Proposal Summary:

Key Issues for States in EPA's Clean Power Plan Proposed Rule

June 2014

This document provides a summary of EPA's Clean Power Plan Proposed Rule, released June 2, 2014, which proposes carbon pollution emission guidelines for existing power plants under the authority of Section 111(d) of the Clean Air Act. The emission guidelines would establish minimum carbon pollution emission goals for power plants in each state in 2030 based on strategies that states and power companies are already using to achieve emission reductions and states' unique carbon emissions and energy mixes. States would be required to submit plans to achieve these goals, and would be allowed broad flexibility in the kind of measures they could use to in their plans to achieve compliance. The proposed rule is projected to achieve overall carbon pollution reductions of 30 percent by 2030 from 2005 levels.

This summary focuses on elements of the proposal of interest to states. The proposed rule and supporting documents can be found here: http://www2.epa.gov/carbon-pollution-standards/clean-power-plan-proposed-rule.

This summary was prepared by Lissa Lynch, Institute Associate; Gabe Pacyniak, Institute Associate; Kate Zyla, Deputy Director; with research support from Peter Ellis, Research Assistant.

Contents

Overview

- The proposed rule sets individual rate-based carbon intensity goals for each state, based on a state's mix of energy sources and opportunities to achieve reductions. EPA proposes to allow states to convert the rate-based goal established by EPA to a mass-based emission budget, discusses a methodology to translate to a mass-based goal, and seeks comment on translation approaches.
- EPA calculated the goals by taking into account four categories of potential emission reductions, or "building blocks," which taken together represent the best system of emission reduction (BSER):
    - Reducing the carbon intensity of generation at affected sources through heat rate improvement at fossil fuel power plants;
    - Reducing emissions from the most carbon-intensive affected sources—coal-, oil-, and natural gas-fired steam generation units—by substituting generation from less carbon-intensive natural gas combined cycle (NGCC) generation units.
    - Reducing emissions from affected power plants by replacing generation from affected power plants with expanded low- or zero-carbon generation, including increased generation from new renewable and nuclear generation, and avoided retirement of existing nuclear generation; and
    - Reducing emissions from affected EGUs through the use of demand-side energy efficiency that reduces the amount of generation required.
- The proposal would require states to meet an interim goal on average over a ten-year phase-in period from 2020 to 2029 as a ramp-up to meeting a final, more stringent goal in 2030.
- States can meet their goals through a flexible combination of measures, including energy efficiency and renewable energy generation, and states can choose to collaborate and develop plans on a multi-state basis.
    - EPA notes that states may build upon their existing programs, such as the Regional Greenhouse Gas Initiative, Colorado's Clean Air-Clean Jobs Act, and California's Global Warming Solutions Act, as the basis for compliance.
- All states will be required to submit at least an initial plan for compliance by June 30, 2016. States that need additional time to submit a final plan may request an additional year, while states participating in a multi-state program may have an additional two years to submit either separate plans or one joint plan.

Clean Air Act Authority to Regulate *(Proposed Rule Sec. II.D., Legal Memorandum)*

EPA's Clean Power Plan Proposed Rule would require states to establish carbon pollution performance standards for existing power plants in state plans under the authority of Clean Air Act Section 111(d).

- The Clean Air Act (CAA) requires that EPA regulate air pollutants that endanger public health and welfare. The Supreme Court affirmed in *Massachusetts v. EPA*[1] that greenhouse gases (GHGs) are an air pollutant under the CAA, and EPA found that GHGs threaten the public health and welfare on December 7, 2009. The Supreme Court further affirmed EPA's authority to regulate GHGs in its 2010 *AEP v. Connecticut*[2] decision.
- EPA is proposing carbon pollution standards for existing power plants under CAA Sec. 111(d).
    - CAA Sec. 111 requires EPA to set emission performance standards for categories of stationary sources that "contribute significantly to air pollution which may be reasonably anticipated to endanger public health and welfare."[3] EPA has previously "listed" and established performance standards for dozens of source categories, including power plants.
    - CAA Sec. 111 provides authority to regulate categories of new sources and modified or reconstructed sources under Section 111(b). EPA proposed carbon pollution standards for new power plants on September 20, 2013, and for modified and reconstructed power plants on June 2, 2014.[4]

