

EPA's Proposal for Greenhouse Gas Emission Requirements for New and Existing Power Plants

Key Findings

- EPA's proposed rule to limit greenhouse gas emissions from new and existing generating units requires stringent and likely unworkable CO₂ emissions controls at coal and natural gas power plants.
- The public comment period began on May 23 and runs through August 8. NRECA will work with electric cooperatives to share our concerns and perspectives with the EPA and other policymakers.
- Like the Clean Power Plan, this proposed rule will likely be litigated for years to come.

Background

On May 23, EPA published its proposed rule to limit greenhouse gas emissions from new and existing fossil fuel-fired electric generating units, also known as the Clean Air Act section 111(b) and (d) rules. The proposal is part of the regulatory strategy of the Biden Administration to create a carbon-free power sector by 2035 and net zero emissions economy-wide by no later than 2050. Comments on the proposal are due August 8, following a 15-day extension of the original comment period.

In response to the proposed rule, NRECA [issued a press statement](#) saying that the “proposal will further strain America’s electric grid and undermine decades of work to reliably keep the lights on across the nation.”

NRECA staff continue to review the complex and lengthy rule. While this review is far from complete, this document provides an overview based on our initial read of the proposal.

The Big Picture

Starting in 2030, the proposal would generally require more significant CO₂ emissions controls at fossil fuel-fired power plants that plan to operate past 2031. The proposal would phase in increasingly stringent CO₂ requirements over time. The proposed emissions requirements vary by:

- The type of unit (new or existing, combustion turbine or utility boiler, coal-fired or natural gas-fired);
- The capacity factor at which it operates (base load, intermediate load, or low load (peaking)); and
- How long it will operate after certain future dates.

Unit Specific Information

New gas combustion units that have commenced construction on or after May 23, 2023, would have to comply with new EPA emissions requirements for baseload, intermediate load and low load/peaking units based on capacity factor.

New baseload gas units must either significantly co-fire with clean hydrogen or implement carbon capture and storage (CCS) starting in the early to mid-2030s. If new units choose to meet these requirements by co-firing, they would be expected to co-fire with 30% clean hydrogen by 2032 and increasing to 96% clean hydrogen by 2038. If new units choose to implement CCS, they must achieve a 90% capture by 2035. New intermediate load units would be required to co-fire with 30% clean hydrogen by 2032. New low load/peaking units would be able to operate without additional emissions controls so long as they use lower emitting fuels.

Existing coal units are subcategorized based on the expected retirement date. Those units planning to be operational in 2040 and beyond must meet a CCS standard of 90% capture by 2030. Units retiring before 2040, 2035 (with certain conditions), and 2032 face a gradient of less stringent, but difficult, measures that must also be met by 2030. Of note, those units retiring before 2040 face the steep hurdle of co-firing with natural gas at a 40% rate beginning in 2030, unless the conditions to retire before 2032 or 2035 are met.

Existing gas combustion units with a nameplate capacity of 300 MW or greater and a capacity factor of more than 50% face similar requirements to new gas units, including compliance deadlines based on technology election of clean hydrogen co-firing or CCS.

Additional Details

New Gas Units (Section 111(b)):

- The proposed rule creates three subcategories of units:
 - o Baseload units
 - units with a nameplate capacity greater than intermediate (as defined below) depending on design efficiency of unit
 - multiphase standard
 - First phase, effective once the rule is *finalized*: unit must meet the following emissions limitations based on the proposal's best system of emissions reduction (BSER), defined as highly efficient generation of a best performing combined cycle unit (about 770 lbs CO₂/MWh for large units, 900 lbs CO₂/MWh for small units)
 - Second phase: two options for compliance
 - o clean hydrogen: 30% co-firing by 2032; 96% by 2038; or
 - o carbon capture and storage (CCS): standard assumes capture at 90% by 2035
 - o Intermediate load units
 - units with a capacity factor greater than 20% and, depending on design efficiency of affected unit:
 - between approximately 33-40% for simple cycle units
 - between approximately 45-55% for combined cycle units
 - a multiphase standard applies
 - First phase, effective once the rule is *finalized*: unit must operate BSER

based on a highly efficient, best performing simple cycle combustion turbine (1,150 lbs CO₂/MWh)

- Second phase: BSER is based on co-firing clean hydrogen at rate of 30% by volume taking effect in 2032
- Low load units (peakers)
 - units with a capacity factor of less than or equal to 20%
 - BSER is defined as the use of lower emitting fuels (natural gas or distillate oil) with standard of performance ranging from 120 lbs CO₂/MMBtu to 160 lbs CO₂/MMBtu depending on the type of fuel used
- Additional notes
 - **New units are those that “commence construction” on or after May 23, 2023.**
 - Clean hydrogen is defined as that produced through a process that results in a greenhouse gas emission rate of less than .45 kilograms CO₂/kilogram of hydrogen.
 - EPA refers to CCS as the BSER, not carbon capture, utilization, and storage (CCUS). This appears to be a deliberate decision implying that utilization of captured carbon may not qualify. Further analysis is needed on this point.

Existing Units (Section 111(d)):

Gas Combustion Units:

- Applies to large units (those with a nameplate capacity of greater than 300 MW and capacity factor of greater than 50%)
- Two options for compliance:
 - clean hydrogen: 30% co-firing by 2032; 96% by 2038; or
 - CCS: standard assumes capture at 90% by 2035

Steam Units (primarily coal):

- The primary standard applies to plants that plan to operate beyond 2040
- For these units, BSER is CCS at a 90% capture rate
- The compliance deadline for all existing steam units is January 1, 2030
- EPA proposes to establish subcategories for units that will retire earlier:
 - units that will retire before 2032
 - BSER is based on each unit’s current level of performance
 - units that will retire before 2035 *and* have adopted limits on utilization at no more than 20% capacity factor
 - BSER is based on each unit’s current level of performance
 - units that will retire by 2040
 - Co-firing natural gas at 40%

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