan," EPA notes that its treatment of generation shifting is consistent with CSAPR, the CSAPR Update, and statute. EPA also states these comments "incorrectly conflate[] the question of statutory authority under section 111 of the Act, the authority at issue in the Clean Power Plan and its repeal and subsequent litigation, with the question of statutory authority under section 110." Citing language from the CSAPR Update, EPA states that the "broad statutory language" in section 110 shows that Congress "was directing the states and the EPA to address a wide range of entities and activities that may be responsible for downwind emissions," and did not limit those measures to individual source controls. EPA also notes that its interpretation of section 111 as "unambiguously precluding the use of generation shifting" was rejected by the D.C. Circuit.[15]

[15] *American Lung Association v. EPA*, No. 19-1140 (D.C. Cir. Jan. 19, 2021).

Implementation

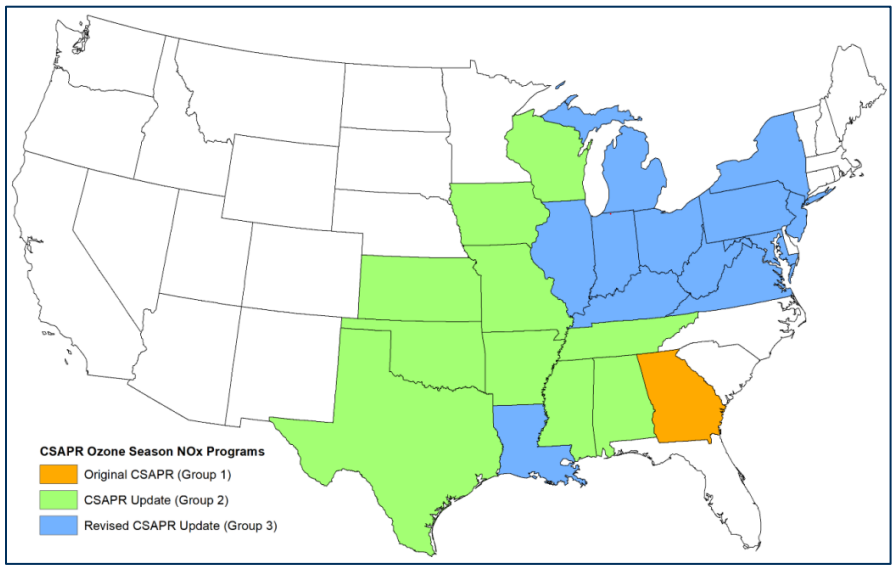
In the fourth step of the four-step framework, EPA promulgates FIPs with enforceable measures to ensure the 12 states achieve the required emissions reductions, including revised emissions budgets and the creation of a new geographic group and trading program for EGUs within the 12 states.

In response to comments challenging EPA's overall approach to this rulemaking in light of *Wisconsin*, EPA states that the Final Rule "is a full remedy for the good neighbor provision for the covered upwind states for the 2008 ozone NAAQS based on EPA's analysis." EPA notes that "[t]he good neighbor provision does not obligate upwind states to fully resolve a downwind nonattainment or maintenance problem," but rather "only requires that upwind states prohibit those emissions that 'contribute significantly to nonattainment' or 'interfere with maintenance of the NAAQS.'" Thus, upwind states are not required to "bear the full burden of bringing downwind states into attainment." EPA notes that "the larger framework of the CAA, including under sections 110, 181, 182 and other provisions" leads to ultimate achievement of NAAQS downwind, and in the Final Rule, "EPA must determine what amount of upwind contribution is significant (or interferes with maintenance) and require elimination of that significant contribution while avoiding overcontrol or undercontrol."

Group 3 Trading Program

Consistent with the proposal, the Final Rule requires each of the 12 covered states to participate in a new CSAPR NOx Ozone Season Group 3 Trading Program. EPA states the new Group 3 trading program is "largely identical" to the existing CSAPR NOx Ozone Season Group 2 Trading Program, with the main differences being the geography and budget stringency,[16] with a few exceptions (as discussed below). Consistent with other ozone season trading programs, the Final Rule will allow EGUs within each of the 12 states to use, trade, or bank allowances within the same trading group for compliance. Figure 1 illustrates which states are in which trading program.

