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EPA rule to cut power sector GHG emissions faces legal and political challenges

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On May 9, 2024, EPA published a final rule requiring existing fossil fuel-fired steam generating units and new fossil fuel-fired combustion turbines to cut GHG emissions, including through carbon capture and sequestration in some cases. The rule faces significant challenges, such as lawsuits by opponents seeking to stay and overturn the rule and potential repeal if this November's elections result in a change in White House control.

On May 9, 2024, the U.S. Environmental Protection Agency (EPA) published a final rule (the Final Rule) in the Federal Register to regulate greenhouse gas (GHG) emissions from fossil fuel-fired power plants under Section 111 of the Clean Air Act (the CAA). The Final Rule regulates existing fossil fuel-fired steam generating power plants and new and reconstructed (mainly natural gas-fired) combustion turbines by requiring the adoption of a range of GHG reduction measures, including the implementation of carbon capture and sequestration/storage (CCS) technologies beginning in 2032 for existing coal-fired steam generating units with the longest expected lifespan and new base load combustion turbines.

The Final Rule is the latest milestone in a decade-plus effort to regulate GHG emissions from the power sector, and follows rulemakings by two prior administrations: the Clean Power Plan (and related standards for new sources) issued in 2015 under President Obama and the Affordable Clean Energy (ACE) Rule issued in 2019 under President Trump (discussed in greater detail in our analysis of the proposed version of the Final Rule (the Proposed Rule), available here). Together with the investments in renewable energy under the Inflation Reduction Act, the Final Rule is a key element of President Biden's goal to eliminate GHG emissions from the power sector by 2035 and is expected to result in the avoidance of up to 1.38 billion metric tons of CO_2 emissions systemwide through 2047 and impose compliance costs of $19 billion from 2024 to 2047. However, the Final Rule is significantly narrower than Proposed Rule, deferring regulation of the largest sector of the power sector – existing combustion turbines – to a future, more "comprehensive" rulemaking, expected to occur in 2025 at the earliest (assuming President Biden succeeds in the November elections). The Final Rule also includes several changes to the Proposed Rule in response to concerns raised by commenters, including removing hydrogen co-firing as a compliance pathway, changing the compliance deadline for the CCS "best system of emissions reduction" (BSER) pathway for existing coal-fired steam generating units and new and reconstructed base load combustion turbines from 2030 and 2035, respectively, to 2032, providing additional flexibility for state plans, and streamlining other aspects of the Proposed Rule.

As with the Proposed Rule, the Final Rule is designed to avoid the legal issues that led to the invalidation of the Clean Power Plan by the Supreme Court in *West Virginia v. EPA*[1] by limiting GHG reduction strategies to measures that can be installed at the regulated facility ("within the fence line") rather than the Clean Power Plan's "generation shifting" mandates that ran afoul of the major questions doctrine. Notwithstanding this approach, opposition to the Final Rule has been fierce and swift. Opponents of the Final Rule, including 27 states and several companies, industry groups and labor organizations, have filed lawsuits seeking to overturn it, with several challengers seeking to stay the Final Rule arguing (among other things) that the Final Rule's requirements to install CCS is tantamount to a "generation shifting" mandate contrary to *West*

[1] 597 U.S. 697 (2022).

Insights

Virginia v. EPA and is inconsistent with CAA standards for emissions reduction measures. Republican members of Congress and state governors have expressed strong opposition as well.

As with its predecessors, the fate of the Final Rule will likely be determined by the federal courts (and most likely the Supreme Court) that will decide these legal challenges and the voters in the elections this November, as a change in administration is likely to mean that EPA scraps the Final Rule and goes back to the drawing board once again.

Key provisions

The Final Rule addresses GHG emissions from the power sector under Section 111 of the CAA. As discussed in our memo on the Proposed Rule, Section 111 calls on EPA to issue (1) performance standards for new sources of emissions in categories found to endanger public health or welfare based on what EPA determines to be the BSER that is adequately demonstrated for a specific pollutant and source under Section 111(b) and (2) emissions guidelines based on the BSER for existing sources in those categories that states will use as a basis to develop performance standards for those sources in a plan subject to EPA approval under Section 111(d).

