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EPA's Clean Power Plan: Highlights of the Final Rule

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Summary

On August 3, 2015, the Environmental Protection Agency (EPA) released a prepublication version of the final rule known as the Clean Power Plan (CPP). The CPP final rule requires states to reduce carbon dioxide (CO₂) emissions or emission rates—measured in pounds of CO₂ emissions per megawatt-hour of electricity generation—from existing fossil fuel electricity generating units. EPA estimates that in 2030, the CPP will result in CO₂ emission levels from the electric power sector that are 32% below 2005 levels. This report provides an initial analysis of EPA's final rule.

The 2015 final rule is substantially different from the rule EPA proposed on June 18, 2014. For example, a major change in EPA's final rule is EPA's establishment of uniform national CO₂ emission performance rates for each of the two subcategories of electricity generating units—fossil-fuel-fired electric steam generating units (whether coal, oil, or natural gas) and stationary combustion turbines (natural gas combined cycle)—affected by the rule. These standards are the underpinnings for the state-specific emission rate and mass-based targets.

The state-specific emission rate and mass-based targets are considerably different from the proposed rule. The state targets in the final rule imply lower percentage reductions for some states, while implied percentage reductions are higher for others states compared to the proposed rule. The state-specific targets differ in the final rule, because EPA altered its methodology (i.e., underlying calculations and assumptions) compared to the proposed rule, which involved four “building blocks.” EPA eliminated building block 4 (energy efficiency improvements) and modified components in building blocks 1-3. In particular, the final rule's estimated renewable energy generation level in 2030 is more than twice the level in the proposed rule.

In the final rule, EPA continues to use 2012 data as the baseline for calculated state targets. However, the agency made several state-specific adjustments to address concerns raised by stakeholders. Perhaps the most substantial adjustments are in states that generate a significant percentage of electricity from hydropower.

EPA also modified its treatment of nuclear power in the final rule, removing both “at risk” and under-construction nuclear power from the emission rate calculations. EPA clarified that the final rule would allow the generation from under-construction units, new nuclear units, and capacity upgrades to help states meet their compliance objectives.

EPA would allow states to use “qualified biomass” as a means of meeting state-specific reduction requirements. This appears to be a narrower approach to biomass than in the proposed rule.

Multiple stakeholders raised concerns about electricity reliability. The final rule contains, among other changes, a provision for a reliability “safety valve” for individual power plants. EPA states that there may be a need for generating units to continue to operate and release “excess emissions” if an emergency situation arises that could compromise electric system reliability. The reliability safety valve allows for a 90-day reprieve from CO₂ emissions limits.

The final rule requires states to submit to EPA their plans to comply with the rule by September 6, 2016. A state may choose to seek a two-year extension (September 6, 2018) to submit its final plan if the state needs to complete administrative and stakeholder processes. Under the final rule, states can submit one of two types of plans: an “emission standards” approach or a “state measures” approach. An emission standards approach imposes federally enforceable emission standards directly on affected units in the state. In contrast, a state measures approach must meet equivalent rates statewide, but this approach may include some elements that are not federally

enforceable, such as renewable energy and/or energy efficiency requirements that could apply to affected units or other entities.

In EPA's final rule, compliance begins in 2022, giving the states two additional years (compared to the proposed rule) before their plans must go into effect. Also, EPA created a new program to encourage states to support renewable energy and energy efficiency projects (in low-income communities) in 2020 and 2021.

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Introduction

On August 3, 2015, the Environmental Protection Agency (EPA) released a prepublication version (i.e., not yet published in the *Federal Register*) of its final rule, known as the Clean Power Plan (CPP), pursuant to Section 111(d) of the Clean Air Act.¹ The CPP final rule establishes regulations that would reduce carbon dioxide (CO₂) emissions or emission rates from existing electricity generating units (EGUs).

In general, an affected EGU is a fossil-fuel-fired unit (e.g., coal, oil, or natural gas) that was in operation or had commenced construction as of January 8, 2014;² has a generating capacity above a certain threshold; and sells a certain amount of its electricity generation to the electric grid. EPA estimates that in 2030, the CPP will result in a 32% reduction in CO₂ emissions from the electric power sector in the United States compared to 2005 levels.³ By comparison, in its proposed rule, EPA had estimated that in 2030, the rule would have resulted in a 30% reduction in CO₂ emissions from the electric power sector in the United States compared to 2005 levels.⁴

The proposed rule received considerable attention from Congress, state officials, and a wide spectrum of stakeholders. EPA conducted hundreds of stakeholder meetings and received 4.3 million comments on the proposal.⁵

The CPP final rule is substantially different from the proposed rule published in the *Federal Register* on June 18, 2014.⁶ This report provides an initial analysis of EPA's final rule, summarizing highlights and identifying differences between the final and proposed rules. The topics discussed do not represent an exhaustive list of the differences from the proposed rule or the support or opposition that may be raised by various stakeholders. This report does not provide a legal analysis of the final rule.⁷

¹ 42 U.S.C. §7411(d).

