



EPA Finalizes Major Power Plant Rules

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By [Paul Libus](#), [A.J. Singletary](#), [Kyle Danish](#), [Britt Fleming](#), [Janet Anderson](#), [Stephen Fotis](#),

On April 25, 2024, the U.S. Environmental Protection Agency (EPA) finalized four significant new regulations for power plants burning coal or natural gas:

- New Source Performance Standards for Greenhouse Gas Emissions from New, Modified, and Reconstructed Fossil Fuel-Fired Electric Generating Units; Emission Guidelines for Greenhouse Gas Emissions from Existing Fossil Fuel-Fired Electric Generating Units; and Repeal of the Affordable Clean Energy Rule
- National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units Review of the Residual Risk and Technology Review
- Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals from Electric Utilities; Legacy CCR Surface Impoundments
- Supplemental Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category

The rules will govern power plant air emissions and water releases, including greenhouse gases (GHGs), air toxics, and coal ash into nearby waters. EPA says that its intention in issuing the four rules simultaneously is to facilitate compliance planning by affected power plant owners and regulators.

CO₂ Power Plant Rule

The package of final rules includes new source performance standards (NSPS) for carbon dioxide (CO₂) emissions from new and reconstructed gas-fired electric generating units (EGUs); emission guidelines for states to implement for CO₂ emissions from existing fossil-fired steam EGUs; NSPS for CO₂ emissions from modified coal-fired steam EGUs; and repeal of the Trump Administration-era Affordable Clean Energy (ACE) Rule, all under section 111 of the CAA.

Clean Air Act (CAA) section 111 directs EPA to establish standards for controlling air pollutants for categories of major stationary sources, which include EGUs. Section 111 outlines a two-step process for establishing a standard of performance for emissions from EGUs. Under the first step, EPA determines the “Best System of Emission Reduction” (BSER) for the relevant pollutant that is “adequately demonstrated,” taking into consideration cost, any non-air quality health and environmental impacts, and energy requirements. EPA then sets a standard that quantifies the “degree of emission limitation achievable through the application” of the BSER. Sources subject to the standard of performance can use any system of reduction to meet the limit; they are not required to use the system EPA determined is the BSER.

Under section 111(b), EPA has the authority to promulgate NSPS that apply to new, modified, and reconstructed sources in a source category. EPA may separate sources in a category and promulgate different standards of performance for sources in each subcategory.

Section 111(d) applies to existing sources in a regulated source category for certain types of pollutants, which include GHGs. Section 111(d) establishes a federal-state procedure for establishing performance standards for existing sources. Under this procedure, EPA first develops an “emission guideline” that is a benchmark standard of performance for the source category. Each state then develops and submits to EPA a plan for establishing and enforcing standards of performance for the regulated sources in the state. While the state plans must achieve overall reductions equivalent to those specified by the emission guideline, the states have some discretion in setting standards.

The table below summarizes the new source performance standards and emission guidelines promulgated in the final rule pursuant to CAA section 111. The final rule makes ample use of subcategories—establishing different performance standards for different EGUs based on how much power they generate relative to their maximum capacity (“capacity factor”); how large they are; and how many years they will run. In some cases, EPA establishes phased standards.

New Source Performance Standards for CO₂ from New and Reconstructed Gas-fired EGUs	
Compliance Date (Phase 1): Later of startup date or effective date of the final rule.	
<i>Subcategory:</i> Low-load (“peaking”) units with an annual capacity factor of less than 20%	Ranging from 120 lbs. CO ₂ /MMBtu to 160 lbs. CO ₂ /MMBtu, depending on the type of fuel combusted. This standard is based on the use of “lower emitting fuels” (e.g., natural gas and/or distillate oil).
<i>Subcategory:</i> Intermediate-load units with an annual capacity factor between 20% and 40%	1,170 lbs. CO ₂ /MWh, based on the use of high-efficiency simple cycle turbine technology in combination with the best operating and maintenance practices.
<i>Subcategory:</i> Baseload units with an annual capacity factor great than 40%	<ul style="list-style-type: none"> • “Large” units: 800 lbs. CO₂/MWh, based on control levels achievable by a highly efficient generating technology (<i>i.e.</i>, the most efficient available turbines). • “Small” units: 900 lbs. CO₂/MWh, depending on unit size. • Phase 2: 100 lbs. CO₂/MWh, based on full CCS with a 90% capture rate.

	Compliance Date: Jan. 1, 2032.
New Source Performance Standards for CO₂ from Modified Coal-fired Steam EGUs	
Same as emissions guidelines for existing “long-term” coal-fired EGUs (see below).	Use of CCS with 90 percent capture of CO ₂ .
Emissions Guidelines for Existing Coal-fired Steam EGUs	
<i>Subcategory:</i> Medium-Term (retiring by Jan. 1, 2039)	16% reduction in the emission rate on a lbs. CO ₂ /MWh basis over an annual calendar year as measured from a unit-specific baseline, based on natural gas co-firing at 40% of the heat input to the unit on an annual basis. Compliance Date: Jan. 1, 2030.
<i>Subcategory:</i> Long-Term (retiring on or after Jan. 1, 2039)	88.4% reduction in the emission rate on a lbs. CO ₂ /MWh basis over an annual calendar year as measured from a unit-specific baseline, based on “full capture CCS”—90% capture of the CO ₂ in the flue gas. Compliance Date: Jan. 1, 2032.

