# Understanding Clean Power Plan Compliance Paths

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# Understanding CPP compliance paths

EPA's Clean Power Plan, released this past Monday, offers many more options for compliance than were available in the proposed rule.

The seven main possibilities include:

- Compliance in terms of both emission rates and mass levels,
- Compliance at the individual electric generating unit (EGU) and for the state as a whole,
- Uniform rate obligations for all EGUs, for all EGUs of each particular type, as well as an option for states to set different emission rate requirements by unit, and
- Mass-based targets that include just existing units, or combine new and existing units under the same rule.

# Compliance paths

*Model Rules*

## Rate-based Compliance
(lbs/MWh)

**R1** Subcategorized $CO_2$ Emission Rates

*Two specific nationwide emission rate limits for coal plants and NGCC plants*

**R2** State $CO_2$ Emission Rates

*Each power plants must meet the single state average (derived using the nationwide emission rate limits and the share of these resources in a given state)*

**R3** Different $CO_2$ Emission Rates

*The state allows some flexibility in individual power plant's emission rates, as long as the total rate matches the one created by EPA*

## Mass-based Compliance
(tons $CO_2$)

**M1** $CO_2$ Mass Goal for Existing Units

*A statewide emission cap is applied to existing fossil units. States must demonstrate that there is no "leakage" of generation to new fossil units*

**M2** $CO_2$ Mass Goal for Existing Units with New Unit Complement

*A statewide emission cap is applied to all fossil units, existing or new.*

**M3** State Measures: $CO_2$ Mass Goal for Existing Units

*A statewide portfolio of strategies is used to meet the EPA goal for emissions from existing units*

**M4** State Measures: $CO_2$ Mass Goal for Existing and New Units

*A statewide portfolio of strategies is used to meet the EPA goal for emissions from existing and new units*

# Measuring compliance in the proposed CPP: The Proposed 111(d) Emission Rate

- Measured in lbs of $CO_2$ per MWh
- The "currency" for both targets and compliance
- The same formula for initial year (2012), targets (2020-2030), and compliance measurement (2020-2030)
- Applied to and measured at the state level

**What about mass?**

EPA also issued a set of proposed mass-based goals, derived from state-specific emission rate targets.

$$\text{Proposed 111(d) Emission Rate} = \frac{\text{Fossil Fuel Emissions (lbs of } CO_2\text{)}}{\text{Fossil Fuel Generation (MWh)} + \text{Nuclear Generation (MWh)} + \text{Renewable Generation (MWh)} + \text{Energy Efficiency (MWh)}}$$

# Measuring compliance in the final CPP: A host of options

**R1. Rate-based, technology specific "Performance Rates"**

- Measured in lbs of $CO_2$ per MWh
- Applied at the *EGU* level, not at the state level
- Two separate, nationwide rates : one for NGCCs, and one for Fossil Steam

$$\text{Performance Rate} = \frac{\text{EGU Emissions (lbs of } CO_2\text{)}}{\text{EGU Generation (MWh)} + \text{Emission Rate Credits or "ERCs" (MWh)}}$$

- ERCs can be produced by renewables, energy efficiency, new nuclear units, or capacity uprates at nuclear, hydro, or NGCC plants
- These ERCs can be traded between EGUs in any states using this compliance approach

# Measuring compliance in the final CPP: (continued)

**R2. Rate-based, state-specific emission rates**

- Measured in lbs of $CO_2$ per MWh
- Applied at the *EGU* level, not at the state level
- One statewide rate for all EGU types in that state

$$\text{State Emission Rate} = \frac{\text{EGU Emissions (lbs of } CO_2\text{)}}{\text{EGU Generation (MWh)} + \text{Emission Rate Credits or "ERCs" (MWh)}}$$

**R3. Rate-based, different emission rates**

- Another option exists where states set different emission rates for different resources
- Allowable as long as the average state emission rate equals the one set by EPA

# Measuring compliance in the final CPP: (continued)

**M1 and M2. Mass-based emission goals**

- Measured in short tons of $CO_2$
- Level of allowances applied at the *state* level, but EGUs are responsible for making sure they enough allowances to emit
- Allowances could be distributed via an auction-driven market, or some other mechanism
- Two options, with two different caps: states can include just existing fossil units, or existing units *and* new units

# Measuring compliance in the final CPP: (continued)

**M3 and M4. Mass-based emission goals, State Measures**

- Measured in short tons of $CO_2$
- Level of allowances applied and enforced at the *state* level
- States define a suite of strategies to show that emitters in that state will not exceed the mass-based target set by EPA
- States can include just existing fossil units, or existing units *and* new units