² This is the date of the proposed rule for new sources. See EPA, "Standards of Performance for Greenhouse Gas Emissions From New Stationary Sources: Electric Utility Generating Units," 79 *Federal Register* 1430, January 8, 2014. A "New Source Performance Standards" (NSPS) rule under Section 111(b) of the Clean Air Act is a prerequisite for the standards for existing sources under Section 111(d), which is the focus of this report. EPA also announced a final NSPS rule for this source category on August 3, 2015. See <http://www2.epa.gov/cleanpowerplan/carbon-pollution-standards-new-modified-and-reconstructed-power-plants>.

³ EPA, "Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units," Final Rule, prepublication version (hereafter "Final rule"), August 3, 2015, p. 380. See also EPA, *Regulatory Impact Analysis for the Clean Power Plan Final Rule*, August 2015.

⁴ EPA, *Regulatory Impact Analysis for the Proposed Carbon Pollution Guidelines for Existing Power Plants and Emission Standards for Modified and Reconstructed Power Plants*, June 2014.

⁵ For more background on the statutory authority, history, and legal and administrative processes involving the proposed rulemaking, see CRS Report R43572, *EPA's Proposed Greenhouse Gas Regulations for Existing Power Plants: Frequently Asked Questions*, by (name redacted) et al.

⁶ EPA, "Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units," 79 *Federal Register* 34830, June 18, 2014.

⁷ For more information, see CRS Legal Sidebar WSLG1359, *EPA's Clean Power Plan: Likely Legal Challenges – Part 1*, by (name redacted) and (name redacted) and CRS Legal Sidebar WSLG1360, *EPA's Clean Power Plan: Likely Legal Challenges – Part 2*, by (name redacted) and (name redacted) .

Highlights and Differences from the Proposed Rule

State Plan Requirements and Options

Under Section 111(d) of the Clean Air Act (CAA), states must establish performance standards that reflect the “best system of emission reduction” (BSER) that the EPA Administrator determines has been adequately demonstrated, taking into account costs and any non-air-quality health and environmental impacts and energy requirements.

The final rule requires states to submit to EPA either an initial plan or final plan by September 6, 2016. Like the proposed rule, states can submit either individual plans or multi-state plans. If a state submits an initial plan in 2016, the state can seek an extension from EPA to submit its final plan by September 6, 2018. If EPA grants the extension, the state must submit a progress report by September 6, 2017. By comparison, the proposed rule would have allowed states to receive a one-year extension for submitting their final plan and a two-year extension if states submitted a multi-state plan.

The final rule allows states to select from two types of plans, described by EPA as (1) an “emission standards” approach or (2) a “state measures” approach.⁸ If a state chooses the emission standards approach, the state would implement the federally enforceable emission rate standards (discussed below) directly at the affected EGUs in the state. This approach could involve multiple states and an emission rate trading system or a mass-based trading system.

Emission Rate Targets and Mass-Based Targets

An emission rate target is measured in pounds of CO₂ emissions per megawatt-hour (MWh) of electricity generation. EPA uses the state-specific emission rate targets to calculate equivalent state-specific mass-based targets, which are measured in metric tons of CO₂. Although EPA's emission rates are in pounds per megawatt-hour, most national and international measures of CO₂ emissions are provided in metric tons. One metric ton is approximately 2,205 pounds.

A state measures approach allows a state to achieve the equivalent of the CO₂ emission standards approach by using some combination of federally enforceable standards for EGUs and elements that would be enforceable only under state laws. Examples of such elements include renewable energy and/or energy efficiency requirements that could be applied to affected EGUs or other entities. A plan that employs the state measures approach requires the inclusion of federally enforceable standards that would take effect if the state measures approach did not achieve the required result. If a state uses the state measures approach, the state must use a mass-based target “to provide certainty that the state measures are achieving the required emission reductions.”⁹ Multi-state systems are allowed with this approach as well.¹⁰

⁸ Final rule, p. 241; see also EPA, *The Role of States: States Decide How to Achieve Their Goal*, August 2015, <http://www.epa.gov/airquality/cpp/fs-cpp-states-decide.pdf>.

⁹ Final rule, p. 852.

¹⁰ Nine states in the Northeast and Mid-Atlantic regions have established a program, which took effect in 2009, to control CO₂ emissions from power plants. For more details, see CRS Report R41836, *The Regional Greenhouse Gas Initiative: Lessons Learned and Issues for Congress*, by (name redacted).

Federal Implementation Plan

EPA cannot compel a state to submit a state plan pursuant to CAA Section 111(d). If a state fails to submit a satisfactory plan by EPA's regulatory deadline, CAA Section 111(d) directs EPA to prescribe a plan for the state, often described as a federal implementation plan (FIP).

On the same day (August 3, 2015) that EPA released a prepublication version of its CPP final rule, EPA released a prepublication version of a proposed rule that presents two options for a FIP: a rate-based and a mass-based emissions trading program.¹¹ A 90-day comment period for the proposed rule will start when the proposal is published in the *Federal Register*.

