Holland & Hart

Doug Benevento

Partner
303.293.5248
Denver
dhbenevento@hollandhart.com

Andrew Revelle

Associate
801.799.5905
Salt Lake City
APRevelle@hollandhart.com

Emily Schilling

Partner
801.799.5753
Salt Lake City
ecschilling@hollandhart.com

EPA Imposes Stringent Greenhouse Gas Rule for Fossil Fuel-Fired Power Plants

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On April 25, 2024, the EPA announced, as part of a suite of four rules for fossil fuel-fired power plants, its final greenhouse gas (GHG) standards for power plants—imposing stringent new requirements on existing coal-fired power plants and new natural gas-fired power plants to curtail emissions of carbon dioxide (CO_2). Other rules finalized by EPA include the Mercury and Air Toxics Standard, effluent guidelines for coal-fired plants, and rules to address coal combustion residuals.

Key Takeaways

Existing Coal Plants

- Existing coal-fired power plants must either retire by 2032, convert to natural gas co-firing and retire by 2039, or install carbon capture and storage (CCS).
- Existing coal-fired power plants retiring beyond 2039 must install CCS by 2032 and capture 90% of all CO_2. This is two years later than the originally proposed deadline to install CCS of 2030.

Existing Natural Gas Plants

- In a significant departure from the proposed rule, existing natural gas-fired power plants will not be required, at this time, to install CCS or co-fire hydrogen. EPA intends to address existing natural gas-fired power plants in a separate rulemaking next year.

New Natural Gas Plants (Stationary Combustion Turbines)

- New base load natural gas-fired power plants (capacity factor greater than 40%) must meet a CO_2 standard based on highly efficient combined cycle combustion technology upon start up and install CCS to capture 90% of all CO_2 emissions by 2032.
- New intermediate load natural gas-fired power plants (capacity factor between 20% and 40%) must meet a CO_2 standard based on highly efficient simple cycle technology upon startup.
- New low load or peaking power plants (capacity factor less than 20%) must use lower emitting fuels, such as natural gas.

Reliability Instruments and Compliance Extensions

- In response to concerns over the effect of the rule on grid reliability, EPA added a short-term reliability mechanism that allows plants to

operate above the standards during an emergency, and a reliability assurance mechanism for units that have enforceable retirement dates but need to temporarily remain online to support reliability.

- EPA also included compliance extensions (of up to one year) for unanticipated delays with control technology implementation.

Coal-Fired Power Plants

The final rule will significantly affect the future of coal-fired power plants in the United States. Depending on a plant's retirement date, existing coal-fired power plants must either retire by 2032, convert to natural gas co-firing and retire by 2039, or install CCS. In a change from its original proposal, EPA is not finalizing imminent-term and near-term subcategories for coal-fired power plants. Instead, EPA will exempt coal-fired power plants that plan to retire before January 1, 2032. Coal units planning to retire before January 1, 2039, must co-fire 40% with natural gas beginning in 2030. Coal units planning to operate beyond January 1, 2039, must install CCS by 2032 capable of capturing 90 percent of CO2 emissions. The final rule pushed back the deadline for installation of CCS by two years.

New Natural Gas Power Plants

The final rule imposes strict CO_2 emissions standards for new natural gas-fired stationary combustion turbines, particularly for those that will operate at the base load level. New natural gas plants are now subject to initial standards based on the use of lower emitting fuels or highly efficient simple or combined cycle turbine technology, depending on the load category. In a departure from the original proposal, EPA removed hydrogen co-firing as a compliance option. Notably, the final rule lowered the capacity factor threshold for new natural gas turbines to be considered base load units from 50% to 40%.

Under the final rule, new base load natural gas-fired combustion turbines (capacity factor greater than 40%) must meet a CO_2 standard based on highly efficient combined cycle combustion technology upon start up and install CCS to capture 90% of all CO_2 emissions by 2032. New intermediate load natural gas-fired turbines (capacity factor between 20% and 40%) must meet a CO_2 standard based on highly efficient simple cycle technology upon startup. New low load or peaking turbines (capacity factor less than 20%) must use lower emitting fuels, such as natural gas. The final rule also includes specific emissions standards for natural gas and oil-fired steam generating boilers which are categorized by different capacity factor thresholds.

Impending Litigation

There will be litigation over EPA's decision to classify CCS as BSER (best system of emission reduction), which requires technologies to be commercially deployed. To date, most CCS in the United States has been used for enhanced oil recovery and not carbon storage. While the rulemaking anticipates that the units will shut down instead of deploying CCS technology the law still requires BSER classifications to be based on

Aaron Tucker

Partner
303.295.8369
Denver
abtucker@hollandhart.com

Andrew Wheeler

Partner and Head of Federal Affairs
202.654.6936
Washington, DC
arwheeler@hollandhart.com

deployed technologies.

At the end of the day these regulations will likely stand or fall based on two Supreme Court decisions *West Virginia v. EPA* and the pending *Loper Bright Enterprises v. Raimondo*. In *West Virginia*, the court scaled back EPA's authority to regulate CO2 emissions from power plants citing the "major questions doctrine," that Congress had not given the EPA the direct authority for a generation shifting approach in the utility sector. In *Loper*, the court is grappling with the Chevron decision, how much discretion do regulatory agencies have beyond direct Congressional authorization. The Biden Administration has tried to craft a rule that follows *West Virginia* case but without the benefit of the *Loper* decision. This is a delicate needle-threading exercise which will ultimately be decided by the courts.
