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Summary of the Final Affordable Clean Energy Rule and Repeal of the Clean Power Plan

On June 19, 2019, the U.S. Environmental Protection Agency (EPA) released the final Affordable Clean Energy (ACE) rule and repeal of the Clean Power Plan (CPP). The *Repeal of the Clean Power Plan; Emission Guidelines for Greenhouse Gas Emissions from Existing Electric Generating Units; Revisions to Emission Guidelines Implementing Regulations* (Final Rule), includes three actions:

1. Repeal of the CPP;
2. Finalization of best system of emission reduction (BSER) based on heat rate improvement (HRI) measures at coal-fired power electric generating units (EGUs) that states must consider in establishing standards of performance for carbon dioxide (CO_2) emissions; and
3. Finalization of revised regulations for this, ongoing, and future actions under Clean Air Act (CAA) section 111(d) that provide direction to EPA and states on the development and implementation of emission guidelines.

The rule becomes effective sixty days following its publication in the Federal Register.

Key Takeaways

- *CPP Repeal*: The Final Rule repeals the CPP, stating that the "text of the CAA is inconsistent with that interpretation [underlying the CPP], and the context, structure, and legislative history, confirm that the statutory interpretation underlying the CPP was not a permissible construction of the Act."
- *BSER*: The Final Rule retains the proposed approach of identifying BSER for existing coal-fired EGUs as HRI measures. Combustion turbines are not included as affected EGUs.
- *Role of EPA and States*: The Final Rule clarifies that EPA identifies the BSER for coal-fired EGUs and includes a list of HRI candidate technologies. States must conduct "unit-specific evaluations of HRI potential, technical feasibility, and applicability." States can consider remaining useful life and other factors to establish less stringent standards of performance than could otherwise be derived from application of the BSER.
- *Compliance Flexibility*: The Final Rule prohibits state plans from allowing averaging or trading among units at a facility or between separate facilities for compliance purposes.
- *Implementation Timing*: Consistent with the proposal, the final implementing regulations modify state and EPA timelines for plan submission and review. State plans will be due three years from publication of the rule in the Federal Register notice, EPA will have six months to determine completeness and then one year to determine whether to approve the submitted plan, and if a state plan is not submitted or approved, EPA will have two years to promulgate a Federal Implementation Plan (FIP). Thus, it could take up to 6.5 years from after the publication of the Final Rule in the Federal Register to finalize a plan under section 111(d) (compared to 15 months under current timelines).

- *New Source Review (NSR)*: The Final Rule does not include any changes to the NSR program. EPA has indicated that it intends to take action on its proposed NSR reforms in a separate rulemaking.
- *Emissions Implications*: EPA projects emissions will be less than one percent lower in 2030 under an illustrative policy scenario intended to represent ACE relative to the emissions anticipated under a non-CPP baseline.

Background

In March 2017, President Trump issued Executive Order (EO) 13873, which directed EPA to reconsider the CPP, the implementation of which had been stayed by the U.S. Supreme Court on February 9, 2016. In response, EPA proposed to repeal the CPP and published an Advance Notice of Proposed Rulemaking (ANPRM) soliciting comment on what EPA should include in a revised existing source regulation under section 111(d). On August 31, 2018, EPA published the Proposed ACE rule.

Final CPP Repeal

In the Final Rule, EPA repeals the CPP on the basis that the CAA's plain language, context, structure, and legislative history do not allow the interpretation underlying the CPP. Of note, EPA states that the repeal of the CPP is severable from the ACE rule.

In terms of the plain language, EPA states that section 111 "unambiguously limits the BSER to those systems that can be put into operation *at* a building, structure, facility, or installation." Further, EPA states that the "the plain language of CAA section 111 does not authorize the EPA to select as the BSER a system that is premised on application to the source category as a whole or to entities entirely outside the regulated source category."[1] Thus, EPA argues that the CPP must be repealed because EPA is precluded from "basing BSER on strategies like generation shifting and corresponding emission offsets because these types of systems cannot be put into use at the regulated building, structure, facility, or installation." The Final Rule concludes that "[a]fter reconsidering the relevant statutory text, structure, and purpose, the Agency now recognizes that Congress 'spoke to the precise question' of the scope of CAA section 111(a)(1) and clearly precluded the unsupportable reading of that provision asserted in the CPP."

EPA notes that

> "just because generation shifting is 'implementable' by an owner or operator (*i.e.*, just because an owner or operator of a given source can subsidize generation elsewhere that will reduce demand for generation from that) does not mean that generation shifting can be 'applied' to the source."

EPA further states that "EPA has never identified reduced utilization as the BSER and the EPA interprets CAA section 111 to authorize emission limits based on controls that reduce emissions without restricting production." EPA also discusses that the CPP was a major rule that "was projected to have billions of dollars of impact on regulated parties and the economy," and the question of whether a system of emission reduction can reflect generation shifting must be supported by a "clear statement from Congress." Additionally, EPA raises a concern that the CPP did not include a "limiting principle" and by shifting EPA's basis for the rule to generation shifting, EPA "could empower itself to order the wholesale restructuring of any industrial sector." EPA also states that

[1] This is a "Chevron Step One" argument. Under *Chevron U.S.A. Inc. v. NRDC*, courts ask two questions to determine the level of deference for an agencies' decision: Step One - Is the statute's meaning clear? If so, that meaning controls; and Step Two - If the statute is ambiguous, the agency's interpretation will be upheld by the court provided it is reasonable, even if the court would have chosen an alternative interpretation.

basing BSER on generation shifting "improperly encroaches on FERC and state authorities." EPA also states that the final standards of performance must apply on a continuous basis, which, EPA argues, precludes generation shifting.

The preamble also notes that the statute's definition of "standard of performance" and the "best system of emission reduction" "confers considerable discretion on the EPA to interpret the statute and make reasonable policy choices pursuant to *Chevron* step two as to what is the best system to reduce emissions of a particular pollutant from a particular type of source."[2] Nonetheless, EPA argues that "Congress spoke directly in *Chevron* step one terms to the question of whether the BSER may contain measures other than those that can be put into operation at a particular source: it may not." EPA also states that while "[m]arket-based forces have already led to significant generation shifting in the power sector…the fact that those market forces have had the result does not confer authority on the EPA beyond what Congress conferred in the CAA." Thus, EPA concludes the "text of the CAA section 111 is clear, leaving no interpretative room on which the EPA could seek deference for the CPP's grid-wide management approach. Accordingly, EPA is obliged to repeal the CPP to avoid acting unlawfully."