Timing Requirements for State Targets

The proposed rule set a final emission rate target for each state for 2030 and an interim target to be achieved “on average” between 2020 and 2029. In EPA's final rule the interim targets would be measured between 2022 and 2029, effectively giving the states an additional two years before reductions are necessary. As discussed below, EPA created a new program (the Clean Energy Incentive Program) in the final rule to encourage states to take action in 2020 and 2021.

In addition, the final rule requires states to demonstrate their progress in implementing a gradual application of BSER with “glide paths” that the states identify for reductions in three time periods: 2022-2024, 2025-2027, and 2028-2029. The interim target is, nonetheless, to be achieved using the average of the eight-year interim period.

National Performance Standards

A major change in EPA's final rule compared with the proposed rule is its core of what EPA called “a traditional, performance-based approach to establishing emission guidelines for affected sources.”¹² The final rule establishes uniform national CO₂ emission performance rates (measured in pounds of CO₂ per MWh of electricity generation) for each of the two subcategories of EGUs—fossil-fuel-fired electric steam generating units (e.g., coal, oil, or natural gas units) and stationary combustion turbines (e.g., natural gas combined cycle units)—affected by the rule. These standards are the underpinnings for the state-specific emission rates and mass-based targets. The methodology for these targets is discussed below.

State-Specific Targets

Like the proposed rule, EPA's final rule contains state-specific emission rate targets and mass-based targets. These targets apply to the state's total electricity portfolio (which can include generation from renewables and nuclear power), not the individual units, as with the national performance standards (above). The interim and final targets, however, differ from the ones in the proposed rule. **Table A-1** lists each state's 2012 baseline, its 2030 emission rate target, and the implied percentage reduction required to achieve the 2030 target. The mass-based targets are based on the emission rate targets.

¹¹ Available at <http://www.epa.gov/airquality/cpp/cpp-proposed-federal-plan.pdf>.

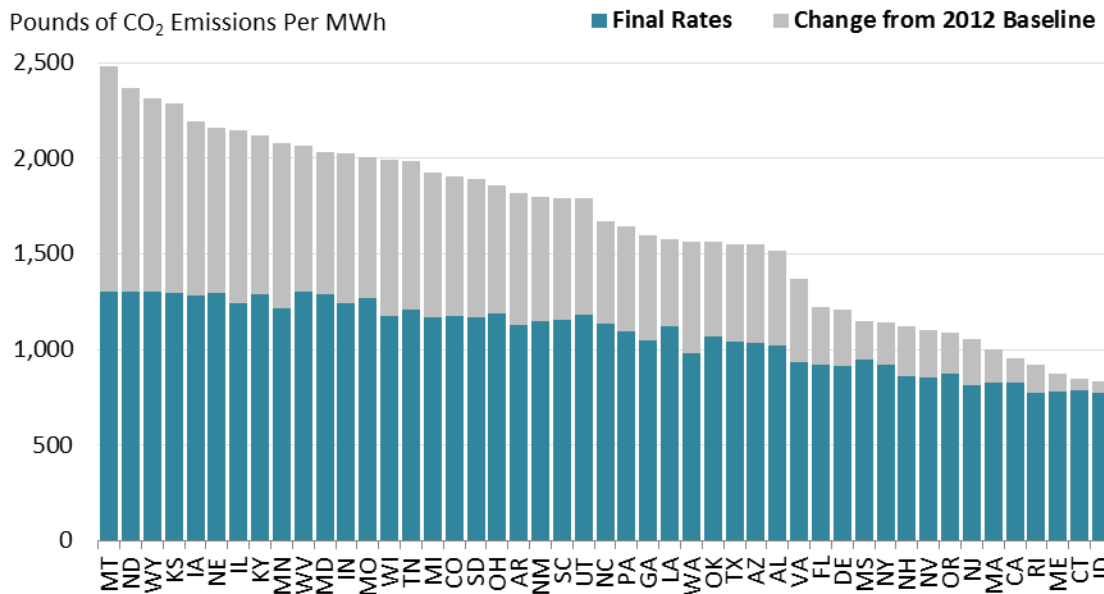
¹² Final rule, p. 230.

For comparison purposes, **Table A-1** also lists the same information from the proposed rule. The final rule implies lower percentage reduction requirements for some states and implies higher percentage reduction requirements for others compared to the proposed rule.

Figure 1 compares the state-specific emission rate targets in 2030 (the dark-colored columns) with the state-specific emission rate baselines in 2012 (the combined dark- and light-colored columns). The light-colored columns illustrate the emission rate reductions required by 2030.

Figure 1. State-Specific Emission Rate Targets in 2030 Compared to 2012 Emission Rate Baselines

States Listed in Order of Their 2012 Emission Rate Baselines (High to Low)



Source: Prepared by CRS; final rule target and baseline data from EPA, CO₂ Emission Performance Rate and Goal Computation Technical Support Document for CPP Final Rule (August 2015) and accompanying spreadsheets, <http://www2.epa.gov/cleanpowerplan/clean-power-plan-final-rule-technical-documents>.