NSPS for New and Reconstructed Fossil-Fuel Combustion Turbines

Under the final rule, new and reconstructed gas-fired combustion turbines operating below a capacity factor of 20 percent annually will be subject to a performance standard based on the use of “lower emitting fuels” (e.g., natural gas and/or distillate oil); those operating between 20 and 40 percent capacity factor will be subject to a performance standard of no more than 1,170 lbs. CO₂/MWh (an increase from the proposed rule); and units operating over 40 percent capacity factor will be subject to a limit of 800 lbs. CO₂/MWh (for large units) and up to 900 lbs. CO₂/MWh (for small units) along with a CO₂ capture and sequestration/storage (CCS) standard of 90 percent by January 1, 2032, with an associated emission limitation of 100 lbs. CO₂/MWh.

As compared to the proposed rule, the final rule expands the “baseload” category of new gas units that will be subject to limits based on CCS technology. The proposed version of the rule would have defined this category as units operating at a more than about 45-55 percent capacity factor, while the final rule lowers that threshold to those operating more than 40 percent of the time.

In another departure from the proposed rule, the final rule does not establish an alternative BSER for gas-fired EGUs based on hydrogen co-firing instead of CCS.

As EPA previously announced, the final CO₂ power plant rule does not address existing natural gas combustion turbines. The agency has instead instituted a non-regulatory docket seeking additional information to initiate a separate rulemaking to regulate CO₂ emissions from existing natural gas EGUs.

Emission Guidelines for Existing Coal-Fired Steam EGUs

The final rule retains two subcategories of existing coal-fired EGUs for which CO₂ performance standards would apply: “medium-term” coal-fired EGUs (co-firing with 40% natural gas by 2030) and “long-term” coal-fired EGUs (installing and operating with CCS by 2032). The unit’s retirement date determines its subcategory and applicable standard. The CO₂ performance standard for “medium-term” units is based on natural gas co-firing at 40 percent of the heat input to the unit on an annual basis, which results in a 16 percent reduction in the emission rate on a lb CO₂/MWh-gross basis over an annual calendar year as measured from a unit-specific baseline. EGUs in the “long-term” subcategory are subject to a “full capture CCS” CO₂ performance standard, which is defined as 90% capture of the CO₂ in the flue gas. A 90% capture would result in an 88.4% reduction in the emission rate on a lb CO₂/MWh-gross basis over an annual calendar year as measured from a unit-specific baseline.

Regarding NSPS for CO₂ emissions from modified coal-fired steam EGUs, for an EGU that undertakes a large modification, constituting an increase in hourly emission rate by more than 10%, the BSER is the same as the emission guidelines for existing “long-term” coal-fired steam EGUs.

Compliance Flexibilities, Reliability Mechanisms, & State Implementation Plans (SIPs)

The final rule also includes elements aimed at compliance flexibility and ensuring grid reliability. These mechanisms are available for existing EGUs covered by state plans.

One mechanism addresses short-term energy emergencies. During such an emergency, existing EGUs would not be subject to performance standards, and generation from new or reconstructed EGUs would not count toward the unit’s capacity factor.

The second mechanism addresses long-term reliability. It allows states to extend a compliance deadline or mandated retirement date for an existing EGU for up to one year if the unit needs additional time for compliance due to factors beyond its control, such as permitting delays. Extensions for more than one year will require state plan revision and EPA approval.

Additionally, the final rule allows states to incorporate emission trading and averaging into their SIPs under the emission guidelines, so long as the use of such flexibilities will result in an aggregate level of emission reduction that is equivalent to each source individually achieving its standard of performance. Unlike prior GHG power plant rules, the final rule does not include a model trading rule for states.

Rescinding the ACE Rule

The final rule also rescinds the Trump-era coal plant GHG standards known as the Affordable Clean Energy (ACE) Rule. The ACE Rule established standards for coal-fired EGUs based on a determination that efficiency improvements would be the “Best System of Emission Reduction.” In rescinding the ACE Rule, EPA reasons that natural gas co-firing and longer-term CCS implementation should be considered the Best Systems of Emission Reduction due to decreases in natural gas prices, CCS technology advancements, and federal CCS subsidy policies.

MERCURY AND AIR TOXICS STANDARDS (MATS)

The EPA also issued a final rule revising Mercury and Air Toxics Standards (MATS) that apply to coal-fired and oil-fired electric utility steam generating units (EGUs).

In this final rule, EPA is adopting the proposal to increase the stringency of the limit for filterable particulate matter (fPM) limit to 0.010 pounds per million British thermal units (lb/MMBtu) from the previous 0.030 lb/MMBtu limit. The fPM limitation is a surrogate standard that EPA uses for controlling non-mercury metals emitted from coal fired EGUs.

