



OLR BACKGROUNDER: THE CLEAN POWER PLAN

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Projected Emission Reductions

The Clean Power Plan generally requires most states to lower their power plant emissions of CO₂ by 2030 and meet interim goals before then.

Under their finalized Clean Power Plan guidelines, EPA projects that nationwide CO₂ emissions will be 32% below 2005 levels in 2030.

ISSUE

This report summarizes the U.S. Environmental Protection Agency's (EPA) Clean Power Plan finalized rules, available [here](#).

SUMMARY

The Clean Power Plan (CPP) requires states to submit plans to reduce greenhouse gas emissions from existing fossil fuel-fired power plants. The final rules establish:

1. carbon dioxide (CO₂) emission rates for power plants;
2. state-specific goals for CO₂ emissions based on each state's mix of power plants; and
3. guidelines for state plans to implement emission standards or other measures to meet state-specific goals.

The EPA estimates that without CPP requirements, Connecticut would emit 858 pounds of CO₂ per megawatt hour (or 7,819,591 tons of CO₂ per year) by 2020. Under the CPP, Connecticut's state goals are 786 pounds of CO₂ per megawatt hour (or 6,941,523 tons of CO₂ per year) in 2030. (The CPP uses "short tons," which are U.S. tons, equal to 2,000 pounds, and not metric tons.)

As a member of the Regional Greenhouse Gas Initiative (RGGI), Connecticut may be on track to meet CPP 2030 goals by 2020, according to at least one analysis (Bloomberg BNA). RGGI will review CPP compliance and any program changes this fall.



Several states have challenged the CPP in court, though thus far the courts have ruled the challenges premature. Other states have also passed legislation requiring legislative review or approval of state plans to comply with the CPP.

PERFORMANCE RATES FOR POWER PLANTS

"Best System of Emissions Reduction"

The EPA generally regulates air pollution under the authority of the federal Clean Air Act. Federal law allows the agency to (1) establish emission guidelines for existing stationary sources of air pollutants and (2) require states to develop plans to regulate their existing sources according to those guidelines ([42 USC § 7411](#)).

In the CPP, the EPA established CO₂ emission rates for two types of power plants: (1) fossil fuel-fired electric steam generating units (generally, coal- and oil-fired power plants) and (2) stationary combustion turbines (i.e., natural gas-fired power plants).

The EPA developed these rates based on a "best system of emissions reduction" (BSER), which considers existing approaches used to reduce pollutants from the specified sources (e.g., power plants). The EPA included three approaches (described by the agency as "building blocks") in its BSER for existing power plants:

1. improving the heat rate (i.e., energy conversion efficiency, or the amount of energy used by a power plant to generate one unit of electricity) at affected coal-fired power plants;
2. increasing generation from lower-emitting existing natural gas-fired power plants to replace generation from higher-emitting coal power plants; and
3. increasing generation from new zero-emitting renewable energy power sources to replace affected power plants.

Emission Performance Rate by Plant Type

Based on the BSER, the EPA calculated emission performance rates for each type of power plant. The rates are 1,305 pounds of CO₂ per megawatt-hour for coal- and oil-fired power plants and 771 pounds of CO₂ per megawatt-hour for natural gas-fired power plants.