Notes: The dark-colored columns illustrate the state-specific emission rate targets in 2030. The combined dark- and light-colored columns illustrate the state-specific emission rate baselines in 2012. The light-colored columns illustrate the emission rate reduction requirements states must achieve by 2030.

EPA did not establish emission rate goals for Vermont and the District of Columbia because they do not currently have affected EGUs. Although Alaska and Hawaii have targets in the proposed rule, in its final rule, EPA stated that Alaska, Hawaii, and the two U.S. territories with affected EGUs (Guam and Puerto Rico) will not be required to submit state plans on the schedule required by the final rule, because EPA “does not possess all of the information or analytical tools needed to quantify” the best system of emission reduction for these areas. EPA stated it will “determine how to address the requirements of section 111(d) with respect to these jurisdictions at a later time.”

EPA did not establish emission rate goals for Vermont and the District of Columbia because they do not currently have affected EGUs. In its final rule, EPA stated that Alaska, Hawaii, and the two U.S. territories with affected EGUs (Guam and Puerto Rico) will not be required to submit state plans on the schedule required by the final rule. EPA asserts it “does not possess all of the information or analytical tools needed to quantify” the BSERs for these areas. EPA stated it will

“determine how to address the requirements of section 111(d) with respect to these jurisdictions at a later time.”¹³

In addition, EPA crafted emission rate targets for three areas of Indian country. The tribes have “the opportunity, but not the obligation,” to establish and submit plans to meet their emission rate targets. If a tribe does not seek authority to submit its own plan, EPA is responsible for establishing a plan if the agency determines at a later date that “a plan is necessary or appropriate.”¹⁴

EPA's Methodology

The methodology (i.e., underlying calculations and assumptions) in the final rule that EPA used to create (1) the national CO₂ emission performance rates and (2) the state-specific emission rate (and mass-based) targets is considerably different than EPA's methodology in its proposed rule. Although an in-depth comparison between the two approaches is beyond the scope of this report,¹⁵ some initial observations are included below.

In its proposed rule, EPA applied four “building blocks” to the state 2012 baselines to generate emission rate targets for each state. The four building blocks in the June 2014 proposed rule involved estimates of various opportunities for states to decrease their emission rates:

1. Coal-fired power plant efficiency improvements;
2. Natural gas combined cycle (NGCC) displacement of more carbon-intensive sources, particularly coal;
3. Increased use of renewable energy and preservation of existing and under-construction nuclear power; and
4. Energy efficiency improvements.

In its final rule, EPA eliminated building block 4 and modified the components in building blocks 1-3. In particular, the renewable energy assumptions (building block 3) changed dramatically in the final rule. According to EPA, the final rule's renewable energy generation level in 2030 is more than twice the level in the proposed rule.¹⁶ In addition, EPA assumed a coal-fired plant efficiency improvement of 6% in the proposed rule (building block 1), while the final rule includes region-specific improvements that range from 2.1% to 4.3%. The natural gas generation assumptions in building block 2 changed as well.

In its final rule, EPA established CO₂ emission performance standards for two subcategories of affected sources: (1) fossil-fuel-fired electric steam generating units (e.g., coal- and oil-fired units) and (2) stationary combustion turbines (e.g., natural gas combined cycle units). To derive the BSER on which these rates were based, EPA divided the states into three regions, illustrated in **Figure 2** and compiled 2012 data—CO₂ emissions and electricity generation—from each source in each state. Using the final rule's new building block applications, EPA calculated annual emission rates for each source type in each of the three regions. EPA's final rule uses the least

¹³ Ibid., p. 417.

¹⁴ Ibid., p. 1007.

