



EPA Proposes Clean Power Plan for Greenhouse Gas Emissions from Existing Electric Generating Units

On June 2, 2014, the U.S. Environmental Protection Agency (“EPA”) issued a proposed rule to control carbon emissions from existing electric generating units (“EGUs”).¹ Calling it the Clean Power Plan, EPA’s proposed emission guidelines under Section 111(d) of the Clean Air Act (“CAA”) suggest the establishment of statewide limits on carbon intensity to reduce greenhouse gas (“GHG”) emissions on a national level by 30 percent in 2030 compared to 2005 levels. The proposed limits for individual states vary from the national target based on the state’s potential for renewable energy deployment, projected demand-side management savings, and capacity factors at natural gas combined cycle (“NGCC”) units. EPA estimates that the proposal will lead to the retirement of nearly 50 GW of coal-fired EGUs and to at least a 25 percent decrease in coal production.

Affected Facilities

Owners and operators of affected EGUs—and possibly other types of facilities—would need to comply with the plans that states develop to implement the emission guidelines. As proposed, the following types of EGUs are considered affected by the guidelines if

they were in operation or had commenced construction as of January 8, 2014, and if they burn a “fossil fuel” for the purpose of creating useful heat:

- Any steam generating unit or Integrated Gasification Combined-Cycle (“IGCC”) that has a base load rating greater than 73 MW (250MMBtu/h) heat input and was constructed for the purpose of supplying one-third or more of its potential electric output and more than 219,000 MWh net-electric output to a utility distribution system on an annual basis.
- Any stationary combustion turbine that has a base load rating greater than 73 MW (250 MMBtu/h), was constructed for the purpose of supplying, and supplies, one-third or more of its potential electric output and more than 219,000 MWh net-electrical output to a utility distribution system on a three-year rolling average basis, combusts fossil fuel for more than 10.0 percent of the heat input during a three-year rolling average basis and combusts over 90 percent natural gas on a heat input basis on a three-year rolling average basis.

CAA § 111(d) Statutory Interpretation

The proposed rule comes amid evolving cases interpreting the CAA and against an uncharted and therefore uncertain legal backdrop. Section 111(d) of the CAA has been rarely used, and there are no court decisions that substantively address the scope of EPA's authority under it.² One recent Supreme Court decision suggests that EPA may receive *Chevron* deference to adopt regulations that address a complex problem when those regulations are based on a reasonable interpretation of the CAA's requirements.³ The upcoming decision in another Supreme Court case has the potential to stop EPA from adopting rules that address complex climate change issues where the rules do not follow the clear language of the CAA but instead are deemed necessary to avoid untoward administrative or practical consequences.⁴ Both cases focus on how reasonably moored a rule is to the actual language used in the CAA.

The language employed by CAA § 111(d) simply requires EPA to develop a procedure for states to establish standards of performance for any existing source of certain air pollutants.⁵ Whether GHGs are among the air pollutants for which EPA has authority to issue standards has not been answered by the courts and will certainly be litigated if a final rule is issued. Nonetheless, the CAA defines "standard of performance" as "a standard for emissions of air pollutants which reflects the degree of emission limitation achievable through the application of the best system of emission reduction which (taking into account the cost of achieving such reduction and any non-air quality health and environmental impact and energy

requirements) the Administrator determines has been adequately demonstrated."⁶

The statutory text does not identify how detailed the EPA procedure for states to establish standards of performance for existing sources should be, nor does it suggest whether the EPA procedure can require the states to achieve a particular standard of performance. However, the definition for standard of performance provides that EPA determines the best system of emission reduction ("BSER") that has been adequately demonstrated.

Best System of Emission Reduction

Prior to the proposal, the definition of the BSER was the subject of much legal debate. Some commentators suggested that it had to be defined in relation to what could be achieved at a specific source (e.g., a 6 percent improvement in heat rate at a coal unit).⁷ Other commentators suggested that it could be defined with reference to the entire generation system.⁸ In the proposal, and as described below, EPA firmly embraces the system-wide approach.

EPA is proposing to determine that the BSER is the combination of emission rate improvements and limitations on overall emissions at affected EGUs that can be accomplished through a combination of measures that fall into four main categories, referred to as "building blocks." The four building blocks, and the values allocated to them by EPA, are shown in the table below:

Building Block	Value Allocated By EPA In Setting Proposed State Goals - 10-Year Compliance (2020 - 2029)
Heat rate efficiency improvements at affected coal-fired steam EGUs	6 percent average improvement at coal-fired steam EGUs.
Increase generation from existing natural gas combined cycle ("NGCC") capacity to substitute for coal-fired steam EGU capacity.	70 percent target ⁹ average utilization rate for existing NGCC capacity.
Substitution of expanded low-carbon or zero-carbon generation for coal-fired EGU capacity by: <ul style="list-style-type: none"> · completing all nuclear units currently under construction, · avoiding retirement of about 6 percent of existing nuclear capacity, and · increasing renewable energy (RE) capacity through the use of state-level RE generation targets consistent with RE generation portfolio standards (RPS) that have been established by states in the same region. 	RE generation targets vary by state. ¹⁰
Increase state demand-side energy efficiency efforts.	1.5 percent annual incremental electricity savings

To clarify, certain of these building blocks would apply to some, but not all, affected sources. Building block 1 would apply only to affected coal-fired steam EGUs, although EPA has asked for comment on also incorporating heat rate improvements at other EGU types. Building block 2 would apply to all affected steam EGUs (both coal-fired and oil/gas-fired), while building blocks 3 and 4 would apply to all affected EGUs. Additionally, at least in the proposed rule, EPA has excluded the following emission reduction strategies from its BSER analysis: fuel switching at individual EGUs, carbon capture and storage (“CCS”), new NGCC capacity, and heat-rate efficiency improvements at NGCC units.

EPA also proposed less stringent alternative state goals based on a determination that BSER consists of building block 1 combined with a reduction of affected fossil fuel-fired EGUs’ mass emissions achievable through reductions in generation of specified amounts from those EGUs. For the alternative goals, building blocks 2 - 4 would not be components of the proposed BSER, but instead would serve as a basis for quantifying the reduction in emissions resulting from the reduction in generation at affected EGUs.

In determining and applying the BSER in the proposed rule, EPA stated that its interpretation reflects the fact that the amount of CO₂ emitted from a power plant depends on how efficiently it operates and how much it operates. Thus, EPA focused on reducing or limiting CO₂ emissions from existing EGUs by improving energy efficiency, improving plant operations, and encouraging reliance on low carbon energy. Yet EPA’s system-wide approach creates tension with the statutory language that focuses on the standard of performance for an existing source and then defines stationary source as “any building, structure, facility, or installation which emits or may emit any air pollutant.”¹¹ EPA is looking at EGUs as a “system,” not as individual sources, and it seems unusual for EPA to openly seek to achieve its environmental objectives by discouraging the operation of a source.

State Emission Goals

Using its BSER, EPA calculated specific CO₂ emissions targets by applying the four building blocks to each state using historical (2012) electric generation data. Each rate-based goal is one of net energy output – that is, energy output

measured at the point of delivery to the transmission grid rather than the gross generation measured at the generator. The point of using net energy output is to exclude electricity used at a plant to operate auxiliary equipment such as fans, pumps, motors, and pollution control devices.

The goals are expressed in the form of adjusted output-weighted-average CO₂ emission rates in pounds per megawatt-hour (“lb/MWh”) that EPA thinks the affected EGUs in each state could achieve, on average, through application of the BSER measures (or alternative control methods). The goals also take into account renewable generation and demand-side management. In short, the calculation of these adjusted rates accounts for reductions in fossil-fuel fired generation by adding to the statewide MWh of generation from those units (1) the estimated annual net generation from renewable and nuclear generating capacity and (2) the estimated cumulative annual MWh amount saved through demand-side energy efficiency.¹²

Even though the overall national target of a 30 percent reduction uses 2005 as a base year, the mechanics of how each state’s proposed goal is set depends on 2012 information to a large degree. For example, the spreadsheet that EPA has on its website compares the state targets to 2012 numbers, not 2005.¹³ Among states that had more than 30 million metric tons of CO₂ emissions in 2012, the largest percentage reductions are expected from Arizona (51.7 percent) and South Carolina (51.4 percent), and the smallest percentage reductions among this group are expected from Iowa (16.2 percent) and North Dakota (10.6 percent). The differences among the states are driven by their existing deployment of renewable energy, demand side management programs, and NGCC units compared to EPA modeling and expectations about optimum deployment of those measures.

Each state has an interim goal that applies during the 2020-2029 period on an average basis, as well as a final goal to be achieved by 2030. In other words, a state would need to meet its interim CO₂ emission performance goal on average over the 10-year period from 2020 - 2029, as well as achieve its final CO₂ emission performance level by 2030 and maintain that level subsequently. Though the phase-in period has not begun, EPA is proposing that measures that a state takes after the date of the proposed rule, and which result in CO₂

emission reductions during the plan period, would apply toward achievement of the state's CO₂ goal. Notably, once the final goals have been promulgated, a state no longer has an opportunity to request that the EPA adjust its CO₂ goal.