Emissions Guidelines

The Final Rule states that "the only permissible interpretation of the scope of the EPA's authority under CAA section 111" is that the Act limits "standards of performance" to systems that can be applied at and to a stationary source and that lead to continuous emission reductions. Consistent with the proposal, the Final Rule determines that HRI is BSER for affected sources.

Affected Sources ("Designated Facilities")[3]

EPA defines designated facilities as any coal-fired electric utility steam generating unit that:[4]

- is not an integrated gasification combined cycle (IGCC) unit (i.e., utility boilers, but not IGCC units);
- was in operation or had commenced construction on or before January 8, 2014;
- serves a generator capable of selling greater than 25 megawatts (MW) to a utility power distribution system;
- and has a baseload rating greater than 250 million British thermal units per hour (MMBtu/h) heat input of coal fuel, either alone or in combination with any other fuel.

This definition does not include stationary combustion turbines, but the Final Rule notes that EPA, if appropriate, will address GHG emissions from natural gas-fired combustion turbines in a future rulemaking. Additionally, EPA makes clear that the following units are exempted from the Final Rule:

- Units that commenced construction, reconstruction or modification after January 9, 2014 and are, therefore, subject to GHG emission standards under 40 CFR 60 subpart TTTT;
- Steam generating units subject to federal permit limits for electric sales to one-third or less of their potential electric output or 219,000 MWh or less on an annual basis;

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[2] This is raising "Chevron Step 2", but clarifies that EPA is arguing that the statute can only be read to preclude systems that are not "within the fenceline," and that Congress spoke directly to the question of what can constitute BSER (i.e., *Chevron* Step one).

[3] EPA uses "designated facility" through the rule to refer to a single EGU that is affected by these emission guidelines.

[4] EPA defines a "coal-fired" steam EGU as one that "burns coal for more than 10.0 percent of the annual average heat input during the 3 previous calendar years."

- Stationary combustion turbines that meets the definition of a simple cycle stationary combustion turbine, a combined cycle stationary combustion turbine, or a combined heat and power combustion turbine;
- IGCC units;
- Non-fossil units (i.e., a unit that is capable of combusting 50 percent non-fossil fuel) that have historically limited the use of fossil fuels to 10 percent or less of the annual capacity factor or are subject to such a federally enforceable permit;
- Combined heat and power (CHP) EGUs that have always limited, or are subject to a federally enforceable permit limiting, annual net-electric sales to a utility distribution system to no more than the greater of either 219,000 MWh or the product of the design efficiency and the potential electric output;
- Units that serve a generator with other steam generating unit(s), IGCC(s), or stationary combustion turbine(s) where the effective generation capacity[5] is 25 MW or less;
- Municipal waste combustor units subject to performance standards under 40 CFR 60, subpart Eb
- Commercial or industrial solid waste incinerators that are subject to performance standards under 40 CFR subpart 60, subpart CCCC; and
- Steam generating units that fire more than 50 percent non-fossil fuels.

Definition of Best System of Emission Reduction

The Final Rule states that it is EPA's responsibility to determine BSER for affected sources for standards developed under both section 111(b) and section 111(d). Thus, EPA must identify all "adequately demonstrated" systems of emission reduction for the source category and evaluate which systems are best while "taking into account" the cost of achieving such reduction and any "nonair quality health and environmental impact and energy requirements." EPA notes in the Final Rule that "courts have granted the Agency a degree of discretion in balancing" these factors. However, the Final Rule also notes that states are "primarily responsible for regulating existing sources."

Heat Rate Improvements at Coal-Fired EGUs

Consistent with the proposal, EPA finds HRI is the BSER for existing steam fossil fuel-fired EGUs. EPA notes that HRI measures can be applied to all existing EGUs; however, the heat rates of existing units can "vary substantially" and "will be influenced by source-specific factors such as the EGU's past and projected utilization rate, maintenance history, and remaining useful life (among other factors)." Thus, EPA concludes that states are "in the best position to make those evaluations and to consider of [sic] other unit-specific factors."

The Final Rule includes a list of "candidate technologies" of HRI measures for states to use in establishing standards. Consistent with the proposal, EPA believes the list represents the "most broadly applicable and impactful collection of HRI measures." These measures and their range of HRI potential are included in Table 1 below; Table 2 includes the estimated cost ranges for each based on a 2009 Sargent and Lundy study that EPA updated to 2016$.

[5] Generation capacity determined based on a prorated output of the base load rating of each steam generating unit, IGCC, or stationary combustion turbine.

Table 1. Summary of Most Impactful HRI Measures and Range of their HRI Potential (%)

	< 200 MW		200 - 500 MW		> 500 MW	
HRI Measure	Min	Max	Min	Max	Min	Max
Neural Network/Intelligent Sootblowers	0.5	1.4	0.3	1.0	0.3	0.9
Boiler Feed Pumps	0.2	0.5	0.2	0.5	0.2	0.5
Air Heater & Duct Leakage Control	0.1	0.4	0.1	0.4	0.1	0.4
Variable Frequency Drives	0.2	0.9	0.2	1.0	0.2	1.0
Blade Path Upgrade (Steam Turbine)	0.9	0.9	0.5	1.0	0.5	1.0
Redesign/Replace Economizer	0.5	0.9	0.5	1.0	0.5	1.0
Improved O&M Practices	Can range from 0 to >2.0% depending on unit's historical O&M practices					