Figure 1: Final CSAPR Trading Groups



Source: EPA Final Rule, available at: https://www.epa.gov/csapr/revised-cross-state-air-pollution-rule-update.

[16] Aside from the removal of the 12 covered states from the current Group 2 trading program, the Final Rule leaves unchanged the budget stringency and geography of the existing CSAPR NOx Ozone Season Group 1 and Group 2 Trading Programs.

Applicability

Consistent with the proposal, the Final Rule includes the same EGU applicability provisions for the new Group 3 trading program as is in the existing CSAPR trading programs. Thus, "a covered unit is any stationary fossil-fuel-fired boiler or combustion turbine serving, at any time on or after January 1, 2005, a generator with nameplate capacity exceeding 25 MW, which is producing electricity for sale, with the exception of certain cogeneration units and solid waste incineration units."

Variability Limits, Assurance Levels, and Penalties

Consistent with the proposal, the Final Rule applies the same assurance provisions (i.e., 21 percent variability limit, which results in an assurance level of 121 percent) included in other CSAPR programs for the new Group 3 trading program. EPA clarifies that the total number of allowances issued for each control period will be equal to the states' budgets, not the budgets plus the variability limits. Thus, if a state's sources emit up to the assurance level, allowances banked from prior control periods would need to be used for compliance. EPA further clarifies that although the Final Rule also includes an initial bank of allowances in an amount equal to the sum of the states' variability limits for the 2022 control period (discussed more fully below), "creation of the bank is a one-time event and does not represent a 21 percent increase in the state emission budgets established for each control period." In the event that the covered sources' emissions in a given state, as a whole, exceed the state's assurance level, a higher "penalty" surrender ratio (i.e., 3-to-1) is triggered.

In response to comments that the implementation timeline for the Final Rule would not allow a liquid allowance market to form and thus inhibit sources' ability to comply, EPA states that it has "never encountered a single instance" where a source was unable to comply with a trading program because of an inability to find allowances available for purchase. However, EPA is including a "safety valve" in the Final Rule to account for these concerns (discussed more fully below).

Unit-Level Allocation of Emissions Allowances

The Final Rule includes a default allocation process for states that do not employ an alternative process pursuant to an approved SIP (i.e., New York and Indiana).

Existing Units and Units that Cease Operation: In the Final Rule, EPA states it is "generally" following the same methodology for allocation of allowances to existing units[17] as used in the CSAPR Update, which relies on historical heat input and emissions data. The Final Rule also constrains each EGU's allocation so as not to exceed the unit's maximum historical baseline emissions, calculated as the highest year of emissions out of the most recent eight-year period that is considered representative (i.e., 2019).

Consistent with the proposal, for units that cease operation, the Final Rule applies the same approach as in the CSAPR Update for allowance reallocation. Specifically, an EGU that does not operate for a period of two consecutive years would receive allowance allocations for up to five years after non-operation. Starting in the fifth year after non-operation, the allowances previously allocated to these EGUs will instead go to the new unit set-aside (NUSA) for the state.

In contrast to the proposal, the Final Rule will adjust the state budget and associated allocation to reflect existing units' scheduled retirement dates. Thus, such units will not receive allocations for use in the Group 3 trading program starting with the first control period for which the units' scheduled retirements are reflected in

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[17] For the 12 states in the Group 3 trading program, EPA considers an "existing unit" to be "a unit that commenced commercial operation prior to January 1, 2019 (although only existing units that did not cease operation before January 1, 2021 will be eligible to receive allocations of Group 3 allowances as existing units)."

adjustments to the state emission budgets. EPA notes that this approach "does not apply to other units that may cease operations but whose upcoming retirements were not scheduled as of finalization of this action with sufficient certainty to be reflected in the process for setting the emission budgets." Instead, these units would continue to receive allowance allocations as existing units for five control periods of non-operation, consistent with the existing CSAPR trading programs. EPA also states that it has not included a mechanism in the Final Rule to adjust the emission budgets over time to account for either units with unscheduled future retirements or the construction of unplanned new units and is "not prepared at this time to reduce the budgets for units with unscheduled future retirements without consideration of whether and how to increase the budgets for the construction of unplanned new units."