---

[1] 549 U.S. 497 (2007).
[2] 131 S. Ct. 2527 (2011).
[3] Clean Air Act (CAA), § 111(b)(1)(A), 42 U.S.C. § 7411(b)(1)(A).
[4] Standards of Performance for Greenhouse Gas Emissions From New Stationary Sources: Electric Utility Generating Units, 79 Fed. Reg. 1430 (proposed Sept. 20, 2013; published in Federal Register Jan. 8, 2014), http://www2.epa.gov/carbon-pollution-standards/2013-proposed-carbon-pollution-standard-new-power-plants; Carbon Pollution Standards for Modified and Reconstructed Stationary Sources:

    - In the case of carbon pollution, CAA Sec. 111 also requires regulation of existing sources under Sec. 111(d). Sec. 111(d) obligates EPA to promulgate regulations requiring states to submit plans establishing performance standards for existing sources in cases where (1) those sources would be regulated if they were new sources and (2) those sources have not otherwise been regulated under CAA provisions for criteria air pollutants or hazardous pollutants.[5] EPA has proposed carbon pollution regulations for new power plants under Section 111(b), and carbon pollution is not currently regulated either as a criteria pollutant or under the hazardous air pollution program; therefore, EPA must regulate carbon pollution from existing power plants under Sec. 111(d).
- For existing sources, Sec. 111(d) requires EPA to establish a procedure "similar to that provided by" Section 110 of the CAA, under which states submit plans to EPA that establish performance standards.[6]
    - Under the procedure established by EPA for Sec. 111(d) through implementing regulations promulgated in 1975, EPA defines minimum emission performance levels in "emission guidelines," and states are generally required to meet those minimum emission performance levels in the state plans that they submit. If states do not submit plans, or their plans are not satisfactory, EPA must establish a federal plan for that state (Legal Memorandum p. 3-4).

Sources Affected by the Proposed Rule *(Proposed Rule Sec. V.C., p. 129)*

EPA's Clean Power Plan Rule proposes to regulate existing fossil-fuel fired electric generating units (EGUs) (i.e., power plants)[7] that would be subject to EPA's carbon pollution regulations for new power plants if they were new. The affected sources generally include coal-fired, oil-fired, and natural-gas fired power plants, exempting smaller units and those that do not sell a large portion of their electricity to the electric grid.

- EPA proposes that an affected power plant is any fossil fuel-fired electric generating unit that was in operation or had commenced construction as of January 8, 2014, and is therefore an "existing source" for purposes of CAA Sec. 111, and that in all other respects would meet the applicability criteria for coverage under the proposed carbon pollution standards for new power plants. The definition of affected source in this proposal for existing sources is identical to the affected source definition in the proposal for new power plants except with regard to date of operation or construction.
- An affected source for this proposal is: any boiler, integrated gasification combined cycle (IGCC), or combustion turbine (in either simple cycle or combined cycle configuration) that
    - is capable of combusting at least 250 million British thermal units (Btu) per hour;
    - combusts fossil fuel for more than 10 percent of its total annual heat input (stationary combustion turbines have an additional criteria that they combust over 90 percent natural gas);
    - sells the greater of 219,000 MWh per year and one-third of its potential electrical output to a utility distribution system; and
    - was in operation or had commenced construction as of January 8, 2014.

Proposed Emission Guidelines for States

Under Sec. 111(d), EPA sets emission guidelines for states that represent a minimum level of emission performance that states must achieve in their state Sec. 111(d) plans. The minimum emission performance level is to reflect the degree of emission limitation achievable from what EPA identifies as the "best system of emission reduction" (BSER).

EPA proposes that the BSER is the combination of emission rate improvements and limitations on overall emissions at affected EGUs that can be accomplished through a range of measures that fall within four "building blocks" as described below.

Electric Utility Generating Units, RIN 2060-AR88, http://www2.epa.gov/carbon-pollution-standards/proposed-carbon-pollution-standards-modified-and-reconstructed-power. These were re-proposals; EPA initially proposed standards for new, modified, and reconstructed power plants on April 13, 2012, but withdrew that proposal.

[5] CAA, § 111(d), 42 U.S.C. § 7411(d).

[6] CAA, § 111(d)(1), 42 U.S.C. § 7411(d)(1).

[7] Electric Generating Unit is the term EPA uses to define affected sources in its regulations, although EPA uses the term "power plants" in other written materials. A plant may have more than one electric generating unit. Both terms are used in this summary.

EPA then identifies an emission performance level for each state that reflects what is achievable through that best system of emission reduction for each state using a formula that applies each of the four "building blocks" to baseline emissions data for the state's current energy mix.