Table 2. Summary of Cost (2016$/kW) of HRI Measures

	< 200 MW		200 - 500 MW		> 500 MW	
HRI Measure	Min	Max	Min	Max	Min	Max
Neural Network/Intelligent Sootblowers	4.7	4.7	2.5	2.5	1.4	1.4
Boiler Feed Pumps	1.4	2.0	1.1	1.3	0.9	1.0
Air Heater & Duct Leakage Control	3.6	4.7	2.5	2.7	2.1	2.4
Variable Frequency Drives	9.1	11.9	7.2	9.4	6.6	7.9
Blade Path Upgrade (Steam Turbine)	11.2	66.9	8.9	44.6	6.2	31.0
Redesign/Replace Economizer	13.1	18.7	10.5	12.7	10.0	11.2
Improved O&M Practices	Minimal capital cost					

EPA notes that while blade path upgrades and a change to redesign/replace an economizer are expected to offer some of the largest unit-level heat rate improvements, these measures also have the greatest potential to trigger NSR requirements. Recognizing that EPA is not finalizing NSR reforms at this time, EPA anticipates that states may determine that these two candidate technologies are not appropriate for application to a particular source when the state considers "other factors." EPA states that it is retaining these two technologies as candidate technologies "because it still expects these technologies to be generally applicable across the fleet of existing EGUs, and because the cost of the technologies themselves are generally economical and reasonable."

In response to comments requesting that EPA provide a presumptive standard, the Final Rule notes the EPA "has a responsibility under the CAA to identify the degree of emission reduction that it determines to be achievable through

the application of the BSER." However, EPA argues that by providing the range of emission percent reductions achievable using each of the candidate technologies, it is fulfilling its responsibility as part of the BSER determination. The states can then use that information to conduct unit-specific evaluations of HRI potential, technical feasibility, and applicability for each of the BSER candidate technologies.

EPA also finds that the net costs of implementing HRIs as an approach to reducing CO_2 emissions are reasonable because they are not exorbitant or excessive. However, EPA notes that states will need to take cost into consideration in establishing the unit-specific requirements.

EPA's analysis for the Final Rule notes that it conducted analysis and modeling and found that "while there were instances (in some scenarios) where a limited number of designated facilities that adopted HRI increased generation to the point of increasing mass emissions notwithstanding the lower emissions rate resulting from HRI adoption, due to their improved efficiency and marginally improved economic competitiveness relative to other electric generators, the designated facilities as a group reduce emissions because they can generate higher levels of electricity with a lower overall emission rate." EPA also notes that its analysis projects that "aggregate CO_2 emissions from the group of designated facilities are anticipated to decrease (outweighing any potential CO_2 increases related to increased generation by certain units.)" However, EPA notes that the BSER is expressed as a rate-based approach, "which should necessarily result in rate-based emission reductions." And, "any potential 'rebound effect' is determined to be small and manageable (if necessary) and does not require any specific remedy in the final rule." A state can consider the potential for a rebound effect although EPA does not expect such considerations to be necessary.

Other Systems of GHG Emission Reductions

The Final Rule includes a discussion of other systems of GHG emission reductions EPA identified but did not include as part of BSER. These include:

- **Natural Gas Repowering:** EPA concludes that repowering should not be considered BSER for purposes of CAA section 111(d) because repowering would replace existing sources with a different type of source (i.e., stationary combustion turbines), which would be subject to the new source performance standards.
- **Natural Co-Firing:** EPA finds that because a natural gas co-firing based BSER "would result in standards that are more costly than standards based on application of the candidate technologies for heat rate improvements, that such a BSER would encourage inefficient use of natural gas, that implementation would be even more expensive and challenging for those units that currently have limited or no access to natural gas, [therefore], the EPA concludes that co-firing natural gas in coal-fired boilers is not the BSER." However, the Final Rule notes that co-firing might be appropriate for certain sources as a compliance option.
- **Natural Gas Refueling:** EPA states that although converting to 100 percent natural gas-fired "could offset some of the capital costs by reducing its fixed operating and maintenance costs, in most cases, the most significant cost change associated with switching from coal to gas is likely to be the difference in fuel cost." For a typical baseload coal-fired EGU, the average cost of CO_2 reductions through gas conversion would be approximately $75 per ton of CO_2, which EPA states could also be much higher "as there would very likely be an increase in natural gas prices corresponding to the increased demand from widespread coal-to-gas conversion." While EPA recognizes that there are instances in which boilers have chosen to refuel, EPA states that in these cases, "the motivation was largely to preserve reserve capacity without investing in the air pollution controls needed to meet air quality standards."

- **Biomass Co-Firing:** EPA clarifies in the Final Rule that biomass does not qualify as a system of emission reduction that can be incorporated as part of, or in its entirety, as the BSER. EPA explains that any potential CO_2 reductions associated with biomass firing "relies on accounting for activities not applied at and largely not under the control of that source" (i.e., the sequestration of the CO_2 that happens as the biomass source is growing). Thus, EPA states that use of biomass is not consistent with the plain meaning of "standard of performance."
- **Carbon Capture and Storage (CCS):** EPA reaffirms its previous determination that CCS (or partial CCS) is not the BSER for emissions of CO_2 from existing coal-fired EGUs. While EPA agrees that there may be some existing coal-fired EGUs that find the application of CCS to be technically feasible as an economically viable control option, the "high costs of operating it, including high parasitic load requirements, prevent CCS or partial CCS from qualifying as BSER on a nationwide basis."

  EPA notes that commenters argued that because EPA is implementing a standard that will be assessed on a unit-by-unit basis rather than fleetwide, all viable emission reduction options should be evaluated. EPA states that it must determine the BSER for both new and existing sources and the "text and structure of section 111 indicate that the EPA must make the BSER determination at the national, source-category level." The Final Rule, however, retains the source-specific determination of BSER for each plant and makes clear that state plans can authorize CCS for compliance with the rule.

State Plan Development

The Final Rule notes that states have "broad flexibility in setting standards of performance for designated facilities." EPA anticipates that states can establish standards of performance in two sequential steps or two simultaneous steps. The first step requires states to evaluate the applicability of each candidate technology for each designated facility and calculate the standard of performance. The second step, if the state elects to do so, is to consider the remaining useful life and other source-specific factors.