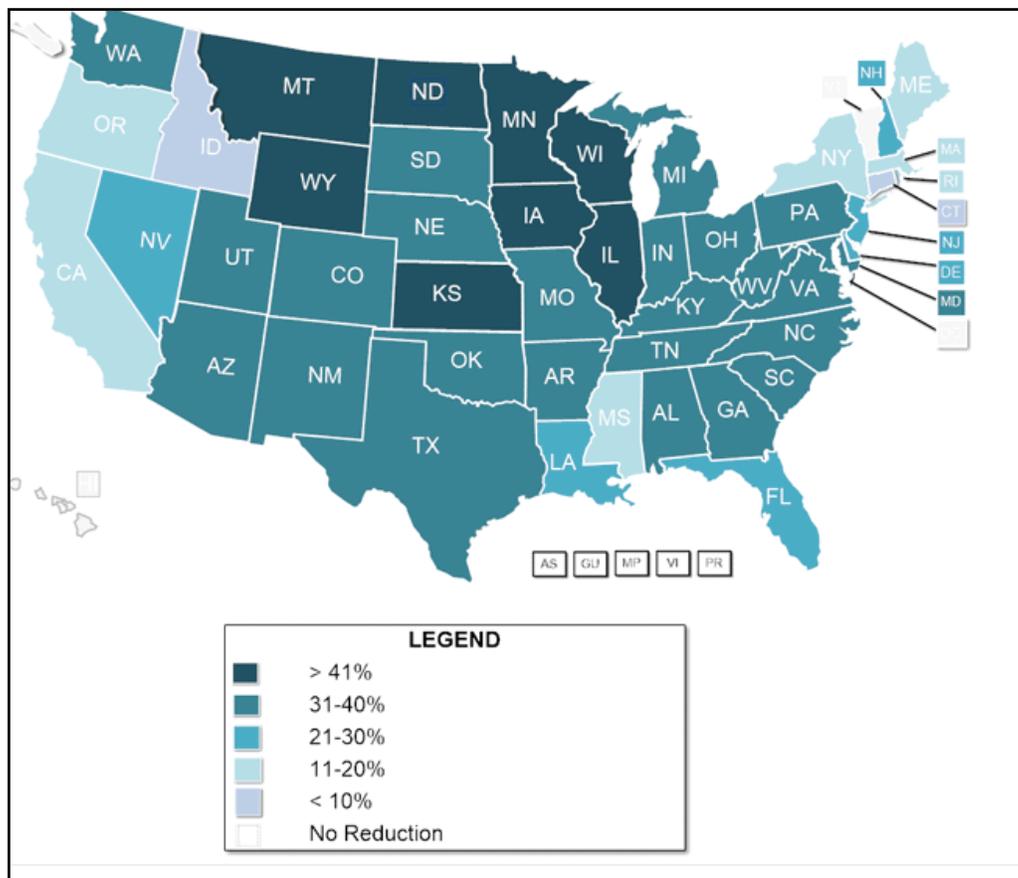
STATE-SPECIFIC CO₂ GOALS

Using the emission performance rates for each type of plant and each state's mix of power plants, the EPA established rate-based CO₂ goals for each state. The agency also established mass-based goals for each state, which express an overall level of

emission reduction in tons per year, rather than pounds per megawatt-hour. To comply with the CPP, a state's affected power plants must achieve the CPP goals, whether expressed as a rate-based goal or a mass-based goal, by 2030 and achieve interim goals between 2022 and 2029. They may do so individually, in aggregate, or in combination with other measures taken by the state, depending on how the state chooses to comply.

Because each state has a different mix of power plants, state goals vary. Figure 1 shows a map from the National Conference of State Legislatures (NCSL) with each state's 2030 goal expressed as a percentage of CO₂ reduction from 2012 levels.

Figure 1: Emission Reduction Percentages (from 2012 levels) for All States



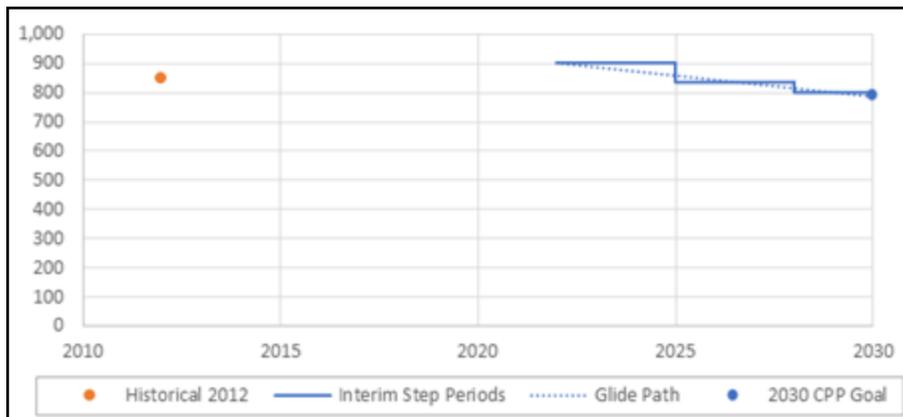
Source: [NCSL](#)

Connecticut's Emission Goals

Figures 2 and 3 show Connecticut's 2012 emissions, interim goals, and 2030 goals. The EPA estimates that in 2012, Connecticut emitted 846 pounds of CO₂ per net megawatt hour, for an annual total of 6,659,803 tons of emissions. The CPP goal for the interim period (2022-2029) is 852 pounds of CO₂ per net megawatt hour or

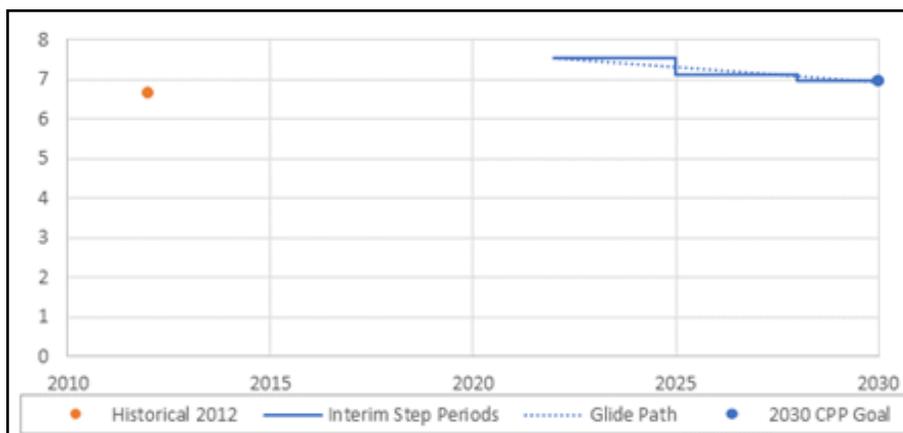
7,237,865 tons of CO₂ per year. The CPP final 2030 goal for Connecticut is 786 pounds of CO₂ per net megawatt hour or 6,941,523 tons of CO₂ per year. The EPA’s state-specific factsheet for Connecticut is available [here](#).