Similar to the Proposed Rule, under the Final Rule, the BSER for each source varies by subcategory based on fuel type, function (i.e., amount of capacity each turbine is generating of their maximum annual capacity, or "capacity factor") and anticipated lifespan, with the strictest and most costly BSER – CCS – limited to the longest-running existing coal steam generating units and new base load combustion turbines.

The key elements of the Final Rule are summarized below. A chart outlining the BSER and the actual or presumptive performance standard for each subcategory is set forth below and also available here.

New or reconstructed fossil fuel-fired stationary combustion turbines

Standards for fossil fuel-fired stationary combustion turbines that are considered "new sources," i.e., units constructed or reconstructed after May 23, 2023 (the date the Proposed Rule was published in the Federal Register), depend on whether the turbine is a **base load unit**, an **intermediate load unit** or a **low load unit**. These designations are based on a unit's electricity output as a percentage of its total generation capacity, or "capacity factor." Base load units have capacity factors of greater than 40%, intermediate load units have capacity factors between 20% and 40% and low load units have capacity factors of less than 20%.

These standards will become effective in two phases:

Phase I. Beginning on the date of promulgation of the Final Rule or initial startup of the facility (whichever is later), until January 1, 2032 (when Phase II begins), the following requirements will be in place:

- For **low load units**, the BSER is the use of lower-emitting fuels (e.g., natural gas and Nos. 1 and 2 fuels) implying a standard of 160 lb CO_2/MMBtu or less of emissions output.
- For **intermediate load units**, the BSER is the use of "highly efficient simple cycle technology with the best operating and maintenance practices," implying a standard of 1,170 lb CO_2/MWh of gross energy output.
- For **base load units**, the BSER is the use of highly efficient combined cycle generation with the best operating and maintenance practices, implying a standard of (i) 800 lb CO_2/MWh of gross energy output for units with a base load rating of 2,000 MMBtu/h or more and (ii) 800 to 900 lb CO_2/MWh of gross energy output for units with a base load rating between 250 and 2,000 MMBtu/h.[2]

Phase II. Beginning on January 1, 2032, for **base load units**, the BSER will be continued highly efficient combined cycle generation with 90% CCS, implying a standard of 100 lb CO_2/MWh of gross energy output. EPA noted that there is a wide variety of highly efficient generation technologies, and the appropriate technology necessary to meet the performance standards outlined by the Final Rule will depend on the specificities of operation of each source and may include co-firing hydrogen. No Phase II BSER was finalized for **intermediate load units** or **low load units**.

Key changes from the Proposed Rule:

[2] Units below 250 MMBtu/h are not subject to the Final Rule.

- **Removal of low-GHG hydrogen as a BSER:** EPA has removed low-GHG hydrogen co-firing as a BSER pathway for intermediate load units in the Final Rule. In the Proposed Rule, an alternative BSER pathway to CCS consisted of low-GHG hydrogen co-firing implemented in two phases (30% by 2032 and 96% by 2038). In the Final Rule, EPA decided to remove this alternative due to uncertainties about the availability and potential cost of low-GHG hydrogen. However, EPA noted that sources have the option to use hydrogen co-firing to meet the applicable performance standard.
- **Expanded applicability of CCS BSER:** The 40% capacity factor threshold for base load units is a decrease compared to the threshold in the Proposed Rule, which was 50%, broadening the applicability of the most expensive and onerous BSER.
- **Shortened compliance deadline:** The compliance deadline for the Phase II BSER for base load units in the Final Rule is 2032 whereas the Proposed Rule required compliance by 2035.