Additionally, the final rule requires affected EGUs burning lignite coal to comply with the same mercury emission limitation that currently applies to EGUs combusting bituminous and subbituminous coals, 1.2 lbs per trillion British thermal units (lb/TBtu) or an alternative output-based limitation of 0.013 pounds per gigawatt-hour electric output. The current standard is 4 pounds lb/TBtu.

Furthermore, the final rule requires that all affected coal fired EGUs demonstrate compliance with the applicable fPM limitations by using PM continuous emission monitoring systems (CEMS).

Lastly, the final rule imposes new requirements aimed at reducing hazardous air pollutant emissions during startup.

The final rule requires compliance with the fPM limitation in three years.

COAL COMBUSTION RESIDUALS (CCR) RULE

EPA also issued a final rule establishing first-time requirements for two categories of coal ash disposal sites that were exempted from its 2015 coal combustion residuals (CCR) rule: inactive surface impoundments at inactive electric utilities (legacy CCR surface impoundments or legacy impoundments) and CCR management units (CCRMU).

For CCRMU, EPA is adopting standards for groundwater monitoring, corrective action, closure, and post-closure care requirements. EPA defines CCRMUs as any area of land in which non-containerized accumulation of CCR is received, placed, or otherwise managed at any time, and that is not a CCR unit, including inactive CCR landfills and CCR units that closed prior to Oct. 17, 2015.

Owners and operators of covered CCR facilities are required to conduct facility evaluations to identify and delineate any CCRMU containing one ton or more of

waste. Those with CCRMU containing 1,000 tons or more are required to ensure those units are compliant with existing requirements under the 2015 CCR rule for groundwater monitoring, corrective action where necessary, and in certain cases closure and post-closure requirements.

The rulemaking is the result of court decisions. The U.S. Court of Appeals for the District of Columbia Circuit's 2018 ruling in *Utility Solid Waste Activities Group (USWAG) v. EPA* obligated EPA to adopt stringent safeguards requiring the safe closure and cleanup of legacy impoundments located at retired power plants. Additionally, EPA is regulating legacy landfills and other CCRMU pursuant to a settlement reached with environmental groups in *Statewide Organizing for Community Empowerment, et al. v. EPA*, in which plaintiffs alleged that EPA unlawfully failed to determine whether such units should be regulated. However, the final rule continues to exclude sites that did not contain liquids or CCR in them as of the original CCR rule's effective date in October 2015.

This rule becomes effective six months after publication of the final rule in the Federal Register.

WASTEWATER DISCHARGE STANDARDS FOR COAL-FIRED POWER PLANTS

Under the Clean Water Act (CWA), EPA publishes Effluent Limitations Guidelines and Standards (ELGs) that are industry-specific wastewater requirements based on the performance of demonstrated wastewater treatment technologies. These technology-based limits are supposed to represent the greatest pollutant reductions that are economically achievable for the applicable industry.

The rule finalized on April 25, 2024, imposes more stringent ELGs for three categories of wastewater (effluent) from existing coal-fired steam EGUs: flue gas desulfurization (FGD) wastewater, bottom ash transport water, and combustion residual leachate (CRL). A court invalidated a prior ELG for CRL because it failed to reflect the "best technology available." Finally, EPA is also adopting a proposal to set case-by-case basis ELGs for legacy wastewater in surface impoundments based on "best professional judgement."

Specifically, EPA's final rule sets a "zero discharge" limit for the three categories of wastewater regulated rather than two in the proposed regulation and adds numeric limits on arsenic and mercury groundwater releases. A zero-discharge limit is also set for legacy wastewater, or effluent generated before the rule takes effect but which is contained in CCR disposal units.

While the rule will take effect 60 days after its publication in the Federal Register, its requirements will not be immediately binding on facilities but rather incorporated into Clean Water Act discharge permits for individual sites. The rule also allows utilities to avoid the stricter mandates if they voluntarily close their units; facilities can continue operating under current regulatory requirements for FGD and bottom ash treatment if they close by 2028, and EGUs that have either recently met or are in the process of installing technologies to meet the 2020 rule can keep the same technologies and not upgrade if they close by 2034.

NEXT STEPS

The final rules will take effect 60 days after publication in the *Federal Register*. Any petitions for review of the rules must be filed by that date in the Court of Appeals for the District of Columbia Circuit. Opponents of the GHG rules are likely to challenge, among other things, EPA's determinations that CCS meets the criteria to be a Best System of Emission Reduction for large and long-running coal and gas-fired EGUs. The agency may also be challenged on some of its constraints on state plans for meeting the GHG emission guidelines for existing coal-fired EGUs.

For More Information

Van Ness Feldman, LLP can provide assistance with, analysis of, and compliance with EPA's proposed power sector rules. For additional information, please contact [Stephen Fotis](#), [Kyle Danish](#), [Britt Fleming](#), [Janet Anderson](#), [A.J. Singletary](#), [Paul Libus](#), or any member of the firm's Environmental or Energy Transition teams in Washington, D.C. at (202) 298-1800.

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