Intensity- and Mass-Based Limits for State Goals

While states may accept the emission rate-based form (lb/MWh) that EPA proposes to use for the state-specific goals it establishes, the proposed rule also permits states to translate the rate-based goals into equivalent mass-based (lbs of CO₂ emissions) goals. Using a mass-based form to define emission performance levels would provide more certainty as to the absolute emissions levels that would be achieved (for example, a state cap on the tonnage of CO₂ emissions), thus appealing to states seeking to participate in a trading program. That said, it is not clear that a mass-based plan has the same flexibility to accommodate increased generation demand that is inherent in an intensity-based plan.

One significant, yet unclear, consideration in a state's decision to choose a rate-based or intensity-based limit will be the state's expected amount of future unit retirements. Indeed, the proposed rule fails to precisely define the treatment of unit retirements in the establishment of state plans. For states that adopt rate-based plans, the proposal inherently provides credit for retirements that occur after the end of 2012 because the state goals are based on 2012 generation figures. As a result, retirements after the end of 2012 naturally contribute to the achievement of rate-based targets beginning in 2020.

The situation is not as clear for states that may elect to translate their rate-based targets to mass-based goals. In that case, the technical support document that discusses the translation suggests the development of three different scenarios that project the total tons of CO₂ emissions that will be emitted from electric generating units "during the specified plan performance period."¹⁴ This formulation of the modeling scenario guidelines does not obviously credit units that were operating in 2012 but retired before the relevant compliance periods begin in 2020 or 2030. Retirements that occurred before 2012 do not receive any credit under either the rate-based or the mass-based goals.

State Plan Requirements

Though EPA has proposed state-specific emission goals, the proposed rule does not prescribe how each state should meet its goal. The following are key elements of the flexibility allowed for state plans:

- States may rely solely on emission limitations that apply directly to the affected EGUs, or they can take what EPA refers to as a "portfolio approach," which includes a combination of emission limitations that apply directly to affected EGUs, as well as other measures (i.e., renewable energy and demand-side energy efficiency measures) that are implemented by the states or other entities and have the effect of limiting emissions from affected sources.
- States would not be limited to the "building block" measures that EPA identifies as BSER. Rather, the proposed rule allows the states to determine whether to adopt these specific measures. The proposed rule allows states to rely on other measures not mentioned in the building blocks, so long as the required emission reductions are achieved over the applicable time frames.
- Affected EGUs have flexibility in how they meet the applicable standards in their state's plan. As far as EPA is concerned, individually affected EGUs could rely on any means of achieving CO₂ emission reductions, even if the chosen means is not part of the EPA-determined BSER or the state's plan for the EGU.
- States can decide to comply collaboratively with other states as part of a multi-state plan. States participating in a multi-state strategy may submit a joint plan on behalf of all participating states.

Regardless of the approach taken, each state plan must include a process for reporting on plan implementation and progress toward achieving CO₂ goals. Beginning in 2022, states will be required—at least once every two years—to compare the emission performance achieved by affected EGUs with the projections in the state plans, and report results to EPA. EPA is proposing that plan approvability will be based on four general criteria:

- 1) Enforceable measures that reduce CO2 emissions;
- 2) Projected achievement of emission performance equivalent to the goals established by EPA, on a timeline equivalent to that in the proposed guidelines;
- 3) Quantifiable and verifiable emission reductions; and
- 4) A process for reporting on plan implementation, progress toward achieving CO2 goals, and implementation of corrective actions.

Additionally, each state plan must include twelve components derived from the EPA framework regulations at 40 C.F.R. § 60.23.¹⁵ If a state with affected EGUs fails to submit a plan, or if the EPA does not approve a state's plan, then EPA would develop a plan for the state.

Timetables For State Plan Submittal and Review

There will be a 120-day comment period after the rule is published in the *Federal Register*. Under the President's Climate Action Plan, EPA has a June 1, 2015 deadline for issuing a final rule. The proposal indicates that states should expect to make an initial submission by June 30, 2016 that describes

measures already implemented and the path to development of a final plan.

Additionally, EPA is proposing a dual-phase submittal process for state plans that will allow for additional time. To qualify for this process, a state must first notify EPA by letter of such intent no later than April 1, 2016. Then, the state must submit an initial plan with certain required components—including reasons why the state needs more time—by June 30, 2016.