Existing coal-fired steam generating units

The BSER for existing coal-fired steam generating units depend on the expected lifespan of the unit, with the CCS reserved for the units with the longest projected lifespan. Specifically:

- For **long-term units**, defined as units expected to operate on or after January 1, 2039, the finalized BSER is CCS with 90% capture of CO_2 (88.4% reduction in emission rate (lb CO_2/MWh-gross)) by January 1, 2032.
- For **medium-term units**, defined as units operating on or after January 1, 2032 with plans in place to permanently cease operation before January 1, 2039, the finalized BSER is co-firing 40% (by heat input) natural gas with an emission limitation of a 16% reduction in emission rate (lb CO_2/MWh-gross) by January 1, 2030.

Units that demonstrate that they plan to permanently cease operation before January 1, 2032 are exempt from the requirements of the Final Rule. Additionally, EPA will honor applicability exemptions for other "cease operation dates" appropriately finalized under state plans. These additional applicability exemptions added to the Final Rule reflect EPA's efforts to allow for greater flexibility in implementation of the guidelines.

Key changes from the Proposed Rule:

- **Removal of near-term and intermittent-term subcategories:** The Final Rule regulates existing coal-fired sources based on two subcategories. In contrast, the Proposed Rule divided existing coal-fired steam generating units into four subcategories, and proposed separate requirements for near-term units (i.e., units that are committed to ceasing operations between December 31, 2031 and January 1, 2035 and that adopt an annual capacity factor limit of 20%) and for imminent-term units (i.e., units committed to ceasing operations before January 1, 2032).
- **Extension of compliance date:** The compliance date for CCS under the Final Rule is extended to January 1, 2032 from January 1, 2030 under the Proposed Rule.

Modified coal-fired steam generating units

For coal-fired steam generating units that undergo a "large" modification (i.e., a physical change, or change in method of operation, that results in an increase in hourly CO_2 emissions of more than 10% when compared to the source's highest hourly emissions in the previous five years), the requirements under the Final Rule will depend on when the modification took place. Units that undergo large modifications after May 23, 2023 are considered "new" under the CAA and therefore not subject to the emission guidelines outlined for existing units, and are instead subject to preexisting New Source Performance Standards, which generally impose very stringent requirements (i.e., requirement to either convert to natural gas co-firing by January 1, 2030, install CCS that capture 90% of emissions by 2032 or cease operations by 2032). If the modification was undertaken prior to May 23, 2023, the unit is considered an "existing source" under the CAA and is subject to the emissions guidelines outlined in the Final Rule for existing sources.

Existing natural gas- and oil-fired steam generating units

Standards for existing natural gas- and oil-fired steam generating units vary based on whether they operate as **base load units** (capacity factor above 45%), **intermediate load units** (capacity factor between 8% and 45%) or **low load units** (capacity factor below 8%). For intermediate and base load subcategories, the BSER for each of these categories is routine methods of operation and maintenance and the applicable

degree of emission limitation is "no increase in emission rate." Based on this BSER and emission limitation, EPA set the following presumptive standards of performance:

- For **base load units**, 1,400 lb CO_2/MWh of gross energy output
- For **intermediate load units**, 1,600 lb CO_2/MWh of gross energy output
- For the subcategory of low load natural gas- and oil-fired steam generating units (i.e., units with annual capacity factors less than 8%), EPA is finalizing a BSER of uniform fuels, with associated degrees of emissions limitations as follows:
  - For **oil-fired low load sources**, the presumptive heat input-based standard is 170 lb CO_2/MMBtu.
  - For **natural gas-fired low load sources**, the presumptive heat input-based standard is 130 lb CO_2/MMBtu.

The compliance date for all natural gas- and oil-fired steam generating units, regardless of capacity factor, is January 1, 2030.

Existing fossil fuel-fired stationary combustion turbines

Although the Proposed Rule included standards for existing base load fossil fuel-fired combustion turbines, in February 2024, EPA announced that it does not intend to finalize a standard for these sources and instead plans to design a broader, more "environmentally protective" regulatory framework for GHG regulation of all existing fossil fuel-fired combustion turbines. EPA initiated a stakeholder engagement process soliciting responses to framing questions by May 28, 2024 with a proposed rulemaking to follow in the future.