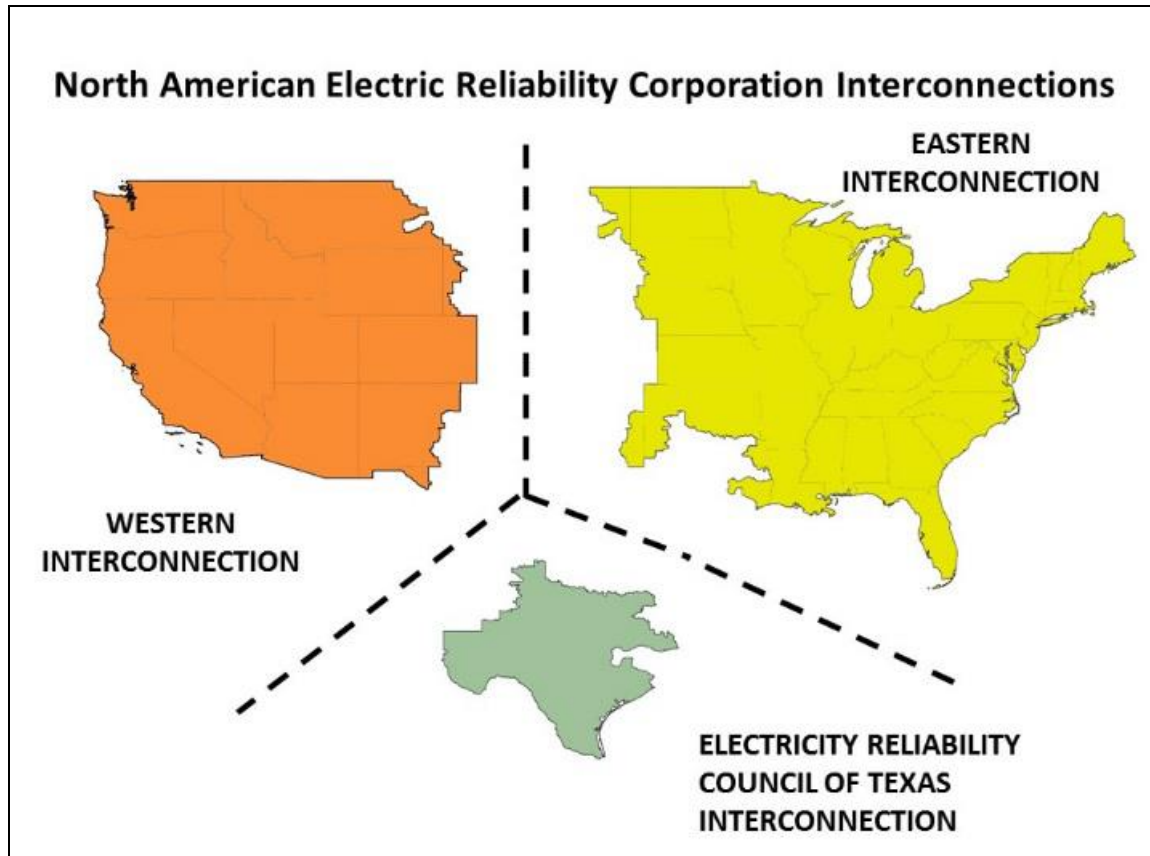
¹⁵ For a detailed analysis of the proposed rule's methodology, see CRS Report R43652, *State CO₂ Emission Rate Goals in EPA's Proposed Rule for Existing Power Plants*, by (name redacted).

¹⁶ See EPA, *Greenhouse Gas Mitigation Measures*, Technical Support Document, August 2015, p. 4-11, <http://epa.gov/airquality/cpp/tsd-cpp-ghg-mitigation-measures.pdf>.

stringent emission rate for each source as the national performance standard for each fossil fuel source.

To generate state-specific emission rate targets, EPA applied the annual performance rates to each state's baseline (2012) fossil fuel generation mix. These state-specific emission rate targets are listed in **Table A-1**.

Figure 2. Regions in EPA's Methodology



Source: Reproduced from EPA, *Overview of the Clean Power Plan: Cutting Carbon Pollution from Power Plants*, August 2015, <http://www.epa.gov/airquality/cpp/fs-cpp-overview.pdf>. The figure has a minor error, as the Texas region should be labeled as the Electric Reliability Council of Texas (ERCOT) Interconnection.

Notes: EPA did not establish emission rate goals for Vermont and the District of Columbia because they do not currently have affected EGUs. Although Alaska and Hawaii have targets in the proposed rule, in its final rule, EPA stated that Alaska, Hawaii, and the two U.S. territories with affected EGUs (Guam and Puerto Rico) will not be required to submit state plans on the schedule required by the final rule, because EPA "does not possess all of the information or analytical tools needed to quantify" the best system of emission reduction for these areas. EPA stated it will "determine how to address the requirements of section 111(d) with respect to these jurisdictions at a later time."

2012 Baseline

After EPA's proposed rule in June 2014, multiple states and stakeholders raised a variety of concerns with EPA's use of 2012 as the baseline year to calculate the emission rate targets. In both its proposed and final rules, EPA uses 2012 as the baseline year in its emission rate and mass-based target calculations. However, EPA made several state-specific adjustments in the final rule to address some of the concerns. Perhaps the most substantial adjustments are in states that

generate a significant percentage of electricity from hydropower. According to EPA, 2012 was an “outlier” year for snowpack, resulting in relatively high use of hydropower and a corresponding decrease in fossil fuel generation in particular states.¹⁷ As **Table A-1** indicates, this adjustment seemed to have a considerable impact in states that use a high percentage of hydropower: Washington, Oregon, Idaho, and Maine. In addition, EPA made other state-specific adjustments for EGUs that came online during 2012.

Renewable Energy Treatment

Renewable energy played a significant role in the proposed rule, and its role appears to be even greater in the final rule. Although an in-depth analysis of renewable energy in the final rule is beyond the scope of this report, a comparison of estimated results from the Regulatory Impact Analyses (RIA) accompanying the proposed and final rules indicates a substantial increase in EPA’s analysis of renewable energy’s contribution to the nation’s electricity portfolio by 2030. For example, in the proposed rule RIA, non-hydro renewable energy generation was projected to increase by 2% in 2030, compared to a business-as-usual scenario.¹⁸ In the final rule RIA, non-hydro renewable energy generation was projected to increase by 9% in 2030 (under a rate-based scenario), compared to a business-as-usual scenario.¹⁹

In addition, renewable energy is included in a new voluntary program that EPA developed for the final rule. This program would provide incentives to states to develop renewable energy projects in 2020 and 2021 (discussed below).

