Five Ways EPA's Final Clean Power Plan Rule Provides More Flexibility to States

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EPA released the final Clean Power Plan rule[1] on August 3, 2015, setting the first ever national limits on carbon pollution from existing fossil fuel-fired power plants under the authority of Section 111(d) of the Clean Air Act. EPA received over four million public comments on the proposed rule, issued June 2, 2014, and the Agency made significant changes to the final rule in response, revising the approach to setting state goals and changing aspects of the program's implementation. EPA projects that the final rule will achieve a 32 percent reduction in power-sector CO_2 emissions by 2030 from 2005 levels,[2] a more ambitious result than the 30 percent reduction projected to be achieved by the proposed rule over the same timeframe.[3]

Many states and stakeholders submitted comments requesting additional compliance flexibility, and in the final rule EPA provided that flexibility in five key ways: making the required interim reductions more gradual; allowing power plants to more easily access emission reduction opportunities in other states through clean energy investments or market-based tools; providing all states more time to develop and implement state plans; creating a Clean Energy Incentive Program to drive early investments in renewable energy and energy efficiency; and employing a rate-to-mass translation methodology to make existing source emission budgets more equivalent to state rate-based goals, which results in less stringent budgets for most states compared to those in the proposed rule.

Background: EPA's Revised Approach to Setting Emission Guidelines

Under Clean Air Act Section 111(d),[4] EPA sets minimum emission guidelines for categories of existing sources. The guidelines are based on the emission performance of the "best system of emission reduction" as determined by EPA, and states establish equivalent performance standards for the regulated categories of sources through state plans.[5] EPA's final rule revises the form of the emission guidelines and the definition of the best system of emission reduction that were proposed, responding to stakeholder comments, although EPA has broadly maintained the same approach.

Proposal Approach

In the 2014 proposed rulemaking EPA identified state-by-state goals expressed as a single emission rate in pounds of CO_2 per megawatt hour (lbs/MWh) for a combined category of power plants that included coal, oil, and natural gas steam power plants and combined cycle natural gas plants.[6] The state goals were based on a best system of emission reduction that reflected pollution reduction potential at the covered power plants through four "building block" strategies that were already being used by states and companies. These were:

1. improved efficiency at coal power plants,
2. shifts in electricity generation from coal power plants to lower-emitting combined cycle natural gas plants,
3. increased renewable energy deployment and preservation of at-risk nuclear generation, and
4. increased deployment of demand-side energy efficiency.[7]

EPA identified levels of implementation that could be reasonably achieved for each of the four building blocks and applied them on a state-by-state basis to arrive at a level of carbon emission improvement that could be achieved collectively by the power plants in a state. This level of improvement was expressed as a state-specific rate-based goal. EPA offered states broad flexibility to meet state goals, including the flexibility to meet goals on a mass emission budget-basis instead of a rate-basis.[8]

Final Rule Revised Approach

In the final rule, EPA made revisions to the form of the emission guideline and to the best system of emission reduction in response to stakeholder comments, although it has broadly maintained the same approach. Chief among these changes is that EPA finalized a more traditional guideline expressed as a single, nationally-consistent standard for each category of sources.[9] The minimum performance level for all existing coal, oil, and gas steam power plants is 1,305 lbs/MWh in 2030, and the minimum performance level for all existing combined cycle natural gas power plants is 771 lbs/MWh in 2030.[10]

The final emission guidelines reflect the level of improvement than can be achieved by each category of units collectively after application of a revised set of building blocks. The best system of emission reduction is now defined as a combination of three—not four—building blocks.[11] Neither demand-side energy efficiency, previously building block four,[12] nor nuclear energy, previously a component of building block three,[13] are used as elements of the final building blocks, though new energy efficiency and nuclear resources may be used for compliance.[14] Another key change is that all of the building blocks are applied on a regional basis, reflecting the emission reduction potential on the three electricity grids in the United States (eastern, western, and Texas).[15] EPA then establishes the least stringent regional rate for each of the two power plant categories as the nationally uniform performance rate for each year of analysis (2022-2030).[16] Other changes to the building blocks include:

- Building Block 1 – Efficiency improvements at coal-fired power plants: EPA determined that a more modest level of improvement was possible—2.1 to 4.3 percent, instead of 6 percent in the proposal—and applied that at a regional, instead of national, level.[17]
- Building Block 2 – Shifting coal, oil, or gas steam electricity generation to lower-emitting combined cycle natural gas plants: EPA provides for a more gradual phase-in to more efficient gas plants, evaluated on a regional basis. In the proposal, EPA assumed this shift would be accomplished in the first year of the compliance period, evaluated on a state-by-state basis.[18]
- Building Block 3 – Shifting fossil fuel-fired electricity generation to renewable energy generation: EPA revises its approach by evaluating technical and economic potential for deployment of renewable energy resources on a regional basis, as opposed to using a methodology based on the level of state renewable energy goals, and assumes that deploying renewable energy will reduce emissions from fossil fuel-fired power plants.[19]

Under this new approach, states continue to have the flexibility to meet the guidelines in different ways. States can now opt to develop a plan that requires all coal, oil, and gas steam plants to meet the national fossil steam performance rate and all combined cycle natural gas plants to meet the combined cycle natural gas performance rate. In addition, states also have the option, as they did under the proposed rule, to develop plans that would meet the required overall level of emission improvement through a state-wide rate for all fossil fuel-fired power plants, or through a mass-based emission

budget.[20] EPA also provides the option of using a "state measures" plan approach, under which a state could include a combination of federally-enforceable measures that apply to affected power plants and other measures enforceable at the state level; such a plan would require the inclusion of a federally-enforceable backstop.[21]

Five Ways EPA's Final Rule Gives States Greater Compliance Flexibility

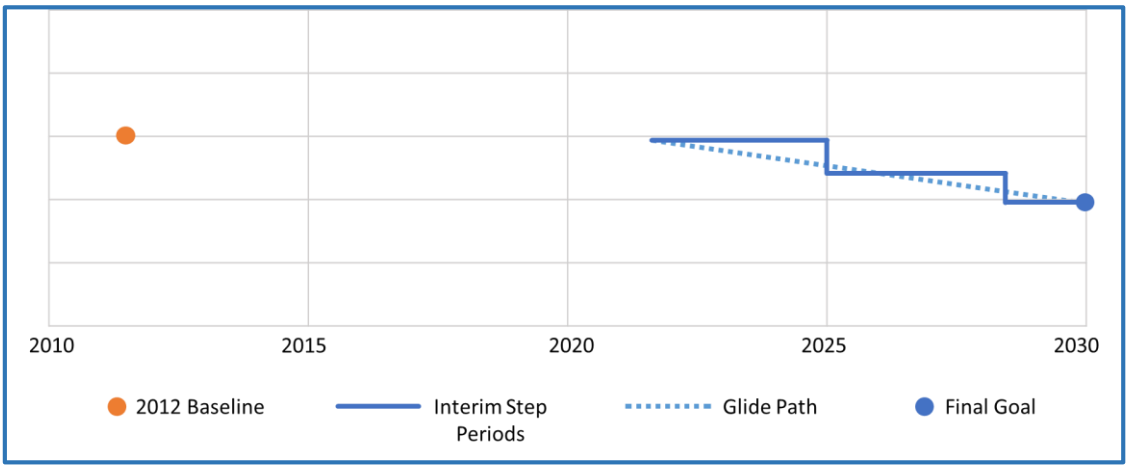
EPA's final rule includes several changes to the options available for state compliance. Below are five important changes that give states additional flexibility for developing and implementing their plans.

1. Greater Interim Compliance Flexibility

EPA made a significant change in the methodology used to establish emission performance rates by gradually phasing in the implementation of building block 2—the shift in generation from existing fossil steam generation to combined cycle natural gas generation—which results in a more gradual compliance trajectory.[22] This change was made in response to public comments expressing concern about the proposed rule's incorporation of the full building block 2 shift in generation in the first year of the interim compliance period, which had the effect of requiring states to achieve a significant portion of the required CO_2 emission reductions early in the interim period and could have limited the cost-effective emission reduction options available.