EPA estimated implementation levels for each BSER building block that are technically feasible within each state at a reasonable cost, rather than maximum possible implementation levels; the agency notes that states have the flexibility to determine whether, and at what level, to implement each of the building block approaches, and can also use other approaches to achieve the required emission performance levels that were not included as part of the "best system of emission reduction."

Best System of Emission Reduction (BSER) *(Proposed Rule Sec. VI., p. 136)*

- EPA identified a proposed Best System of Emission Reduction based on the many measures states and industry representatives identified that are currently in use for achieving CO_2 emission reductions from existing fossil fuel-fired power plants. EPA groups these measures into four categories, or "building blocks." For each building block, EPA identified an amount of improvement that it finds technically feasible at a reasonable cost.
- **Building Block 1:** Reducing the carbon intensity of generation at individual affected EGUs through heat rate improvements (i.e., improving the on-site efficiency of power plants).
    - EPA estimates that existing fossil-fuel fired power plants can improve their heat rate by 6 percent on average based on adopting best practices to reduce heat-rate variability and implementing equipment upgrades (p. 166).[8]
        - EPA requests comment on increasing the estimates of the amounts of heat rate improvement achievable to a total potential improvement of up to ten percent, in light of the reasonable cost of heat rate improvements.
- **Building Block 2:** Reducing emissions from the most carbon-intensive affected EGUs—coal-, oil-, and natural gas-fired steam generation units—by substituting generation from less carbon-intensive natural gas combined cycle (NGCC) generation units, including new NGCC units already under construction.
    - EPA proposes that on average utilization rates of existing natural-gas combined cycle power plants can be increased to 70 percent (although not necessarily in each individual instance) (p. 186).
        - EPA invites comment on an alternative set of goals using a less stringent target of 65 percent average utilization rate for NGCC units, as well as whether the agency should consider options for a target greater than the proposed 70 percent target utilization rate.
- **Building Block 3:** Reducing emissions from affected power plants by replacing generation from affected power plants with expanded low- or zero-carbon generation, including increased generation from new renewable and nuclear generation, and avoided retirement of existing nuclear generation.
    - EPA's methodology for calculating reduced emissions achievable from this building block looks at three opportunities: what is achievable from new renewable energy (excluding hydropower); what can be achieved by completing new nuclear power plants under construction, and what can be achieved by preventing retirement of existing nuclear generation.
    - EPA proposes achievable increases in renewable energy on a state-by-state basis based on an analysis of regional "best practices" reflected in renewable portfolio standards. In its analysis EPA calculated the renewable electricity generation level that would result if all states achieve the average of renewable portfolio standard requirements established by states within their regions (p. 197).
        - EPA seeks comment on an alternative approach to quantification of renewable generation based on a state-by-state assessment of renewable energy technical and market potential (p. 210).
    - EPA proposes as technically feasible increases in zero-carbon generation from the five nuclear generating units currently under construction (p. 214).
    - EPA proposes to include preservation of existing nuclear power plants as a component of BSER. EPA notes that six nuclear EGUs have retired or announced retirement since 2012, and proposes that

[8] Page numbers refer to the Proposed Rule document unless otherwise noted.

preventing such retirements will contribute to reducing carbon pollution from existing fossil-fuel fired power plants. EPA proposes that six percent of all power plants are at risk, based on EIA projections (p. 216).

- **Building Block 4:** Reducing emissions from affected EGUs through the use of demand-side energy efficiency that reduces the amount of generation required.
    - EPA proposes that increases of demand-side efficiency to an annual incremental savings rate of least 1.5 percent by 2020 are achievable, based on an examination of state best practices. At least 12 states have achieved such a rate (p. 224).
        - EPA seeks comment on a less stringent alternative for setting state goals, as well as on the level of potential for demand-side energy efficiency the agency proposes to use in defining best practices (p. 228, 237).
- EPA is soliciting comment on an alternative application of only the first two building blocks as the BSER, while noting that application of only the first two building blocks achieves fewer CO_2 reductions at a higher overall cost.

State Goals *(Proposed Rule Sec. VII., p. 332)*

EPA proposes individual state goals based on what the agency has determined is achievable through the best system of emission reduction, applied to baseline emissions data for each state's current energy mix.