New Units: Consistent with the proposal, the Final Rule allocates to a NUSA for each state allowances equal to a minimum of two percent of the total state budget, plus the projected amount of emissions from planned units in that state. For the Group 3 states with Indian country within their borders (i.e., Louisiana, Michigan, and New York), EPA is reserving 0.1 percent of the total state budget for new units in Indian country within those states. If the allowances in a NUSA are not allocated to new units, the allowances are redistributed to existing units in the state before each compliance deadline.

Transitioning from Existing CSAPR NOx Ozone Season Group 2 Trading Program

The Final Rule includes four sets of provisions to address the transition of sources from the Group 2 trading program to the Group 3 trading program, including modifications to the proposal's provisions regarding allowance conversions.

Supplemental Allowances Prior to Effective Date: Consistent with the proposal and as discussed above, while the new Group 3 trading program will be implemented starting May 1, 2021, EPA will issue supplemental allowances, as well as an increment to the states' assurance levels, to ensure that the enhanced control stringency established in the Final Rule applies only after the effective date. The total amount of supplemental allowances available for allocation to sources in each state will be calculated by multiplying the difference between the state's Group 2 and Group 3 budgets by the fraction of the 2021 ozone season, measured in days, occurring before the Final Rule's effective date. The state's total amount of supplemental allowances will then be allocated among the state's existing units as if the supplemental allowances had been included in the state's 2021 emissions budget for the Group 3 trading program. All other aspects of the Group 3 trading program will be implemented for the 2021 ozone season as it would for any other control period.

Initial Bank Conversion: Consistent with the proposal, EPA is creating a limited initial bank of allowances that can be used for compliance in the Group 3 trading program through a one-time conversion of a certain number of banked Group 2 allowances based on a formula. The initial bank target amount will be "approximately equal" to the sum of the states' variability limits for the 2022 state budgets, prorated based on the effective date of the Final Rule.

In response to comments requesting greater certainty on the conversion formula, the Final Rule does not allow Group 2 allowance holders to decide how many Group 2 allowances to include in the conversion process. Instead, EPA is "finalizing the formula so as to yield an expected fixed conversion ratio of 8:1" (i.e., eight 2017-2020 Group 2 allowances must be exchanged for each 2021 Group 3 allowance) up to the target number of

allowances.[18] The conversions will be carried out at the level of individual sources and general accounts. If the Group 3 sources' compliance accounts collectively do not hold enough Group 2 allowances to exchange for the full target amount for the initial bank, EPA will convert allowances from general accounts at the same 8:1 conversion ratio to ensure the initial Group 3 bank target amount. If the total quantity of allowances in the compliance and general accounts is less than the initial Group 3 bank target, the total quantity of Group 3 allowances created would be less than the initial Group 3 bank target amount. EPA notes that such an outcome is "reasonable because it would occur only if owners of Group 3 sources in fact were not sufficiently interested in receiving banked Group 3 allowances to hold the required quantity of 2017-2020 Group 2 allowances in the appropriate accounts." In response to comments, EPA also advanced the conversion schedule, which will occur approximately 45 days after the Final Rule's effective date.

Safety Valve: In response to comments regarding market liquidity and compliance flexibility, the Final Rule includes another opportunity for sources to create additional Group 3 allowances through the voluntary conversion of Group 2 allowances at an 18:1 conversion ratio (known as a "safety valve"). Any 2017-2020 Group 2 allowances that are not exchanged for Group 3 allowances through the process described above (i.e., the initial bank) may be used to obtain additional Group 3 allowances through the safety valve mechanism. EPA states this conversion ratio is "high enough to avoid interfering with incentives for sources to reduce emissions through the use of the control technologies identified as appropriate for establishing states' emissions budgets in this action, and…low enough to provide additional flexibility that, in extreme circumstances, could facilitate compliance by some sources."[19] Under the Final Rule, use of the safety valve mechanism will be at the request of the designated representatives of Group 3 sources, and any requests must be made during February 2022.