EPA notes that states have the discretion to apply the same standard of performance to groups of existing sources within their jurisdiction and to also take into account a source's remaining useful life and other factors. While the Final Rule includes a range of emission percent reductions achievable (see *Figure 2* in this MJB&A Summary), it notes that the standard of performance calculated for a specific designated facility may ultimately reflect a degree of emission limitation achievable outside of EPA's ranges because of source-specific factors. State plans, therefore, must identify the value of the HRI that has been calculated for a unit as well as the calculation used to derive the HRI value and explain both. EPA explains that states can also consider variable emissions performance—between facilities and at one facility over time—and states can tailor standards of performance accordingly.

EPA also states, however, that:

> the "goal of these emission guidelines is not to burden or shut down coal-fired EGUs – which could compromise the stability of the power sector and thus energy reliability to consumers, concerns which the EPA expresses, informed by, among other factors, Congress's direction to take into account energy requirements in determining BSER – as coal-fired EGUs still have considerable viability as part of the power sector."

The Final Rule makes clear that states can establish less stringent standards of performance than would result from a direct application of BSER by taking into account a source's remaining useful life and other source-specific factors. Accordingly, EPA eliminates the provision in 40 CFR. 60.24a(e) that provided for emission guidelines to require state plans to match the stringency of the BSER and includes express language permitting states to consider

remaining useful life, among other factors, in applying a standard of performance to a particular source. The other factors EPA lists (noting the list is nonexclusive) that a state may consider include:

- unreasonable cost of control resulting from plant age, location, or basic process design;
- physical impossibility of installing necessary control equipment; or
- other factors specific to the facility (or class of facilities) that make application of a less stringent standard or final compliance time significantly more reasonable, such as timing considerations such as the expected life of the source, payback period for investments, the timing of regulatory requirements, and other source-specific criteria.

EPA also notes that it agrees with commenters that it would be helpful for states if EPA were to provide a non-exhaustive set of qualitative examples that states could consider in developing standards of performance. The examples included in the preamble are intended to provide such support, but EPA also notes that states should reach out to the Agency during the development of plans for further assistance.

The Final Rule recognizes that that a state may set a "business as usual" standard for sources that have a remaining useful life "so short that imposing any costs on the EGU is unreasonable." EPA also notes that the application of efficiency upgrades at EGUs are not necessarily additive, and states may consider "the mitigating effects on the emission reductions that would result from the installation of a particular candidate technology," which could provide the basis for a state to determine such installation is not reasonable. For example, the preamble notes that states may rule out the reapplication of a candidate technology if a facility recently applied it. In that case, the costs would not be reasonable with marginal, if any, heat rate improvements.

Compliance Timing

EPA states that it believes it is appropriate that a "state establish tailored compliance deadlines for its sources." Thus, states have the discretion to determine the compliance period for each source. However, if a state elects to provide more than two years for compliance, the plan must also include "legally enforceable increments of progress for that source." EPA urges states to "use caution as to not undermine the BSER by the determined schedules." EPA notes that most programs under section 111 do not have a compliance timeline greater than one year, and EPA "believes that is a good indicator for states to take into consideration determining compliance schedules."

Form of the Standard

The Final Rule makes clear that states are obligated to set rate-based standards of performance (lb CO_2/MWh). States, however, can determine whether the rate should be as a *net* output-based standard or as a *gross* output-based standard. EPA finds in the Final Rule that a mass-based standard of performance is not compatible with EPA's BSER determination. EPA states that if "designated facilities were to have mass-based standards, it is likely that many would meet their compliance obligation by reduced utilization. A standard of performance that incentivizes reduced utilization and possibly retirements does not reflect application of the BSER."

Compliance Flexibility

The Final Rule notes that designated facilities may use both BSER and non-BSER measures to achieve compliance with state plans. However, EPA excludes some specific measures from use as compliance measures: averaging or trading and biomass co-firing. EPA explains that these two do not meet the agency's new criteria for compliance measures: "(1) the compliance measures must be capable of being applied to and at the source, and (2) they must be measurable at the source using data, emissions monitoring equipment or other methods to demonstrate compliance, such that they can be easily monitored, reported, and verified at a unit." EPA also states that "[a]pplying

an implementation approach that differs from standard-setting would result in asymmetrical regulation. Specifically, a state's implementation measures would result in a more or less stringent standard implemented at an EGU than could otherwise be derived from application of the BSER."

Averaging or Trading

In the Final Rule, EPA states that "neither (1) averaging across designated facilities located at a single plant; nor (2) averaging or trading between designated facilities located at different plants are permissible measures for a state to employ in establishing standards of performance for existing sources or for sources to employ to meet those standards." While the proposal sought comment on whether to allowed states to incorporate, as a part of their plan, emissions averaging among EGUs across a single power plant, the Final Rule concludes that because "ACE identifies individual EGUs as the designated facility, state plans cannot accommodate any 'bubbling' of EGUs for compliance with these emission guidelines." EPA explains that its "determination that individual EGUs are subject to regulation under ACE precludes the Agency from attempting to change the basic unit from an EGU to a combination of EGUs for purposes of ACE implementation."

EPA also prohibits trading between designated facilities because EPA believes it is inconsistent with section 111 to average or trade across designated facilities or between designated facilities and other power plants (e.g. wind turbines) because "those options would not necessarily require any emission reductions from designated facilities and may not actually reflect application of the BSER." EPA states that "under a trading program, a single source could potentially shut down or reduce utilization to such an extent that its reduced or eliminated operation generates adequate compliance instruments for a state's remaining sources to meet their standards of performance without any emission reductions from any other source. This compliance strategy would undermine the EPA's determination of the BSER in this rule."

In response to comments that section 111(d) does not preclude averaging or trading, the Final Rule states:

> the "Agency finds that the statutory text of CAA section 111(d) does not require the EPA to allow averaging or trading as a measure for states in establishing existing-source standards of performance or allow for sources to adopt as a compliance measure, and the interpretation of the limits on the scope of BSER under section 111(a)(1) set forth in… [the Final Rule] as a basis for the repeal of the CPP suggests those measures are not permissible..."

EPA further states that a "compliance mechanism under which multiple sources can comply not by any measures applied to those sources individually, but instead by obtaining credits generated by measures adopted at another source, is not consistent with the interpretation of the limits on the scope of BSER. Accordingly, trading is not permissible under CAA section 111."