Energy Efficiency Treatment

As mentioned above, EPA’s final rule does not include demand-side energy efficiency (EE) improvements in its emission rate methodology. In EPA’s proposed rule, EE improvements were addressed in building block 4. The impacts of building block 4 on emission rate targets varied by state.²⁰ In general, the effects appeared more pronounced in states that generate a large percentage of their electricity from sources that were not already included in the proposed rule emission rate equation—primarily hydroelectric power and, to some extent, nuclear power.

In its final rule, EPA explained its reasoning for removing EE from the building blocks:

[Clean Air Act] section 111 has allowed regulated entities to produce as much of a particular good as they desire provided that they do so through an appropriately clean (or low-emitting) process. While building blocks 1, 2, and 3 fall squarely within this paradigm, the proposed building block 4 does not.²¹

Building block 4 is outside our paradigm for section 111 as it targets consumer-oriented behavior and demand for the good, which would reduce the amount of electricity to be produced.²²

¹⁷ Final rule, starting on p. 793.

¹⁸ EPA, *Regulatory Impact Analysis for the Proposed Carbon Pollution Guidelines for Existing Power Plants and Emission Standards for Modified and Reconstructed Power Plants*, June 2014, Table 3-11.

¹⁹ EPA, *Regulatory Impact Analysis for the Clean Power Plan Final Rule*, August 2015, Table 3-11.

²⁰ See Table 7 in CRS Report R43652, *State CO₂ Emission Rate Goals in EPA’s Proposed Rule for Existing Power Plants*, by (name redacted).

²¹ Final rule, p. 390.

²² *Ibid.*, p. 604.

Although EPA removed EE from its emission rate calculations, states may choose to employ EE improvement activities as part of their plans to meet their targets. In particular, the final rule includes a new voluntary program that provides incentives for early investments (in 2020 and 2021) in EE programs in low-income communities (as discussed below).

Nuclear Power Treatment

EPA modified its treatment of nuclear power in the final rule. In its proposed rule, EPA factored “at risk” nuclear power (estimated at 5.8%)²³ into the state emission rate methodology. As a result, states had an incentive to maintain the at-risk nuclear power generation or their emission rates would increase (all else being equal). The final rule does not include at-risk nuclear generation in its building block calculations. EPA stated:

It is inappropriate to base the BSER in part on the premise that the preservation of existing low- or zero-carbon generation, as opposed to the production of incremental, low- or zero-carbon generation, could reduce CO₂ emissions from current levels.²⁴

In addition, in its final rule, EPA decided not to include under-construction nuclear power capacity in the emission rate calculations. In its proposed rule, EPA identified five under-construction nuclear units at facilities in Georgia, South Carolina, and Tennessee. Including the estimated generation from these anticipated units in the emission rate equation would have substantially lowered the emission rate targets of these three states. If the final rule had retained this feature, and these nuclear units did not complete construction and enter service, these three states would likely have more difficulty achieving their emission rate goals. EPA clarified that the final rule would allow the generation from under-construction units, new nuclear units, and capacity upgrades to help sources meet emission rate or mass-based targets.

Biomass Treatment²⁵

In its final rule, EPA would allow states to use “qualified biomass” as a means of meeting state-specific reduction requirements.²⁶ This appears to be a narrower approach than was taken in the proposed rule. Also, EPA requires additional accounting and reporting requirements if a state decides to use qualified biomass. The agency gives some indication as to which biomass types may qualify:

The EPA generally acknowledges the CO₂ and climate policy benefits of waste-derived biogenic feedstocks and certain forest- and agriculture-derived industrial byproduct feedstocks.... Use of such waste derived and certain industrial byproduct biomass feedstocks would likely be approvable as qualified biomass in a state plan when proposed with measures that meet the biomass monitoring, reporting and verification requirements.²⁷

²³ Using projections from Energy Information Administration, EPA determined that 5.8% of total U.S. nuclear power capacity was at risk of being retired in the near future. See EPA, *GHG Abatement Measures*, Technical Support Document, June 2014, <http://www2.epa.gov/sites/production/files/2014-06/documents/20140602tsd-ghg-abatement-measures.pdf>.

²⁴ Final rule, p. 388.

²⁵ For more information on biomass issues, see CRS Report R41440, *Biopower: Background and Federal Support*, by (name redacted)

²⁶ EPA defines qualified biomass as a “feedstock that is demonstrated as a method to control increases of CO₂ levels in the atmosphere.” Final rule, p. 1552.

²⁷ *Ibid.*, p. 1166.