EPA also phases in compliance obligations in the interim period by establishing three step periods: 2022 to 2024, 2025 to 2027, and 2028 to 2029.[23] EPA provides more gradual emission level "steps" during these three periods, and also provides states the option to define their own interim step milestones as long as the state demonstrates that the plan will achieve the interim goal on average or cumulatively over eight years.[24] Taken together, the phase-in of building block 2, the establishment of interim step periods, and the option to define interim milestones create a more gradual "glide path" toward the state's final goal. Figure 1 illustrates an example of the interim step periods and more gradual glide path set in EPA's final rule.[25]

Figure 1: Interim Compliance Flexibility – Interim Step Periods and Glide Path



Graph reflects EPA depiction of step periods and goals in EPA state fact sheets

2. Further Opportunities for Interstate Compliance

EPA proposed to allow states to comply on a multi-state basis by submitting one joint plan on behalf of all participating states and demonstrating compliance with one weighted average rate-based goal or aggregate mass-based goal.[26] Many states and stakeholders requested additional flexibility for interstate trading, including options to develop individual state plans that allow interstate trading.[27]

In the final rule, EPA recognizes the interconnectedness of the grid and interstate electricity flows in setting emissions performance rates for fossil steam plants and natural gas plants. [28] EPA also recognizes the strong interest in taking advantage of cross-state emission reduction opportunities, including through trading.[29] The final rule provides multiple opportunities for states to incorporate interstate trading into both rate-based and mass-based state plan types.

As in the proposed rule, states can form multi-state groups and develop a joint plan to meet an aggregated joint emission goal.[30] In addition, EPA's final rule provides clear paths for states to design individual mass-based or rate-based "trading-ready" plans that allow the interstate transfer of emissions allowances or emission rate credits without requiring submission of a joint plan, enabling states to give their affected sources access to interstate resources.[31] In the Federal Plan Proposal, EPA offers a model rule for each of these two approaches, which provides a state with a simple state plan framework to adopt or modify.[32] EPA also indicates that it is exploring options for providing support for tracking emissions and allowances or credits.[33]

3. More Time for All States to Develop and Implement State Plans if Needed

EPA's proposal would have required each state to submit a plan to EPA within 13 months; a state could submit a detailed initial plan and request a one-year extension for submission of an individual state plan and a two-year extension for submission of a multi-state plan.[34] In response to comments indicating that state plan development may require more time, EPA's final rule makes the two-year extension available to all states, and relaxes the requirements for the initial plan submission. By September 6, 2016, a state must either submit a full state plan or, if more time is required, make an initial submittal and request a two-year extension to September 6, 2018.[35] States requesting an extension must submit an initial plan that: identifies the state plan approach or approaches under consideration and describes progress made to date; explains why the state requires additional time; and describes opportunities for public engagement, including outreach to vulnerable communities.[36]

Additionally, the interim performance period now begins in 2022, two years later than the 2020 start date EPA originally proposed.[37] This change gives states more time to implement reduction strategies and allows owners of affected sources more time to prepare to meet interim reduction requirements.

4. New Clean Energy Incentive Program to Encourage Early Investments

EPA's final rule includes a Clean Energy Incentive Program (CEIP) to encourage early investments in wind and solar renewable energy projects, as well as energy efficiency projects in low-income communities.[38] The CEIP is a voluntary program under which EPA will award matching credits for eligible projects, which both encourages early project development and provides the state additional compliance flexibility in the interim compliance period. Eligible projects include wind or solar projects that commence construction, or demand-side energy efficiency programs in low-income communities that commence operation, after the submission of a final state plan to EPA. A state can allocate allowances from its interim emission budget or issue early action emission rate credits to eligible projects for the MWhs generated or energy

savings achieved by those projects in 2020 and 2021. For every two MWhs of qualifying renewable generation, the state can allocate—and EPA will match—one credit; for every one MWh of avoided generation from qualifying energy efficiency projects, the state can allocate—and EPA will match—one credit. EPA will issue these matching allowances or emission rate credits up to an amount equivalent to 300 million short tons of CO_2 emissions. EPA proposes specific frameworks for implementing the CEIP in rate- and mass-based approaches in the Federal Plan Proposal, and requests comment on those aspects of the program.[39]