As EPA explained, given that existing fossil fuel-fired stationary combustion turbines produce the greatest portion of GHG emissions from the power sector, it wanted to ensure the effectiveness of its regulatory strategy. EPA expressed the concern that the piecemeal approach set forth in the Proposed Rule – setting guidelines for only the units with the highest capacity factors – may prove ineffective as (among other reasons) it may incentivize operators to shift generation to existing combustion turbines that operate below the relevant capacity factor thresholds to avoid regulation.

EPA's decision to defer regulation of these sources is not without risk. While the timing for this rulemaking is unclear, given the timetable for the rulemaking process for the Final Rule, a new rulemaking covering existing fossil fuel-fired combustion turbines is certain to extend into next year, meaning that the fate of any intended future rulemaking will depend on the current administration remaining in place after the November 2024 election.

State plans for existing sources

Consistent with Section 111(d) of the CAA, by May 11, 2026, states are required to submit plans to EPA to establish standards for existing sources that will be consistent with the guidelines outlined in the Final Rule. The requirements established by the states must be equal to or more stringent than EPA guidelines in order to be approved by EPA.

If a state submits plans that do not meet the same measures and metrics for emissions reduction as the presumptive standards outlined in the EPA guidelines, the state must address the adoption of a less stringent standard based on factors such as (i) remaining useful life and (ii) demonstrated evidence that the BSER cannot be "reasonably achieved." States may include compliance flexibilities in their state plans, such as emission averaging, trading and unit-specific mass-based compliance, but these flexibilities must be in line with the guidelines in the Final Rule. Additionally, if a state incorporates any flexibilities, the state must demonstrate that their plan achieves the same emissions goals as EPA guidelines and justify any assumptions upon which the flexibilities are based.

In submitting plans for approval to EPA, states are required to undertake and describe "meaningful engagement" with communities that are "most affected by GHG emissions" and other stakeholders, such as energy communities (i.e., communities that have been historically situated near energy and utility operations) and workers.

Additionally, to address concerns raised by comments to the Proposed Rule, the Final Rule includes two additional reliability-related provisions which provide compliance flexibility to states, power companies and grid operators and will assist with protecting the reliability of the power grid. For state plans, the Final Rule

allows states to delay "cease operation dates" by up to one year if the planned cease operation date is likely to interrupt power grid reliability. Additionally, the Final Rule allows sources, both existing and new, to operate at baseline emission rates if there is a documented power grid emergency.

EPA must establish a determination of completeness of a state plan or plan revision within 60 days of submission and, within 12 months of such determination, EPA must approve or reject any such plan or revision thereof.

Legal challenges

As with the Clean Power Plan and the ACE Rule, the Final Rule has faced legal challenges in the D.C. Circuit. To date, 27 states, as well as businesses, industry groups and labor organizations have filed petitions seeking to vacate the Final Rule, with several parties requesting a stay while the challenges proceed, while a group of states, localities, other governmental authorities and environmental advocacy groups have sought to intervene in support of the Final Rule. Notably, the challengers rely heavily on the Supreme Court's decision in *West Virginia v. EPA*, which overturned the Clean Power Plan on the basis that the "generation shifting" approach of that rule ran afoul of the major questions doctrine. EPA was explicit regarding its intent to select the BSER that would pass muster under *West Virginia v. EPA*, asserting that CCS and natural gas co-firing comprise "more traditional air pollution control measures," including "fuel-switching" and "add-on controls," which were referenced with approval by the Supreme Court. The challengers argue that the exorbitant cost of CCS and the technological obstacles to deploying it successfully mean that the facilities for which CCS is the BSER are effectively being ordered to cease operating, resulting in just the sort of "generation shifting" determined by the Supreme Court to violate the major questions doctrine. For similar reasons, the challengers assert that CCS violates requirements under Section 111 of the CAA that the BSER selected by EPA be "adequately demonstrated" and "achievable."