Figure 2: Connecticut’s Emissions and CPP Goals (rate-based, lbs/MWh)



Source: [EPA](#)

Figure 3: Connecticut’s Emissions and CPP Goals (mass-based, in million tons)



Source: [EPA](#)

STATE PLAN GUIDELINES

Options

The final rule authorizes the EPA to establish a federal plan for a state if the agency disapproves a state’s plan or the state does not submit one. The EPA has proposed a federal plan, available [here](#), that states may also use as a model rule to develop their plans. States may submit individual or multistate plans.

Generally, states must choose between two plan approaches: an emissions standards approach or a state measures approach, explained below.

Emissions standards approach. States that decide to implement an “emissions standards approach” must place compliance requirements directly on their affected power plants. They must choose between rate-based emission standards or mass-based emission standards.

Generally, those states opting to use rate-based emissions standards may choose to apply:

1. the CO₂ emission performance rates specified by the EPA that provide separate standards for coal or oil plants and natural gas plants;
2. the state’s rate-based CO₂ emission goal uniformly to all affected power plants; or
3. differing standards for individual power plants or subcategories of power plants, as long as the weighted average emissions of all of the state’s affected power plants meet either the EPA performance rate or the state’s rate-based emission standards.

For both rate-based and mass-based emissions standards approaches, states may opt to include a market-based emissions trading program in their plans. Rate-based plans would use emission rate credits (ERCs), while mass-based plans would establish an emission budget and issue emission allowances.

State measures approach. States that adopt a “state measures approach” may include requirements for entities other than affected power plants to meet their statewide goal. These requirements are not federally enforceable under the CPP, but states that opt for this approach must include federally enforceable emissions standards for their affected power plants that would be triggered if their plans fail to meet emission reduction requirements on schedule (i.e., a “backstop”).

They must also use the mass-based CO₂ emission goal rather than the rate-based goal. States using a mass-based approach may choose to meet either the state’s mass-based CO₂ goal or an emission standard less than or equal to this goal with an additional amount allowed for new power plants (i.e., a “new source complement”).

These plans may include a market-based emission budget trading program that applies to affected power plants as well as other entities (e.g., the Regional Greenhouse Gas Initiative, see below). State measures plans may also include renewable energy or demand-side energy efficiency programs or requirements,

such as renewable portfolio standards, utility- or state-administered incentive programs, or fees for CO₂ emissions.

Timeline

The CPP final rule establishes deadlines for states to submit plans and demonstrate progress, as shown in Table 1.

Table 1: State Plan Deadlines

Date	Requirement
9/6/2016	States must submit to the EPA either their final state plan or a request for an extension. The extension request must (1) identify the final plan approach under consideration, (2) explain why the state needs additional time, and (3) demonstrate how the state has engaged the public and how it intends to do so during the additional time.
9/6/2018	States that requested extensions must submit their final state plans.
2021	States must demonstrate to the EPA that they (1) have met program milestones specified in their plans for the period beginning when the state submits its final plan and ending in 2020 and (2) are on track to implement the approved state plan beginning in 2022.
2022-2029	During this “interim performance period,” states must meet the EPA’s increasingly stringent emission goals in three periods (2022-2024, 2025-2027, and 2028-2029) or the state may incorporate alternative interim goals in its plan that result in equivalent emission reductions (i.e., a “glide path”).
2025	States must report their actual emissions compared with emission levels predicted in their state plans. (They must do this again in 2028 and then every two years thereafter.)
2030	States must meet final emission performance rates or equivalent statewide goals.

Other Requirements

Among other things, state plans must generally include:

1. a description of the plan and its applicability to the state’s affected power plants;
2. a demonstration that the plan will achieve the state's CO₂ emission performance rate or state goal;

3. monitoring, reporting, and recordkeeping requirements for affected power plants;
4. state recordkeeping and reporting requirements; and
5. public participation and certification of a hearing on the state plan.

The state must also demonstrate (1) that they have considered electric system reliability when developing their plan and (2) how they are meaningfully engaging all stakeholders, including workers and low-income communities, communities of color, and indigenous populations living near power plants or otherwise potentially affected by the state's plan.