- EPA proposes individual rate-based goals for each state; the goals reflect EPA's quantification of each state's average emission rate from affected EGUs that could be achieved by 2030 and sustained thereafter, with interim goals that would apply over a 2020-2029 phase-in period. The procedure for setting the state goals is discussed in detail in a separate Technical Support Document (TSD).[9]
    - Goals are in the form of output-weighted average CO_2 emission rates that the affected fossil fuel-fired EGUs located in each state could achieve, on average, through application of the measures comprising the BSER. The emission rate goals include adjustments to incorporate the potential effects of emission reduction measures that reduce generation at affected EGUs (e.g., increased renewable generation or increased energy efficiency; however, EPA's adjustments exclude pre-existing hydropower generation) (p. 333).
    - Interim and final state goals for each state are listed on page 346 of the proposal.
    - EPA seeks comment on an alternative set of less stringent goals to be achieved by 2025, with interim goals to apply over a 2020-2024 phase-in period.
- To establish the overall state goals, EPA applied the implementation level for each building block to each state's current (2012) emissions and generation data. The proposed state goals reflect the following stringency of application of the measures in each of the building blocks:
    - Building Block 1: improving average heat rate of coal-fired steam EGUs by six percent;
    - Building Block 2: displacing coal-fired steam and oil/gas-fired steam generation in each state by increasing generation from existing NGCC capacity in that state toward a 70 percent target utilization rate;
    - Building Block 3: including the projected amounts of generation achievable by completing all nuclear units currently under construction, avoiding retirement of about six percent of existing nuclear capacity, and increasing renewable electric generating capacity over time through the use of state-level renewable generation targets consistent with renewable generation portfolio standards that have been established by states in the same region; and
    - Building Block 4: increasing state demand-side energy efficiency efforts to reach 1.5 percent annual electricity savings in the 2020-2029 period.
- EPA notes that it has estimated reasonable rather than maximum possible implementation levels for each building block to establish the overall state goals. States are not required to pursue plans involving any given

[9] EPA, Goal Computation Technical Support Document, http://www2.epa.gov/sites/production/files/2014-05/documents/20140602tsd-goal-computation.pdf.

building block or to do so at any particular level of stringency (*see* State Plan Flexibilities & Considerations, below).

- The proposal gives states the option to translate the EPA-established rate-based goal to a mass-based goal, as long as the translated goal achieves the same degree of emission limitation. EPA proposes use of a projection scenario to apply EPA's established rate-based CO_2 emission limit to affected EGUs; the CO_2 emissions from affected EGUs projected during the plan performance period would represent the translated mass-based emission performance goal. EPA is seeking comment on methodology for translation, as well as on the type of guidance and support EPA should provide to states. Translation approaches are discussed in a separate TSD.[10]
- For multi-state approaches, individual state goals would be replaced with an aggregate goal.
    - For a rate-based approach, participating states would demonstrate that the weighted average CO_2 emission rate is consistent with an aggregation of the state-specific rate-based goals established by EPA.
    - For a mass-based approach, participating states would demonstrate that the total tonnage of CO_2 emitted from affected EGUs in participating states is consistent with a translated multi-state mass-based goal, based on translation of an aggregation of the state-specific rate-based goals established by EPA (p. 438).

Flexible Framework for State Plans to Comply with State Emission Performance Goals

Under Sec. 111(d), states will be required to submit plans to EPA that establish CO_2 emission standards for affected EGUs and identify the measures they will use to meet the minimum emission performance levels identified in EPA's emission guidelines. The proposed guidelines allow states to submit either a plan that only establishes emissions limits on affected EGUs, or a plan to achieve the emission performance level through a "portfolio approach" of measures, as described below.

EPA's proposed rule establishes a flexible framework that allows states to use a broad variety of strategies, including methods beyond those used in establishing the BSER, to meet the emission performance levels. EPA proposes ways for states to incorporate existing emission reduction programs, renewable energy, and energy efficiency into their plans, and invites comment on specific proposed approaches.

EPA proposes to provide states the option to extend the time provided to submit a complete plan, and also for states participating in a multi-state approach to submit one joint plan together. EPA has proposed the required components that must be included in a state plan, as well as criteria on which EPA will assess the plan for approval.

Structure of State Plans *(Proposed Rule Sec. VIII.B., p. 379)*

- State plans will be required to include enforceable CO_2 emission limits that apply to affected EGUs (p. 43).
- EPA is proposing that all measures relied on to achieve the emission performance level be included in the state plan, and that inclusion in the state plan renders those measures federally enforceable (p. 380; EPA is also taking comment on a "state commitment" alternative that would not render all measures federally enforceable).
- EPA is proposing to authorize states either:
    - To submit plans that hold the affected EGUs fully and solely responsible for achieving the emission performance level; or
    - To submit plans that rely in part on measures imposed on entities other than affected EGUs to achieve at least part of that level, as well as on measures imposed on affected EGUs to achieve the balance of that level. EPA refers to this option as a **"portfolio approach,"** in which the plan would include emission limits for affected EGUs along with other enforceable measures, such as renewable energy and demand-side energy-efficiency measures, that reduce CO_2 emissions from affected sources. Under this approach, all of the measures combined would be designed to achieve the