Briefing on the stay motion is scheduled to be complete by mid-June and we would expect a ruling from the D.C. Circuit shortly thereafter. If the court denies a stay, the challengers are expected to immediately seek a stay from the Supreme Court in the hope of a repeat of what occurred in 2016, when the Supreme Court issued a stay of the Clean Power Plan after the D.C. Circuit denied the challengers' stay motion.

Other recent EPA power sector regulation

The Final Rule is only one of four recent actions taken by EPA regulating the fossil fuel power sector. The other three include:

- Updates to regulations under the CAA to reduce mercury and other hazardous air pollutants emitted by power plants with a capacity of more than 25 megawatts.
- Revisions to discharge limits under the Clean Water Act for certain wastewater streams from coal-fired steam electric generating units (including flue gas desulfurization wastewater, bottom ash transport water, combustion residual leachate and legacy wastewater).
- Rules under the Resource Conservation and Recovery Act establishing requirements regarding monitoring groundwater, remediation and closure and post-closure measures with respect to disposal of coal ash from coal-fired power plants.

What's next?

The Final Rule faces near-term risks from a skeptical Supreme Court and an uncertain political environment. While the outcome of the legal challenges to the Final Rule is uncertain, a ruling by the D.C. Circuit in favor of EPA (whether on the stay motion or the merits) is likely to be reviewed by the Supreme Court. Although EPA labored to align the Final Rule to fit the contours of *West Virginia v. EPA*, the prospects of the Final Rule are subject to doubt. The majority opinion in *West Virginia v. EPA* provided little guidance as to how the major questions doctrine is to be applied beyond the facts of that case. If the more expansive reading of the doctrine expressed by Justice Gorsuch in his concurring opinion in *West Virginia v. EPA* is adopted by the Court, a stay and ultimate overruling of the Final Rule would be more likely.

The risk of a change in administration resulting from this November's presidential election looms as well. Donald Trump, the presumptive Republican nominee, has vowed to roll back restrictions on fossil fuels if elected. This rollback is expected to include the Final Rule (assuming it survives pending legal challenges) and any replacement regulation might resemble the ACE Rule.

Impact of technological and market trends. Assuming the Final Rule survives judicial review and political headwinds, it is likely to be significantly impacted by market forces and technological developments that are difficult to predict. The Final Rule necessarily relies on predictions by EPA regarding events years into the future, including its modelling regarding power sector trends and assumptions regarding the rate of future innovation with respect to renewable technologies, both of which may turn out to be inaccurate. The example of the Clean Power Plan is instructive: trends in the power sector in the 2010s accelerated the adoption of lower carbon electricity far beyond EPA's assumptions and as a result the targets set by that rule were met over a decade prior to the rule's deadline, despite the fact that it was stayed soon after it was issued. Accelerated development and deployment of renewable and zero carbon technologies – boosted by the financial incentives offered under the Inflation Reduction Act – could yield a similar result.

Trends that might frustrate the success of the Final Rule are possible as well. Industry experts predict that shifts in the U.S. economy, such as the development of AI technology and increase in electric vehicle use, will lead to increases in electricity demand that will far outstrip EPA's assumptions, placing strain on the power grid if renewables can't meet the demand. In addition, future development and large-scale deployment of CCS may lag behind EPA's predictions. These trends might force a reconsideration of the viability of the Final Rule by EPA and lawmakers.

Impact of the Final Rule on climate-related risk management and disclosure. The Final Rule (again, assuming it survives) is intended to transition the U.S. economy towards a carbon-free electrical grid. As such, it potentially presents a material "transition risk" to businesses directly or indirectly impacted by the Final Rule, including utilities, oil, gas and coal companies, and businesses that consume significant amounts of fossil fuel-based electricity. These companies will need to assess how to manage these risks and what disclosure obligations may be triggered as a result of these transition risks. Companies subject to the SEC's climate-related disclosure rule will be required to disclose material transition risks, including measures to manage those risks, and, if material, their Scope 1 and/or Scope 2 emissions. And even if the SEC rule does not survive judicial review, public companies remain subject to preexisting SEC regulations to disclose material risks to investors, which may include transition-related climate risks. Companies may also be covered by other mandatory climate disclosure frameworks requiring disclosure of material transition risks such as California's S.B. 261 or the EU's Corporate Sustainability Reporting Directive.