Once EPA accepts a state into the dual-phase process, the states will have two options for extended deadlines. A state that intends to submit a plan that covers only the geographical area of that state would need to submit a complete plan by June 30, 2017. In contrast, a state that intends to submit a multi-state plan with other states would need to submit the final plan by June 30, 2018. EPA is proposing to extend the time it takes to review and approve or disapprove the plans to 12 months, starting upon submission of a state plan. For a list of the deadlines for state plan submittal and review included in the proposed rule, see the table below:

Clean Power Plan Timetable						
EPA Issues Proposed Clean Power Rule	Expected Date for EPA to Issue Final Rule	All States Must Submit Initial Emissions Plan	Extended Deadline for Individual State Plans	Extended Deadline for Multi-State Plans	Interim State Goals Must Be Achieved, On Average	Final State Goals Must Be Achieved
June 2, 2014	June 1, 2015	June 30, 2016	June 30, 2017	June 30, 2018	2020-2029	By 2030

Cost-Benefit Analysis

EPA estimates that the proposal will result in 46 – 49 GW of additional coal-fired EGU retirements by 2020 with a corresponding decrease in coal production by 25 percent - 27 percent and a 16 percent - 18 percent decrease in coal prices. Nonetheless, the EPA press releases and fact sheets accompanying the proposal hammer the point that EPA believes it makes both economic and environmental sense.¹⁶ EPA believes that the rule will cut electricity bills by 8 percent through demand reduction. EPA also projects the health benefits of the rule outweigh the costs. Relying on the co-benefit of projected PM, NOx and SO2 reductions, EPA expects \$93

billion in benefits from the rule in 2030. These conclusions are detailed in a 376-page regulatory impact analysis that raises several additional issues.¹⁷ For example, benefits that occur outside the United States are included in the calculation even though the costs are limited to costs incurred in the United States.

Conclusion

The scope of the proposal is evident from EPA's conclusion that retirement of nearly 50 GW of coal-fired generation in the next five years combined with a 25 percent decrease in coal production confers an overall benefit on the country. These

types of major structural shifts more often are the result of the political process, but Congress has not been able to act either to require these measures or to stop EPA from requiring them. The proposal makes it clear that EPA needs to look outside the fence line of existing EGUs to get the reductions in GHG emissions that it wants to achieve. It will be left to the courts to decide if EPA's approach is reasonably moored to the CAA requirement for EPA to adopt a procedure that requires states to establish standards of performance for existing sources.

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Endnotes

- 1 <http://www2.epa.gov/sites/production/files/2014-05/documents/20140602proposal-cleanpowerplan.pdf>
- 2 See [http://www.jonesday.com/files/upload/Review percent20of percent20EPA percent20Authority.pdf](http://www.jonesday.com/files/upload/Review%20of%20EPA%20Authority.pdf)
- 3 *EPA v. EME Homer City Generation, L.P.*, 572 U. S. _____ (2014), slip op. at 2.
- 4 *Utility Air Regulatory Group v. EPA*, No. 12-1146, cert. granted Oct. 15, 2013, argued Feb. 24, 2014.
- 5 42 U.S.C. § 7411(d)
- 6 42 U.S.C. § 7411(a)
- 7 <http://www.fed-soc.org/publications/detail/the-oklahoma-attorney-generals-plan-the-clean-air-act-section-111d-framework-that-preserved-states-rights-event-audiovideo>
- 8 <http://eec.ky.gov/Documents/GHG%20Policy%20Report%20with%20Gina%20McCarthy%20letter.pdf>
- 9 While EPA's goal computation procedure uses 70 percent as a target NGCC utilization rate for all states, only 29 states have goals that actually reflect reaching that 70 percent target. The average NGCC utilization rate actually reflected in the computed goals is 64 percent across all states.
- 10 These are total RE targets, rather than incremental increases above a certain baseline. EPA is also soliciting comment on alternative RE target methods, including a state-by-state assessment of RE technical and market potential in lieu of a regional application of state RPS commitments.
- 11 42 U.S.C. § 7411(a)
- 12 EPA issued a 29-page technical support document to explain the details of this calculation. See <http://www2.epa.gov/sites/production/files/2014-05/documents/20140602tsd-goal-computation.pdf>
- 13 See <http://www2.epa.gov/sites/production/files/2014-06/20140602-state-data-summary.xlsx>
- 14 <http://www2.epa.gov/sites/production/files/2014-05/documents/20140602tsd-projecting-egu-co2emission-performance.pdf>
- 15 The 12 components include: (1) identification of affected entities; (2) description of plan approach and geographic scope; (3) identification of state emission performance level; (4) demonstration that plan is projected to achieve emission performance level; (5) identification of emissions standards; (6) demonstration that each emissions standard is quantifiable, non-duplicative, permanent, verifiable, and enforceable; (7) identification of monitoring, reporting, and record-keeping requirements; (8) description of state reporting; (9) identification of milestones; (10) identification of backstop measures; (11) certification of hearing on state plan; and (12) supporting material.
- 16 <http://yosemite.epa.gov/opa/admpress.nsf/bd4379a92ceceac8525735900400c27/5bb6d20668b9a18485257ceb00490c98!OpenDocument>
- 17 <http://www2.epa.gov/sites/production/files/2014-06/documents/20140602ria-clean-power-plan.pdf>

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