[10] EPA, Projecting EGU CO_2 Emission Performance Technical Support Document, http://www2.epa.gov/sites/production/files/2014-05/documents/20140602tsd-projecting-egu-co2emission-performance.pdf.

required emission performance level for affected EGUs as expressed in the state goal. These other measures would be federally enforceable because of their inclusion in the state plan. A portfolio approach could either be "utility-driven" or "state-driven," depending on the utility regulatory structure in a state. (p. 382-83).

- EPA requests comment on an alternative "state commitment approach," under which state requirements for entities other than affected EGUs would not be components of the state plan, and therefore not federally enforceable. Instead, the state plan would include an enforceable commitment by the state itself to implement state-enforceable (but not federally enforceable) measures that would achieve a specified portion of the required emission performance level on behalf of affected EGUs (p. 387).

State Plan Flexibilities & Considerations *(Proposed Rule Sec. VII.D., p. 357; Sec. VIII.F., p. 470)*

- **Flexibilities to Meet State Goals** (VII.D., p. 357)
  - In addition to using any combination of the building block abatement measures, states could also choose to include in their plans other measures that reduce CO_2 emissions from affected EGUs but that are not included in the building blocks (e.g., high-utilization combustion turbines, useful thermal output at cogeneration units, electricity transmission and distribution efficiency improvements, retrofitting affected EGUs with partial carbon capture and storage, the use of biomass-derived fuels at affected EGUs, and use of new NGCC units).
  - EPA is proposing to provide states with the flexibility to translate the rate-based goals to mass-based goals in order to accommodate states' potential interest in having emission performance requirements measured in absolute tons.
  - EPA's proposed approach allows states to submit multi-state plans.
- **Existing state programs** may qualify for use in demonstrating that a state plan will achieve the required level of emission performance, provided they meet the approvability requirements in the emission guidelines (VIII.C.).
  - EPA is proposing that, for an existing state requirement, program, or measure, a state may apply toward its required emission performance level the emission reductions that existing state programs and measures achieve during a plan performance period as a result of actions taken after the date of this proposal (p. 475).
    - EPA seeks comment on alternative dates and variations of this approach: start date of the initial plan performance period, the date of promulgation of the emission guidelines, the end date of the base period for the EPA's BSER-based goals analysis (e.g., the beginning of 2013 for blocks 1-3 and beginning of 2017 for block 4, end-use energy efficiency), the end of 2005, or another date.
  - EPA also seeks comment on a second option, which would recognize emission reductions that existing state requirements, programs, and measures achieved prior to the beginning of the initial plan performance period (p. 478).
- EPA is proposing that **renewable energy and demand-side energy efficiency measures** be incorporated into a rate-based approach through either an administrative adjustment or a tradable credit system applied to an EGU's reported CO_2 emissions (p. 481). Under such a process, measures that avoid EGU CO_2 emissions from affected EGUs, such as quantified and verified end-use energy savings and renewable energy generation, could be credited toward a demonstrated CO_2 emission rate for EGU compliance purposes or used by the state to administratively adjust the average CO_2 emission rate of affected EGUs when demonstrating achievement of the required rate-based emission performance level in a state plan. EPA seeks comment on whether credits or adjustment should represent avoided CO_2 emissions or avoided MWh or electric generation.
  - EPA is proposing that a state plan that includes enforceable renewable energy and demand-side energy efficiency measures must include an **evaluation, measurement, and verification** (EM&V) plan that explains how the effect of these measures will be determined in the course of plan implementation.