If you have any questions regarding the matters covered in this publication, please contact any of the lawyers listed below or your usual Davis Polk contact.

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Appendix

Final BSER for new or reconstructed fossil fuel-fired stationary combustion turbines under section 111(b)

Phase I By date of promulgation or upon initial startup	Phase II Beginning in January 1, 2032
Low load subcategory (capacity factor <20%)	
BSER: Use of low emitting fuels (e.g., natural gas and Nos. 1 or 2 fuel oils) **Standard of performance:** 160 lb CO_2/MMBtu or less	EPA is not finalizing a Phase II BSER for low load combustion turbines.
Intermediate load subcategory (capacity factor 20% to 40%[3])	
BSER: Highly efficient simple cycle technology with best operating and maintenance practices **Standard of performance:** 1,170 lb CO_2/MWh-gross	EPA is not finalizing a Phase II BSER for intermediate load combustion turbines.
Base load subcategory (capacity factor >40%[4])	
BSER: Highly efficient combined cycle generation with best operating and maintenance practices **Standard of performance:** • 800 lb CO_2/MWh-gross for units with a base load rating of 2,000 MMBtu/h or more • 800–900 lb CO_2/MWh-gross for units with a base load rating between 250[5] and 2,000 MMBtu/h	**BSER[6]:** Continued highly efficient combined cycle generation with 90% CCS by January 1, 2032 **Standard of performance:** 100 lb CO_2/MWh-gross

[3] The upper bound is source-specific and is based on the design efficiency of the combustion turbine.
[4] The base load subcategory encompasses any combustion turbines that operate above the upper bound for the intermediate load subcategory.
[5] Units below 250 MMBtu/h are not subject to the Final Rule.
[6] While EPA proposed a BSER of co-firing low-GHG hydrogen, EPA is not finalizing this as a BSER pathway. However, EPA's standard of performance is technology neutral, meaning sources may comply with the performance standard by co-firing hydrogen.

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Final BSER for existing fossil fuel-fired steam generating units under section 111(d)

Existing 111(d) steam generators	BSER	Emissions guideline / Presumptive performance standard
Coal-fired boilers[7]		
Long-term coal-fired units – units that will continue to operate on or after January 1, 2039	CCS with 90% capture of CO_2	88.4% reduction in annual emission rate (lb CO_2/MWh-gross) from the unit-specific baseline by January 1, 2032
Medium-term coal-fired units – units that will operate on or after January 1, 2032 and demonstrate that they plan to permanently cease operations before January 1, 2039	Co-firing 40% (by heat input) natural gas	16% reduction in annual emission rate (lb CO_2/MWh-gross) from the unit-specific baseline by January 1, 2030
Units able to demonstrate plans to permanently cease operations before January 1, 2032[8]	Exempt from Final Rule	Exempt from Final Rule
Existing natural gas- and oil-fired steam generating units		
Base load subcategory (annual capacity factors >45%)	Routine methods of operation and maintenance	1,400 lb CO_2/MWh-gross by January 1, 2030
Intermediate load subcategory (annual capacity factors >8% and ≤45%)	Routine methods of operation and maintenance	1,600 lb CO_2/MWh-gross by January 1, 2030
Low load subcategory (annual capacity factors <8%)	Use of uniform fuels	170 lb CO_2/MMBtu for oil-fired sources by January 1, 2030 130 lb CO_2/MMBtu for natural gas-fired sources by January 1, 2030

[7] The standards of performance for coal-fired units that undergo a major modification (i.e., increase hourly emission rate by more than 10%) before May 23, 2023 (the date the proposed version of the rule was published in the Federal Register) will be subject to the same standards as existing coal-fired boilers.
[8] "Cease operation dates" finalized in any state plans are also federally enforceable for rule applicability exemption purposes.