5. New Rate-to-Mass Methodology Makes Rate-Based Goals and Mass-Based Budgets More Equivalent

As in the proposed rule, states have the option to develop state plans that meet the guidelines on a mass basis. In the proposed rule, EPA took comment on a methodology for translating from a rate-based state goal to a mass-based budget for existing sources.[40] In the final rule, EPA defines the emissions budgets that a program covering existing sources would need to meet.[41] In defining these budgets, EPA uses a new rate-to-mass conversion methodology that reflects load-growth potential in equivalent rate-based programs. The approach accounts for the fact that under a rate-based program, existing sources could increase operations—and therefore tons of emissions—if additional offsetting renewable energy was being generated. EPA therefore incorporates into state mass-based targets additional tons of CO_2 that could result from the offsetting use of renewables that were available but not accounted for in the regional building block computations.[42] This new methodology creates mass-based budgets for existing sources that are more comparable to states' rate-based goals, the result of which is that final mass-based budgets increase for most states compared to the budgets on which EPA took comment in the proposed rule (see Appendix Table 1). This is especially true during the interim compliance period where the rate-to-mass methodology change is accompanied by additional flexibility through the longer opportunity to shift to natural gas (see Appendix Table 2).

One additional important change to the mass-based program requirements is that EPA will require states that are implementing mass-based programs either to address potential increases in emissions from new sources in the state as a result of the program, which would undermine the effectiveness of the program, or to demonstrate that such "leakage" to new sources would not occur.[43] EPA notes that one way that states may do this is by voluntarily including new fossil fuel-fired power plants in their mass-based compliance programs,[44] and EPA provides a new source CO_2 emission "complement" that states can add to their existing source budget to arrive at a maximum equivalent budget for existing and new sources.[45] States may also provide their own projection for a new source CO_2 emission complement, subject to EPA approval.[46] States can also address leakage to new sources through an allocation methodology, through another mechanism they create, or by demonstrating that such leakage would not occur, subject to EPA review.[47]

[1] U.S. EPA, Final Rule: Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units (pre-publication version signed Aug. 3, 2015), http://www.epa.gov/airquality/cpp/cpp-final-rule.pdf [hereinafter Final Rule; all page numbers refer to the pre-publication version of the final rule].
[2] Final Rule at 16.
[3] U.S. EPA, Proposed Rule: Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 79 Fed. Reg. 34,830 at 34,832 (June 18, 2014) [hereinafter Proposed Rule].
[4] Clean Air Act (CAA), § 111(d), 42 U.S.C. § 7411(d).
[5] Final Rule at 238.
[6] Proposed Rule at 79 Fed. Reg. 34,836.
[7] Proposed Rule at 79 Fed. Reg. 34,837.
[8] Proposed Rule at 79 Fed. Reg. 34,837.
[9] Final Rule at 409.
[10] Final Rule at 28.
[11] Final Rule at 426. *See generally* discussion of changes to the best system of emission reduction from the proposal at Section V.A.3 starting at 380.
[12] Final Rule at 389-390.
[13] Final Rule at 385-390.
[14] Final Rule at 388-390.
[15] Final Rule at 390-409.
[16] Final Rule at 411.
[17] Final Rule at 427.
[18] Final Rule at 429.
[19] Final Rule at 437.
[20] Final Rule at 850.
[21] Final Rule at 897.
[22] Final Rule at 703.
[23] Final Rule at 858-59.
[24] Final Rule at 858-59.
[25] See EPA state fact sheets for charts of individual state goals, EPA, State-Specific Fact Sheets, http://www2.epa.gov/cleanpowerplantoolbox/clean-power-plan-state-specific-fact-sheets.
[26] Proposed Rule at 79 Fed. Reg. 34,911.
[27] Final Rule at 913.
[28] Final Rule at 282-83, 314-17.
[29] Final Rule at 363-67.
[30] Final Rule at 915.
[31] Final Rule at 1170, 1207.
[32] U.S. EPA, Proposed Rule: Federal Plan Requirements for Greenhouse Gas Emissions from Electric Utility Generating Units Constructed on or Before January 8, 2014 (pre-publication version signed Aug. 3, 2015), http://www.epa.gov/airquality/cpp/cpp-proposed-federal-plan.pdf.
[33] Final Rule at 918.
[34] Proposed Rule at 79 Fed. Reg. 34, 915.
[35] Final Rule at 1,001.
[36] Final Rule at 1,009.
[37] Final Rule at 858.
[38] Final Rule at 854-79.
[39] U.S. EPA, Proposed Rule: Federal Plan Requirements for Greenhouse Gas Emissions from Electric Utility Generating Units Constructed on or Before January 8, 2014 (pre-publication version signed Aug. 3, 2015), http://www.epa.gov/airquality/cpp/cpp-proposed-federal-plan.pdf.
[40] Final Rule at 822-24.
[41] Final Rule at 843-44.
[42] Final Rule at 831-33.
[43] Final Rule at 836-37.
[44] Final Rule at 1175.
[45] Final Rule at 1177; see generally U.S. EPA, Final Rule Technical Support Document: New Source Complements to Mass Goals (Aug. 2015), http://www.epa.gov/airquality/cpp/tsd-cpp-new-source-complements.pdf.
[46] Final Rule at 1181.
[47] Final Rule at 1175.