Biomass Co-Firing

In contrast to the proposed rule, the Final Rule does not allow biomass to be used as a compliance measure. EPA explains that "[w]hile the firing of biomass occurs at a designated facility, biomass firing in and of itself does not reduce emissions of CO_2 emitted from that source." The Final Rule further states that "when measuring stack emissions, biomass emits more CO_2 per Btu than fossil fuels, thereby increasing the CO_2 emission rate at the source." EPA concludes that any recognition of potential emission reductions would need to consider actions not applied at the sources.

Submission of State Plans

Section 111(d) requires states to submit plans that provide for the implementation and enforcement of the standards of performance. The Final Rule notes that states plans must "adequately document and demonstrate the process

and underlying data used to establish standards of performance." Such documentation will allow EPA to determine whether the plans are satisfactory. The elements of a state plan, therefore, must include: the approach or methods used by the state to apply BSER to allow EPA to reproduce the state's methods and calculations; identification of the EGUs that meet the applicability requirements and the emissions and operational data for each EGU; and detailed documentation demonstrating the application of the state's methodology to the state's data for each EGU. Additionally, the Final Rule notes that EPA is finalizing a determination that states must include appropriate monitoring, reporting, and recordkeeping requirements to ensure that state plans adequately provide for the implementation and enforcement of standards of performance.

More Stringent State Plans

The preamble also notes that while CAA section 116 allows states to adopt requirements more stringent than federal requirements, "nothing in section 116 provides for such more-stringent [sic] requirements to become federally enforceable." While EPA states it is not prejudging the approvability of a state plan that establishes standards of performance that are more stringent than those that would result from the application of the BSER finalized by EPA, "there are clear principles and limitations imposed by CAA section 111(d) that will apply to the EPA's review of *any* state plan." For example, EPA states that its "authority to approve state plans that contain standards of performance for existing sources only extends to measures that are authorized statutorily." EPA states that it would exceed its authority if it were to approve a state plan that includes emissions trading or requires a designated facility to shut down.

Implementing Regulations

EPA makes clear in the preamble that the final implementing regulations are severable and separate from ACE. These regulations apply prospectively and EPA retains the existing implementing regulations as applicable to section 111(d) emission guidelines and associated state plans or federal plans that were promulgated previously. Additionally, EPA states that it will apply the new timing requirements to both "emission guidelines published after the new implementing regulations are finalized and to all ongoing emission guidelines already published under CAA section 111(d)."

The finalized changes are detailed below and summarized, in comparison to the current implementing regulations, in Table 3 at the end of this section.

Emissions Guidelines

EPA finalizes a definition of "emission guidelines" that reflects the degree of emission limitation achievable through application of the BSER, but, EPA is not finalizing the proposed changes in 40 CFR 60.21a(e) requiring EPA to provide *information* on the degree of emission limitation achievable through application of BSER rather than such degree of emission limitation itself. The Final Rule recognizes that the statute is ambiguous as to whose role (i.e., EPA's or the states') it is to determine the degree of emission limitation achievable through the application of the BSER. However, the Final Rule states that "EPA determines the BSER and the associated level of stringency…but states may where appropriate relax this level of stringency when establishing standards of performance by accounting for source-specific factors such as remaining useful life."

Changes to Timing and Notice Requirements for State Plan Submissions and EPA Action

The final regulations require states to adopt and submit plans within three years after notice of the availability of the final emission guidelines. EPA explains that while EPA "defines the degree of emission limitation achievable through application of the BSER, it is the state that must evaluate whether there are source-specific considerations

which necessitate the development of a different standard than the degree of emission limitation that the EPA identifies."

Accordingly, EPA states that it is appropriate to allow more time to develop state plans, similar to the time allowed under CAA section 110. EPA notes that states often need the entire three-year period provided under section 1110 for the process of developing and adopting SIPs and to the extent EPA determines that a shorter timeline is appropriate for the submissions of state plans under section 111, EPA has such authority. Thus, EPA believes it is reasonable to interpret section 111 to authorize EPA to provide the same timing requirements for state and federal plans under section 111(d) as Congress provided under section 110 (i.e., three years).

The Final Rule also includes regulatory language consistent with the proposed rule that EPA will use to determine whether a state plan submission under section 111(d) includes the minimum elements necessary for EPA to act on the submission, including eight administrative materials and six technical support items. EPA will determine whether a state plan is complete (i.e., meets the completeness criteria) within six months after the date by which a state is required to submit the plan. If EPA has not completed its review by that time, the plan would be deemed complete by operation of law.

Additionally, consistent with the proposed rule, the Final Rule:

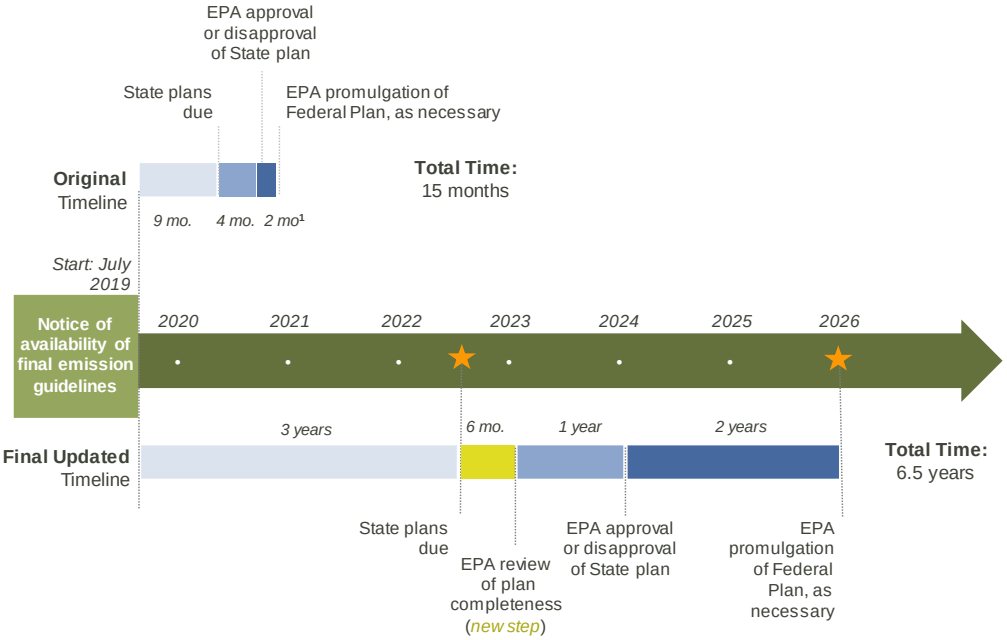
- requires EPA to act on a state plan submission 12 months after EPA's determination of completeness (compared to the current four months after the plan submission deadline); and
- requires EPA to promulgate a federal plan two years after an EPA finding of failure to submit a complete plan or disapproval of a state plan (compared to the current six months requirement after the plan submission deadline).