EPA's review of biomass power and its role in the CPP will continue, with the agency looking at efforts external but still relevant to the CPP and biomass. For example, in November 2014, EPA released a second draft of the technical report, *Framework for Assessing Biogenic Carbon Dioxide for Stationary Sources*. EPA expects another round of peer review for this report in 2015. In addition, EPA stated that it will “closely monitor overall bioenergy demand and associated landscape conditions for changes that might have negative impacts on public health or the environment.”²⁸

Clean Energy Incentive Program²⁹

EPA's final CPP includes a Clean Energy Incentive Program (CEIP) “to reward early investments in renewable energy (RE) generation and demand-side energy efficiency (EE) measures ... during 2020 and/or 2021.”³⁰ The CEIP was not part of the proposed rule and is optional for states. States would need to include particular design elements in their final plans if they want to participate.

The CEIP sets up a system to award credits to EE projects in low-income communities and RE projects (only wind and solar) in participating states.³¹ The credits are in the form of emission rate credits (ERCs) or emission allowances, depending on whether a state uses an emission rate or mass-based target, respectively. The credits could be sold to or used by an affected emission source to comply with the state-specific requirements (e.g., emission rate or mass-based targets).

RE projects would receive one credit (either an allowance or ERC) from the state and one credit from EPA for every two megawatt-hours (MWh) of solar or wind generation. EE projects in low-income communities would receive double credits: For every two MWh of avoided electricity generation, EE projects will receive two credits from the state and two credits from EPA. EPA will match up to 300 million short tons in credits during the CEIP program life. The amount of EPA credits potentially available to each state participating in the CEIP depends on the relative amount of emission reduction each state is required to achieve compared to its 2012 baseline. Thus, states with greater reduction requirements would have access to a greater share of the EPA credits.

To generate the credits, states would effectively borrow from their mass-based or rate-based compliance targets for the interim 2022-2029 compliance period. EPA would provide its share of credits from a to-be-established reserve. In its proposed rule for the federal implementation plan (discussed above), EPA is asking for comments on the size of the credit reserve and other CEIP implementation details.³²

Electricity Reliability³³

The proposed CPP generated substantial interest in the potential effects of the rule on the reliability of the electric power supply. EPA asserts that it does not want compliance with the final rule to interfere with industry's ability to maintain the reliability of the nation's electricity supply. EPA's final rule would address electric system reliability in several ways.

²⁸ Ibid., p. 1165.

²⁹ This section was written by (name redacted), Specialist in Energy and Environmental Policy, 7-.....

³⁰ EPA, *Fact Sheet: Clean Energy Incentive Program*, August 2015, <http://www.epa.gov/airquality/cpp/fs-cpp-ceip.pdf>.

³¹ Final rule, starting on p. 865.

³² Available at <http://www.epa.gov/airquality/cpp/cpp-proposed-federal-plan.pdf>.

³³ This section was written by (name redacted), Specialist in Energy Policy, 7 -... ..

In the final rule, we are requiring that each state demonstrate in its final state plan submittal that it has considered reliability issues in developing its plan. Second, we recognize that issues may arise during the implementation of the guidelines that may warrant adjustments to a state's plan in order to maintain electric system reliability. The final guidelines make clear that states have the ability to propose amendments to approved plans in the event that unanticipated and significant electric system reliability challenges arise and compel affected EGUs to generate at levels that conflict with their compliance obligations under those plans.³⁴

In particular, the final rule contains a provision for a reliability "safety valve" for individual power plants.³⁵ EPA states that there may be a need for an EGU to continue to operate and release "excess emissions" if an emergency situation arises that could compromise electric system reliability. The reliability safety valve allows for a 90-day reprieve from carbon emissions limits. EPA stated that the safety valve could be triggered only in an emergency situation. For example, extreme weather events are "of short duration and would not require major—if any—adjustments to emission standards for affected EGUs or to state plans."³⁶

In addition, EPA, the Department of Energy, and the Federal Energy Regulatory Commission have agreed to coordinate efforts while the state compliance plans are developed and implemented to ensure that the power sector can continue to maintain electric reliability. A formal memorandum expresses their joint understanding of how they will cooperate, monitor, implement, share information, and resolve difficulties that may be encountered.³⁷

³⁴ Final rule, p. 49.

³⁵ *Ibid.*, p. 1122.

³⁶ *Ibid.*, p. 1123.

³⁷ *EPA-DOE-FERC Coordination on Implementation of the Clean Power Plan*, August 2015, <http://www.ferc.gov/media/headlines/2015/PPP-EPA-DOE-FERC.pdf>.