Appendix: Statewide Mass-Based Goals

EPA set national CO_2 emission performance rates for two subcategories of existing fossil fuel-fired electric generating units: 1,305 lbs/MWh for fossil steam generating units, and 771 lbs/MWh for natural gas combined cycle units. These national rates apply to any state wishing to adopt them directly; EPA provided additional options for states by setting equivalent statewide rate-based goals and mass-based goals. The tables below list mass-based 2030 and interim average goals as originally proposed[1] and as finalized.[2]

Table 1: Proposed and Final Mass-Based 2030 State Goals – Existing Sources Only (short tons)

	Proposed mass-based 2030 goal	Final mass-based 2030 goal	Percent change proposed to final
Alaska			
Alabama	55,409,500	56,880,474	3%
Arizona	19,548,346	30,170,750	54%
Arkansas	22,151,911	30,322,632	37%
California	39,468,463	48,410,120	23%
Colorado	27,927,582	29,900,397	7%
Connecticut	4,700,849	6,941,523	48%
Delaware	3,276,117	4,711,825	44%
Florida	75,200,732	105,094,704	40%
Georgia	34,916,358	46,346,846	33%
Hawaii			
Idaho	516,260	1,492,856	189%
Illinois	64,452,817	66,477,157	3%
Indiana	80,567,975	76,113,835	-6%
Iowa	28,382,965	25,018,136	-12%
Kansas	26,545,280	21,990,826	-17%
Kentucky	77,386,087	63,126,121	-18%
Louisiana	29,567,678	35,427,023	20%
Maine	1,458,257	2,073,942	42%
Maryland	12,800,695	14,347,628	12%
Massachusetts	8,172,970	12,104,747	48%
Michigan	47,843,401	47,544,064	-1%
Minnesota	15,954,492	22,678,368	42%
Mississippi	18,132,211	25,304,337	40%
Missouri	61,500,437	55,462,884	-10%

	Proposed mass-based 2030 goal	Final mass-based 2030 goal	Percent change proposed to final
Montana	14,140,674	11,303,107	-20%
Nebraska	19,998,059	18,272,739	-9%
Nevada	10,151,020	13,523,584	33%
New Hampshire	2,493,329	3,997,579	60%
New Jersey	7,431,144	16,599,745	123%
New Mexico	11,454,075	12,412,602	8%
New York	19,454,493	31,257,429	61%
North Carolina	40,695,357	51,266,234	26%
North Dakota	29,838,362	20,883,232	-30%
Ohio	75,784,796	73,769,806	-3%
Oklahoma	34,052,412	40,488,199	19%
Oregon	3,983,364	8,118,654	104%
Pennsylvania	79,666,585	89,822,308	13%
Rhode Island	3,223,669	3,522,225	9%
South Carolina	17,434,545	25,998,968	49%
South Dakota	1,766,178	3,539,481	100%
Tennessee	25,173,926	28,348,396	13%
Texas	149,844,961	189,588,842	27%
Utah	22,469,083	23,778,193	6%
Vermont			
Virginia	20,858,503	27,433,111	32%
Washington	3,154,365	10,739,172	240%
West Virginia	58,021,776	51,325,342	-12%
Wisconsin	27,860,643	27,986,988	0%
Wyoming	41,436,214	31,634,412	-24%