In the original implementing regulations, EPA required that any compliance schedule for state plans extending more than 12 months from the date required for submittal of the plan must include legally enforceable increments of progress to achieve compliance for each designated facility or category of facilities. In the Final Rue, EPA extends this timeline to require increments of progress where state plans contain compliance schedules longer than 24 months from the date when state plans are due for particular emission guidelines.

In the original implementing regulations, EPA could, when it determined necessary, *extend* this series of deadlines, as it did for state plan submittal in CPP. Under the Final Rule EPA makes clear it can, when it determined necessary, *shorten* this series of deadlines.

Figure 1 displays a comparison of existing and proposed timing requirements. Under the Final Rule, it could take four and a half years after final emission guideline promulgation for EPA to complete its review of a plan, and it could take another two years for EPA to impose a federal plan, if required. For example, if the Final Rule becomes effective in September 2019, if state and EPA took the maximum time to develop and approve plans, state plans would not be in place until early 2024 and if EPA needed to develop a federal plan, a final plan may not be in place until 2026. Compliance requirements in those plans could be much later as states have considerable discretion to set compliance schedules.

Figure 1. Summary of Final Changes to Plan Submission and Review Timelines Under 111(d)



Under final updated timeline, state plans must include legally enforceable increments of progress to begin **within 24 months** after the plan is due (compared to 12 months under current regulations).

1. Original implementing regulations read "six months after the date required for [state plan] submission," i.e., 2 months after the 4 month timeframe for EPA approval or disapproval

Changes to Plan Content Requirements

Standard of Performance

As EPA explained in the proposed rule, as part of the 1977 amendments to the CAA, Congress replaced the term "emissions standard" in section 111(d) with "standard of performance." However, EPA has not since revised the implementing regulations to reflect this change in terminology. Thus, EPA is replacing the existing definition of "emissions standard" with a definition of "standard of performance."

In the Final Rule, EPA also notes that the final definition clarifies that it does not preclude any form of rate or mass-based standard but specific emission guidelines can specify the appropriate form that a state plan can or cannot include. Additionally, the definition allows for design, equipment, work practice, or operational standards as alternative standards of performance. This new language will allow states to establish alternative standards to make clear that states have this discretion if establishing a standard is not feasible (as opposed to the existing language, which allows for alternate standards if a standard is "clearly impracticable").

Remaining Useful Life and Other Factors Provisions

The current implementing regulations contain provisions that allow states to implement standards of performance that vary from EPA's emission guidelines under appropriate circumstances, unless prohibited by the relevant emission guidelines. However, consistent with the proposal, EPA notes that CAA section 111(d)(1)(B) requires that EPA's regulations allow states to consider factors, including an affected source's remaining useful life. Thus,

as discussed above, the Final Rule eliminates this provision and includes express language that makes clear that states can take into account remaining useful life, among other factors, when setting a standard of performance.

Summary of Changes to Implementing Regulations

Table 3 provides a summary of the key changes to implementing regulations in the Proposed Rule.

Table 3: Summary of Finalized Changes to Implementing Regulations

	Prior Implementing Regulations	**Revised and Final Implementing Regulations**
Changes to Standard Setting Process and EPA and State Role	Use of term "**emissions guideline,**" defined as a guideline set forth in subpart C of this part, or in a final guideline document published under § 60.22(a), which reflects the degree of emission reduction achievable through the application of the best system of emission reduction which (taking into account the cost of such reduction) the Administrator has determined has been adequately demonstrated for designated facilities.	Use of term "**guideline document,**" including the following redlines to the existing definition: (e) *Emission guideline* means a guideline set forth in subpart C of this part, or in a–final guideline document published under §60.22**a**(a), which reflects the degree of emission reduction achievable through the application of the best system of emission reduction which (taking into account the cost of such reduction **and any non-air quality health and environmental impact and energy requirements**) the Administrator has determined has been adequately demonstrated for designated facilities.
	Use of term "**emissions standard**," defined as a "legally enforceable regulation setting forth an allowable rate of emissions into the atmosphere, establishing an allowance system, or prescribing equipment specifications for control of air pollution emissions."	Use of term "**standard of performance**," defined as a "standard for emissions of air pollutants which reflects the degree of emission limitation achievable through the application of the best system of emission reduction which (taking into account the cost of achieving such reduction and any nonair quality health and environmental impact and energy requirements) the Administrator determines has been adequately demonstrated, including, but not limited to, a legally enforceable regulation setting forth an allowable rate or limit of emissions into the atmosphere, or prescribing a design, equipment, work practice, or operational standard, or combination thereof."
	Allows states to establish alternate standards if the emissions standard is "**clearly impracticable**"	Allows states to establish alternate standard of performance "when it is **not feasible** to prescribe or enforce a standard of performance"
Changes to Plan Content Requirements	*Increments of Progress:* Required if compliance schedule for state plan is longer than **12 months** after the plan is due	*Increments of Progress:* Required if compliance schedule for state plan is longer than **24 months** after the plan is due
	Completeness Criteria: **None** currently applicable to state plans submitted under 111(d)	*Completeness Criteria:* Details **9 administrative** and **6 technical** completeness criteria and provides a 6-month window for EPA to review plans against these criteria