CLEAN ENERGY INCENTIVE PROGRAM

In the final rules, EPA describes the Clean Energy Incentive Program (CEIP), a voluntary part of the CPP that would reward states for investment in certain renewable energy or demand side energy efficiency projects before 2022.

Specifically, the CEIP allows states to award allowances or ERCs to projects that:

1. begin operation or construction after the state submits its final plan to the EPA or after September 6, 2018, whichever is sooner;
2. are either (a) renewable energy projects (e.g., wind or solar) or (b) energy efficiency projects in low income areas; and
3. generate megawatts of renewable energy or reduce end-use energy demand in 2020 or 2021.

The EPA would match these ERCs or allowances (1:1 for renewable energy projects and 2:1 for energy efficiency projects), up to a cumulative limit of 300 million tons of CO₂ emissions. The ERCs or allowances may then be used by an affected power plant to comply with the CPP.

REGIONAL GREENHOUSE GAS INITIATIVE

Connecticut is one of nine states participating in RGGI, a voluntary effort to regulate and reduce CO₂ emissions from electric power generators through a "cap and trade" program. Each state administers the program through its individual state-specific statutory and regulatory process based on the RGGI Model Rule. The programs limit emissions of CO₂ from electric power plants, issue CO₂ allowances for emissions (an allowance equals one ton of CO₂ emissions), and establish participation in regional CO₂ allowance auctions.

The CPP final rule mentions RGGI as a program the EPA examined when considering market-based approaches to CO₂ emission reduction. The EPA states that the final rule would allow the RGGI states to maintain their current program. [Bloomberg BNA](#) has estimated that six of the nine RGGI states, including Connecticut, are on track to meet CPP 2030 goals by 2020.

It is unknown how or whether RGGI may change as a result of the CPP. Katie Dykes, RGGI chairwoman and Department of Energy and Environmental Protection (DEEP) deputy commissioner, stated that it is premature to discuss RGGI states' evaluation of their CPP targets. The BNA article notes that RGGI will begin a program review this fall that will include CPP compliance and any possible program changes.

LEGAL CHALLENGES

Several states have filed lawsuits challenging the CPP or announced their intention to do so. Most recently, the Court of Appeals for the federal District of Columbia Circuit denied a petition filed by 15 states and a coal mining company to stay the EPA's action. The states argued that the rule should be stayed to protect the states from having to spend money complying with a rule that could later be invalidated in court.

The court ruled that the challenge was premature, as the CPP final rule has not yet been published in the Federal Register. The EPA intends to publish the rule by late October 2015.

RELATED LEGISLATION IN OTHER STATES

Connecticut has not passed legislation related to the CPP. (The 2015 session adjourned before the EPA released the final rule in August.)

According to [NCSL](#), at least six states (Arizona, Arkansas, Kansas, Nebraska, Tennessee and West Virginia) have passed legislation requiring legislative review (and, in some cases, approval) of state plans. Other states have proposed or considered legislation requiring a (1) state public utility commission to approve a state's plan before submitting it to the EPA or (2) study of the CPP's impacts.

HYPERLINKS

U.S. Environmental Protection Agency, *Carbon Pollution Emission guidelines for Existing Stationary Sources: Electric Utility Generating Units*
<http://www2.epa.gov/sites/production/files/2015-08/documents/cpp-final-rule.pdf>, last visited September 10, 2015.

National Conference of State Legislatures, "Final Rule for Future and Existing Power Plants" <http://www.ncsl.org/research/energy/states-reactions-to-proposed-epa-greenhouse-gas-emissions-standards635333237.aspx>, last visited September 10, 2015.

U.S. Environmental Protection Agency, "Connecticut CO₂ Rates (lbs/MWh)"
<https://cleanpowerplanmaps.epa.gov/cpp/images/statelinegraphs/ConnecticutCO2Rates.png>, last visited September 10, 2015.

U.S. Environmental Protection Agency, "Connecticut CO₂ Rates (million short tons)"
<https://cleanpowerplanmaps.epa.gov/cpp/images/statelinegraphs/ConnecticutCO2Mass.png>, last visited September 10, 2015.

U.S. Environmental Protection Agency, *Federal Plan Requirements for Greenhouse Gas Emissions from Electric Utility Generating Units Constructed on or Before January 8, 2014; Model Trading Rules; Amendments to Framework Regulations*
<http://www.epa.gov/airquality/cpp/cpp-proposed-federal-plan.pdf>, last visited September 10, 2015.

U.S. Environmental Protection Agency, *Clean Power Plan: State at a Glance: Connecticut* <http://www.epa.gov/airquality/cpptoolbox/connecticut.pdf>, last visited September 10, 2015.

Bloomberg BNA, "Most RGGI States on Track to Meet Power Plan Targets"
<http://www.bna.com/rggi-states-track-n17179934724/>, last visited September 10, 2015.

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