[1] U.S. EPA, Proposed Rule Technical Support Document: Translation of the State-Specific Rate-Based CO2 Goals to Mass-Based Equivalents (Nov. 2014), http://www2.epa.gov/cleanpowerplan/clean-power-plan-proposed-rule-translation-state-specific-rate-based-co2-goals-mass (converted to short tons).

[2] U.S. EPA, Final Rule Technical Support Document: Emission Performance Rate and Goal Computation, Goal Computation Appendix 1-5 (Aug. 3, 2015), http://www.epa.gov/airquality/cpp/tsd-cpp-emission-performance-rate-goal-computation-appendix-1-5.xlsx.

Appendix: Statewide Mass-Based Goals

Table 2: Proposed and Final Mass-Based Interim Average State Goals – Existing Sources Only (short tons)

	Proposed mass-based interim goal	Final mass-based interim goal	Percent change proposed to final
Alaska			
Alabama	60,010,471	62,210,288	4%
Arizona	20,457,805	33,061,997	62%
Arkansas	23,571,349	33,683,258	43%
California	40,843,126	51,027,075	25%
Colorado	29,205,247	33,387,883	14%
Connecticut	5,193,773	7,237,865	39%
Delaware	3,556,194	5,062,869	42%
Florida	80,699,187	112,984,729	40%
Georgia	37,313,787	50,926,084	36%
Hawaii			
Idaho	519,802	1,550,142	198%
Illinois	69,299,595	74,800,876	8%
Indiana	84,535,259	85,617,065	1%
Iowa	29,270,327	28,254,411	-3%
Kansas	27,939,262	24,859,333	-11%
Kentucky	80,919,978	71,312,802	-12%
Louisiana	31,755,569	39,310,314	24%
Maine	1,518,341	2,158,184	42%
Maryland	14,534,807	16,209,396	12%
Massachusetts	9,297,985	12,747,677	37%
Michigan	50,560,827	53,057,150	5%
Minnesota	16,651,823	25,433,592	53%
Mississippi	19,176,732	27,338,313	43%
Missouri	64,549,253	62,569,433	-3%

	Proposed mass-based interim goal	Final mass-based interim goal	Percent change proposed to final
Montana	15,024,366	12,791,330	-15%
Nebraska	21,580,374	20,661,516	-4%
Nevada	10,928,871	14,344,092	31%
New Hampshire	2,800,764	4,243,492	52%
New Jersey	9,053,264	17,426,381	92%
New Mexico	12,100,526	13,815,561	14%
New York	22,503,486	33,595,329	49%
North Carolina	44,167,072	56,986,025	29%
North Dakota	30,398,784	23,632,821	-22%
Ohio	82,248,236	82,526,513	0%
Oklahoma	35,420,257	44,610,332	26%
Oregon	4,356,672	8,643,164	98%
Pennsylvania	89,311,008	99,330,827	11%
Rhode Island	3,385,978	3,657,385	8%
South Carolina	18,980,137	28,969,623	53%
South Dakota	1,907,801	3,948,950	107%
Tennessee	27,143,399	31,784,860	17%
Texas	161,714,043	208,090,841	29%
Utah	23,417,876	26,566,380	13%
Vermont			
Virginia	22,763,019	29,580,072	30%
Washington	3,007,612	11,679,707	288%
West Virginia	62,626,974	58,083,089	-7%
Wisconsin	29,669,378	31,258,356	5%
Wyoming	43,705,616	35,780,052	-18%