	Prior Implementing Regulations	**Revised and Final Implementing Regulations**
	Remaining Useful Life and Other Factors: Allows states to propose to apply less stringent standards for those **pollutants not deemed a health threat unless prohibited by the relevant guidelines, generally understood as applying to health-harming pollutants**.	*Remaining Useful Life and Other Factors:* Removes any discussion of pollutants that do and do not harm health and removes language providing that specific emission guidelines could require stringency equivalent to the BSER; instead allows states to apply less stringent standards by **taking into account remaining useful life**, among other factors, in establishing source-specific standards of performance
Changes to Timing Requirements for State Plan Submission	*State Plan Submission:* **9 months** from publication of final emissions guideline	*State Plan Submission:* **3 years** from publication of final emission guideline
	Completeness Review: N/A	*Completeness Review:* **6 months** after **submittal deadline**
	EPA Action on State Plan: **4 months** after **submittal deadline**	*EPA Action on State Plan:* **12 months** after **EPA determination** of plan completeness (which EPA proposes to complete within 6 months of plan submittal, i.e., total timeline may be up to **18 months** after **submittal deadline**)
	EPA Promulgation of Federal Plan (as appropriate): **6 months** after submittal deadline	*EPA Promulgation of Federal Plan (as appropriate):* **2 years** after **EPA finding** of failure to submit a complete plan, or disapproval of state plan (since this disapproval could take up to 18 months after submittal deadline, EPA is proposing to set a deadline of **3.5 years** after **submittal deadline**)

New Source Review Changes

EPA states that one of the more significant changes from the proposed ACE is that the Final Rule does not include any NSR reforms. EPA states that "[w]hile the EPA intends to take final action on the NSR reform at a later time in a separate action, the consequences of that action are no longer considered in parallel with ACE." However, EPA believes that states will determine that two of the listed HRI measures, blade path upgrades and redesigned/replaced economizers, are not reasonable without NSR reforms.

Projected Impacts of Proposed Rule

EPA's Regulatory Impact Analysis (RIA) includes EPA's benefit-cost analysis of an illustrative ACE policy scenario. Unlike the RIA completed for the Proposed Rule, which had CPP in the base case, the RIA for the Final Rule compares the illustrative policy scenario to a base case that does not include the CPP. To model the illustrative policy scenario, EPA grouped affected units into twelve categories based on three size categories and four efficiency categories. EPA made assumptions about the potential for efficiency improvements and associated costs in each category and modeled the impacts of imposing the assumed measures. The RIA projects that CO_2, sulfur dioxide (SO_2), and nitrogen oxide (NOx) emissions will be less than one percent lower under the illustrative policy scenario than under the base case (see Figures 2, 3 and 4).

Figure 2. Projected Carbon Dioxide Emissions (million short tons CO_2)

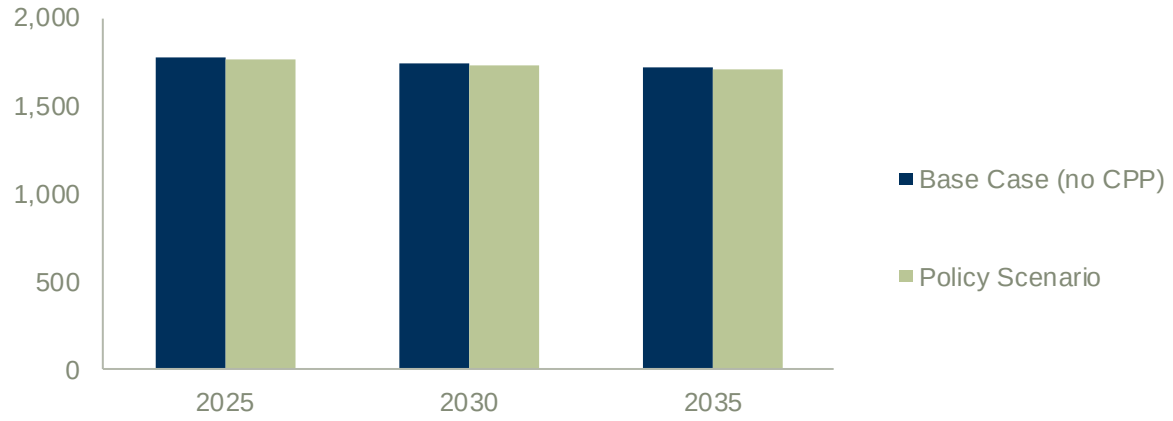


Figure 3. Projected Sulfur Dioxide Emissions (thousand short tons SO_2)