Group 2 Allowance Recall: Finally, consistent with the proposal, the Final Rule will recall from the Group 2 allowances an amount and vintage that is equivalent to the previously allocated vintage year 2021-2024 for states that are now in the new Group 3 region in order to maintain the previously established levels of stringency for states and sources still subject to the Group 2 trading program. The Final Rule also provides a more flexible compliance schedule and provides greater flexibility as to the vintage years of Group 2 allowances that sources may surrender to achieve compliance (i.e., EPA will accept the surrender of either the same specific 2021-2024 Group 2 allowance or any other Group 2 allowance with equivalent (or greater) usability under the Group 2 trading program). The Final Rule includes a process for recall, including two deadlines for compliance: (1) 75 days after publication of the Final Rule in the Federal Register, and (2) September 15, 2021 if a source did not satisfy its surrender requirements by the first deadline.

Compliance Deadlines and Recordation of Allowances

The Final Rule establishes an allowance transfer deadline for the Group 3 trading program (starting with the 2021 control period) of June 1 of the year after the control period (i.e., Group 3 sources must hold Group 3 allowances

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[18] In the Final Rule, EPA describes the formula numerator as "the portion of the total existing bank of 2017-2020 Group 2 allowances attributable to the Group 3 states, which is more specifically defined as: (1) the sum of the budgets of the Group 3 states under the Group 2 trading program for the 2017-2020 control periods, plus (2) the portion of the initial Group 2 bank target amount attributable to the Group 3 states, minus (3) the emissions of sources in the Group 3 states for the 2017-2020 control periods." EPA states that the formula denominator "continues to be based on the initial Group 3 bank target amount, but reflects the full-season target amount instead of the target amount after the prorating adjustment." EPA estimates that "the formula numerator will be 186,014 allowances and the formula denominator will be 21,777 allowances, yielding a rounded conversion ratio of 8:1."

[19] In the Final Rule, EPA estimates that the maximum quantity of Group 3 allowances that could be created through the safety valve mechanism will be "in the range of 7,000 to 9,000 Group 3 allowances," and EPA states that "[t]his degree of conversion of Group 2 allowances would be highly unlikely to occur, and indeed, EPA considers it more likely that no source will need to make use of the safety valve mechanism."

for the 2021 control period by June 1, 2022). EPA is also applying this revision to the other CSAPR trading programs as well as the Texas SO_2 Trading Program (which previously had a compliance date of March 1). EPA states that the reason for this change is to accommodate the change in the schedule and methodology for allocating allowances from the new unit set-aside that will start with the 2021 control periods.

The Final Rule also includes schedule requirements for the recordation of allowance allocations. For the first control period, allocations will be recorded no later than 90 days after publication of the Final Rule in the Federal Register. EPA will use the same deadline to record the allocation of vintage year 2022 allowances for all units except those in states that are submitting SIPs.[20] EPA will record vintage year 2023 and 2024 Group 3 allowance allocations to existing units by July 1, 2022, and vintage year 2025 and 2026 Group 3 allowance allocations by July 1, 2023.

For each year after 2023, EPA will record Group 3 allocations by July 1 of each year to existing units for the control period in the third year after the year of recordation. EPA notes that this is a change from other CSAPR trading programs, which provide for allocations to be recorded four years in advance. EPA is also revising the schedules of the other CSAPR trading programs, as well as the Texas SO_2 Trading Program, to align with this three-year schedule. Under the Final Rule, EPA will record all allocations from new unit set-asides as of May 1 in the year following the control period, in both the Group 3 trading program and the existing CSAPR trading programs, and both where the allocations are determined by EPA and where the allocations are provided by states pursuant to approved SIP revisions.

Monitoring and Reporting

The Final Rule states that monitoring and reporting in accordance with the provisions of 40 CFR Part 75 are required for all units subject to all the CSAPR trading programs, including units covered under the Final Rule. Thus, EGUs already in compliance with monitoring system certification requirements under Part 75 for the Group 2 trading program will not have to undertake any additional activities to certify their monitoring systems for the Group 3 trading program. The Final Rule also states that the Group 3 trading program monitoring and reporting requirements are analogous to the current deadlines under the Group 2 trading program.