Appendix. Additional Information

Table A-1. State-Specific Emission Rate Targets (2030) and Reduction Requirements Compared to 2012 Baselines

Proposed Rule vs. Final Rule

State	Proposed Rule			Final Rule		
	2012 Emission Rate Baseline	2030 Emission Rate Target	Percentage Change Compared to Baseline	2012 Emission Rate Baseline	2030 Emission Rate Target	Percentage Change Compared to Baseline
Pounds of CO₂ emissions per MWh						
Alabama	1,444	1,059	27%	1,518	1,018	33%
Alaska	1,351	1,003	26%	Not established	Not established	NA
Arizona	1,453	702	52%	1,552	1,031	34%
Arkansas	1,634	910	44%	1,816	1,130	38%
California	698	537	23%	954	828	13%
Colorado	1,714	1,108	35%	1,904	1,174	38%
Connecticut	765	540	29%	846	786	7%
Delaware	1,234	841	32%	1,209	916	24%
Florida	1,199	740	38%	1,221	919	25%
Georgia	1,500	834	44%	1,597	1,049	34%
Hawaii	1,540	1,306	15%	Not established	Not established	NA
Idaho	339	228	33%	834	771	8%
Illinois	1,894	1,271	33%	2,149	1,245	42%
Indiana	1,924	1,531	20%	2,025	1,242	39%
Iowa	1,552	1,301	16%	2,195	1,283	42%
Kansas	1,940	1,499	23%	2,288	1,293	43%
Kentucky	2,158	1,763	18%	2,122	1,286	39%
Louisiana	1,455	883	39%	1,577	1,121	29%
Maine	437	378	14%	873	779	11%
Maryland	1,870	1,187	37%	2,031	1,287	37%
Massachusetts	925	576	38%	1,003	824	18%
Michigan	1,690	1,161	31%	1,928	1,169	39%
Minnesota	1,470	873	41%	2,082	1,213	42%
Mississippi	1,093	692	37%	1,151	945	18%
Missouri	1,963	1,544	21%	2,008	1,272	37%
Montana	2,246	1,771	21%	2,481	1,305	47%
Nebraska	2,009	1,479	26%	2,161	1,296	40%
Nevada	988	647	35%	1,102	855	22%

State	Proposed Rule			Final Rule		
	2012 Emission Rate Baseline	2030 Emission Rate Target	Percentage Change Compared to Baseline	2012 Emission Rate Baseline	2030 Emission Rate Target	Percentage Change Compared to Baseline
New Hampshire	905	486	46%	1,119	858	23%
New Jersey	928	531	43%	1,058	812	23%
New Mexico	1,586	1,048	34%	1,798	1,146	36%
New York	978	549	44%	1,140	918	19%
North Carolina	1,647	992	40%	1,673	1,136	32%
North Dakota	1,994	1,783	11%	2,368	1,305	45%
Ohio	1,850	1,338	28%	1,855	1,190	36%
Oklahoma	1,387	895	35%	1,565	1,068	32%
Oregon	717	372	48%	1,089	871	20%
Pennsylvania	1,531	1,052	31%	1,642	1,095	33%
Rhode Island	907	782	14%	918	771	16%
South Carolina	1,587	772	51%	1,791	1,156	35%
South Dakota	1,135	741	35%	1,895	1,167	38%
Tennessee	1,903	1,163	39%	1,985	1,211	39%
Texas	1,284	791	38%	1,553	1,042	33%
Utah	1,813	1,322	27%	1,790	1,179	34%
Virginia	1,302	810	38%	1,366	934	32%
Washington	756	215	72%	1,566	983	37%
West Virginia	2,019	1,620	20%	2,064	1,305	37%
Wisconsin	1,827	1,203	34%	1,996	1,176	41%
Wyoming	2,115	1,714	19%	2,315	1,299	44%

Source: Prepared by CRS; proposed rule target and baseline data from EPA, *Goal Computation Technical Support Document* (June 2014) and accompanying spreadsheets, <http://www2.epa.gov/carbon-pollution-standards/clean-power-plan-proposed-rule-technical-documents>; final rule target and baseline data from EPA, *CO₂ Emission Performance Rate and Goal Computation Technical Support Document for CPP Final Rule* (August 2015) and accompanying spreadsheets, <http://www2.epa.gov/cleanpowerplan/clean-power-plan-final-rule-technical-documents>.

Notes: EPA did not establish emission rate goals for Vermont and the District of Columbia because they do not currently have affected EGUs. Although Alaska and Hawaii had targets in the proposed rule, in its final rule, EPA stated that Alaska, Hawaii, and the two U.S. territories with affected EGUs (Guam and Puerto Rico) will not be required to submit state plans on the schedule required by the final rule, because EPA “does not possess all of the information or analytical tools needed to quantify” the best system of emission reduction for these areas. EPA stated it will “determine how to address the requirements of section 111(d) with respect to these jurisdictions at a later time.”

EPA used different formulas to prepare the 2012 baselines in the proposed and final rules. The final rule baseline includes pounds of CO₂ generated from affected EGUs in each state (the numerator) divided by the electricity generated from these units. The proposed rule baseline included pounds of CO₂ generated from affected EGUs in each state (the numerator) divided by the electricity generated from these units *and* “at-risk” nuclear power and renewable energy generation (the denominator). Including these additional elements in the denominator can yield lower baselines compared to the final rule.

In addition, EPA made several state-specific adjustments to the 2012 baselines in the final rule. In all cases, these adjustments increased the state baselines.

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