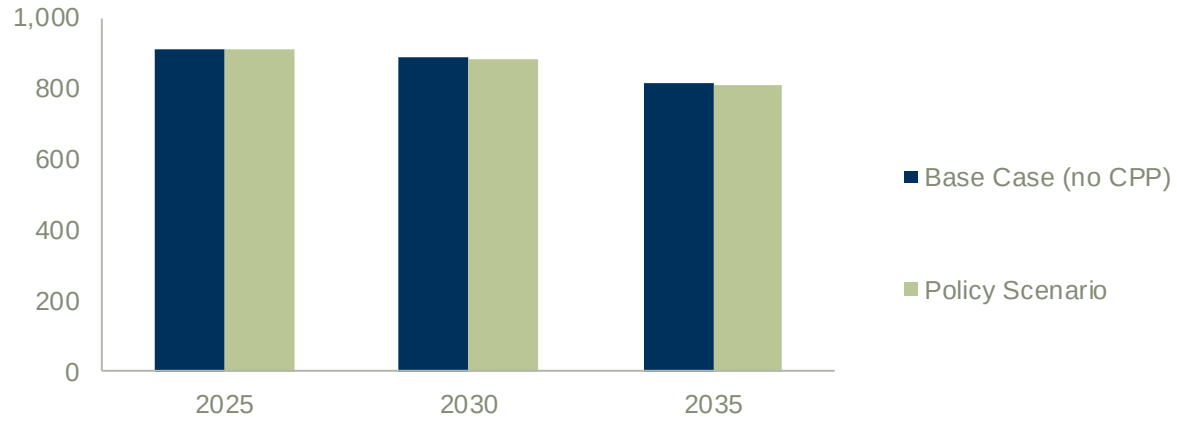
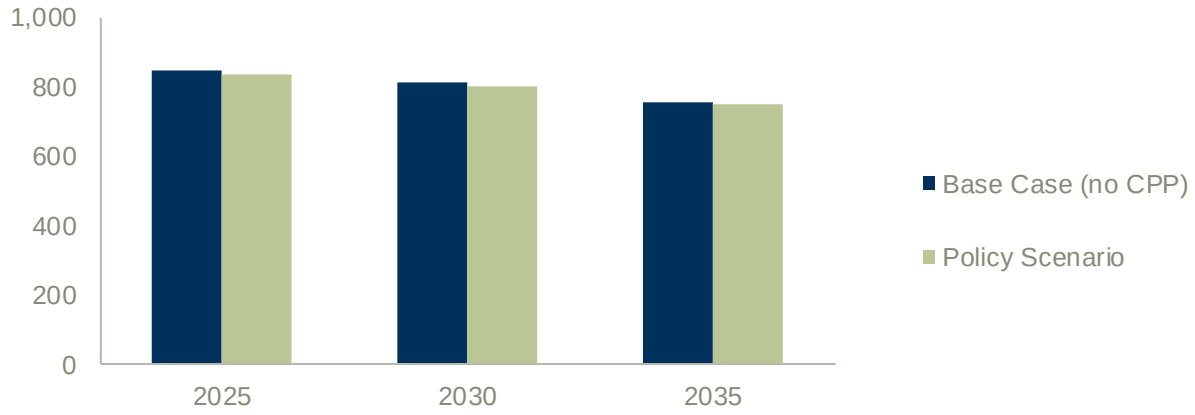
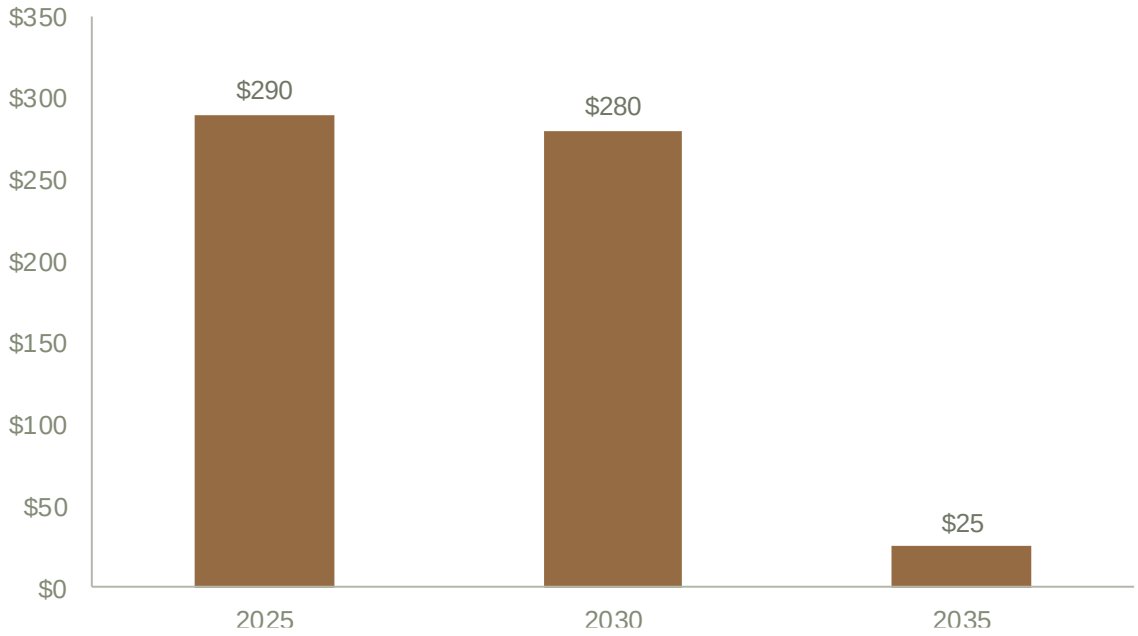


Figure 4. Projected Nitrogen Oxide Emissions (thousand short tons NOx)



EPA finds that the Final Rule decreases coal production for power sector use by one percent by 2030 relative to the base case and decreases natural gas use for electricity generation by 0.3 percent by 2030. The estimated compliance costs for 2030 are 280 million (2016$) in 2030 relative to the non-CPP baseline (see Figure 5). EPA estimates retail electricity price impacts are 0.1 percent in 2030.

Figure 5. Projected Change in Total Power Sector Generating Costs, Relative to Base Case (No CPP) (millions of 2016$)



EPA estimates that the climate benefits and health co-benefits associated with the Proposed Rule using a three percent and seven percent discount rate. EPA's estimated domestic climate benefits and health co-benefits of the illustrative policy scenario range from $0.57 to $1.3 billion in 2030 using a three percent discount rate and from $0.47 to $1.1 billion in 2030 using a seven percent discount rate.

Projected Impacts of CPP Repeal

Within the RIA, EPA includes a separate analysis of the impacts of the repeal of CPP and concludes that "the repeal of the CPP under current and reasonably projected market conditions and regulatory implementation is not anticipated to have a meaningful effect on emissions of CO_2 or other pollutants or regulatory compliance costs." The analysis looks at the projected impacts of the CPP on emissions under three cases:

- **CPP with National Trading and Tolling:** A case that assumes CPP implementation is delayed to 2025 and allows trading across all states.
- **CPP with Regional Trading and Tolling:** A case that assumes CPP implementation is delayed to 2025 and allows trading within six geographic regions.
- **CPP with Limited Trading:** A case that is comparable to the CPP scenarios run under the final CPP and the proposed ACE with CPP implementation in 2022 and requiring each state to meet its goal individually, without broad trading.

EPA finds that the CPP has no impact on CO_2 emissions with national trading and tolling and results in an emission decrease of 0.6 percent in 2030 with regional trading and tolling. Under the case with similar assumptions to previous model runs for the CPP and proposed ACE, EPA finds a CO_2 benefit of 3.5 percent relative to the baseline. This benefit exceeds the benefit of the illustrative ACE policy scenario.

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