Submitting a SIP

Consistent with CSAPR and the CSAPR Update, states have options to revise their SIPs to modify or replace the FIPs promulgated under the Final Rule while continuing to use the Group 3 trading program as the mechanism for meeting the states' interstate transport obligations for the 2008 ozone NAAQS. EPA is not finalizing the proposed option that would have allowed EPA to approve a SIP submitted by a state whose sources are required to participate in the Group 1 trading program (e.g., Georgia) or the Group 2 trading program to instead require sources to participate in the Group 3 trading program, as EPA did not receive any comments indicating interest.

Non-EGU Sources

As part of the four-step framework to determine states' interstate transport obligations, EPA also evaluated non-EGU sectors and emission sources to determine whether to require any emissions reductions to address significant contributions under the 2008 ozone NAAQS. EPA states that there is "limited information" regarding emissions,

[20] Within 60 days of publication of the Final Rule, states must submit a letter to EPA indicating an intent to submit a SIP revision to substitute state-determined allocations for the default allocations.

existing controls on emissions sources, emissions-reduction potential, and air quality impacts for non-EGU sources (when compared to the datasets for EGUs).

Nonetheless, using the "best information currently available to the Agency," including some additional analysis conducted between the proposal and the Final Rule, "EPA is concluding that there are relatively fewer emission reductions available at a cost threshold comparable to the cost threshold selected for EGUs," and "such reductions are estimated to have a much smaller effect on any downwind receptor in the year by which EPA finds such controls could be installed." Thus, consistent with the proposal, EPA finds limits for non-EGU sources "are not required to eliminate significant contribution or interference with maintenance under the 2008 ozone NAAQS."

Relationship to the 2015 Ozone NAAQS

In 2015, EPA released a final rule strengthening the ozone NAAQS to 70 ppb. In the Final Rule, EPA notes that "while reductions achieved by this [Final Rule] may have the effect of aiding in attainment and maintenance of the 2015 standard, this action is taken solely with respect to EPA's authority to address remaining CAA good neighbor obligations under the 2008 ozone NAAQS." EPA states that it is working with states outside of this rulemaking effort to address the good neighbor provision for the 2015 ozone NAAQS, "including consideration of any necessary control requirements for EGU and non-EGU sources." EPA notes that it received several comments regarding the relationship of this rulemaking to the 2015 ozone NAAQS, but states that these comments are "outside of the scope of this action."

Regulatory Impact Analysis

In the RIA for the Final Rule, EPA provides estimates for present values (PV) and equivalent annualized values (EAV), calculated using discount rates of 3 and 7 percent as directed by OMB's Circular A-4, of the health benefits, climate benefits, compliance costs, and net benefits of the Final Rule, in 2016 dollars, discounted to 2021, for the analysis period 2021 to 2040. The final PV estimates include:

- **Health benefits:** about $4,800 million and $37,000 million (discounted at a 3-percent discount rate), and about $3,200 million and $25,000 million (discounted at a 7-percent discount rate). EPA states that the two health benefits estimates for each discount rate reflect alternative ozone and $PM_{2.5}$ mortality risk estimates.
- **Climate benefits:** about $4,400 million (discounted at a 3-percent discount rate). EPA states that the Final Rule uses the interim SC-CO_2 estimates published in February 2021 to estimate the climate benefits.
- **Compliance costs:** about $370 million (discounted at a 3-percent discount rate) and $260 million (discounted at a 7-percent discount rate).

EPA estimates that the Final Rule would reduce ozone season NOx emissions from EGUs in the 12 states by 16,000 tons in 2021 compared to projections without the Final Rule. EPA notes that the costs and benefits in the RIA are "directly associated with optimizing NOx removal by turning on and optimizing existing idled SCRs; optimizing existing idled SNCRs; and installing state-of-the-art combustion controls," as well as a "small amount of generation shifting as the power system adjusts to the proposed regulatory requirements."

Next Steps

The Final Rule will take effect 60 days after publication in the Federal Register, which EPA expects will occur before the serious area attainment date for the 2008 ozone NAAQS—July 20, 2021.

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