- **Treatment of Interstate Effects** (p. 493)
    - For **demand-side energy efficiency measures**, EPA is proposing that, consistent with the approach that the EPA used in determining the BSER, a state could take into account in its plan only those CO_2 emission reductions occurring (or projected to occur) in the state that result from demand-side energy efficiency measures implemented in the state. EPA requests comment on whether a state should be able to take credit for emission reductions out of state due to in-state EE measures if the state can demonstrate that the reductions will not be double-counted when the relevant states report on their achieved plan performance, and what such a demonstration should entail.
        - For states that participate in multi-state approach, participating states would have flexibility to distribute the CO_2 emission reductions among states in the multi-state area, as long as the total CO_2 emission reductions claimed are equal to the total of each state's in-state emissions reductions that result from demand-side EE measures implemented in those states. EPA also proposes that states could jointly demonstrate CO_2 emission performance by affected EGUs through a multi-state plan in a contiguous electric grid region, in which case attribution of emission reductions from demand-side EE measures would not be necessary.
    - For **renewable energy measures**, EPA is proposing that, consistent with existing state RPS policies (e.g. renewable energy certificates (REC) that enable interstate trading of RE attributes), a state could take into account all of the CO_2 emission reductions from renewable energy measures implemented by the state, whether they occur in the state or in other states. EPA seeks comment on: how to avoid double counting emission reductions using this proposed approach; the option of allowing a state to take into account only those CO_2 emission reductions occurring in its state; whether a state should be able to take credit for emission reductions out of state due to renewable energy measures if the state can demonstrate that the reductions will not be double-counted when the relevant states report on their achieved plan performance; and what such a demonstration should entail.
        - EPA proposes that states participating in multi- state plans could either: distribute CO_2 emission reductions among states in the multi-state area, as long as the total CO_2 emission reductions claimed are equal to the total of each state's in-state emission reductions from RE measures; or jointly demonstrate CO_2 emission performance by affected EGUs through a multi-state approach in a contiguous electric grid region, in which case attribution among states of emission reductions from renewable energy measures would not be necessary.

State Plan Submittal & Timing *(Proposed Rule Sec. VIII.E., p. 457)*

- Each state must submit a plan to the EPA by June 30, 2016 that requires certain components (listed below).
    - If a state needs additional time to submit a complete plan, then the state must submit an initial plan by June 30, 2016, that documents the reasons the state needs more time and includes commitments to concrete steps that will ensure that the state will submit a complete plan by June 30, 2017, or 2018, as appropriate (p. 48).
        - To be approvable, the **initial plan** must include specific components, including a description of the plan approach, initial quantification of the level of emission performance that will be achieved in the plan, a commitment to maintain existing measures that limit CO_2 emissions, an explanation of the path to completion, and a summary of the state's response to any significant public comment on the approvability of the initial plan (p. 461).
    - If the initial plan is approvable, the state would have until June 30, 2017, to submit a complete plan if the geographic scope of the plan is limited to that state. If the state develops a plan that includes a multi-state approach, it would have until June 30, 2018, to submit a complete plan. Further, the EPA is proposing that states participating in a multi-state plan may submit a single joint plan on behalf of all of the participating states (p. 48).

Required State Plan Components *(Proposed Rule Sec. VIII.D., p. 436)*

- The proposed rule requires that states set emission performance levels in their plans for their affected EGUs—either the EPA-established rate-based goal or an equivalent mass-based goal—and determine the measures needed to reach those levels. (Proposed Rule, p. 43).
    - If states choose to translate the established EPA rate-based goal, they must include in their plan a description of the process, tools, methods, and assumptions used to translate from the rate-based goal to the mass-based goal.
- A complete state plan must follow the EPA framework regulations at 40 C.F.R. 60.23 and would include the following 12 components:
    - Identification of affected entities
    - Description of plan approach and geographic scope
    - Identification of state emission performance level
    - Demonstration that plan is projected to achieve emission performance level
    - Identification of emission standards
    - Demonstration that each emission standard is quantifiable, non-duplicative, permanent, verifiable, and enforceable
    - Identification of monitoring, reporting, and recordkeeping requirements
    - Description of state reporting
    - Identification of milestones
    - Identification of backstop measures
    - Certification of hearing on state plan
    - Supporting material (p. 46, 436)

Criteria for Approving State Plans *(Proposed Rule Sec. VIII.C., p. 425)*

- EPA is proposing to evaluate the sufficiency of each state plan based on the inclusion of the 12 required components above plus the following four general criteria:
    - 1) A state's plan must include enforceable measures that reduce EGU CO_2 emissions;
    - 2) The enforceable measures included in a plan must be projected to achieve emission performance equivalent to the goals established by EPA, on a timeline equivalent to that in the emission guidelines;
    - 3) CO_2 emissions performance from affected EGUs must be quantifiable and verifiable; and
    - 4) A state plan must include a process for reporting on plan implementation, progress toward achieving CO_2 goals, and implementation of corrective actions, if necessary (p. 46, 425).
- EPA requests comment on whether to update the procedures for acting on complete state plans to include the option of partially or conditionally approving a state plan (p. 466).

Multi-State Plans

- For a multi-state approach, EPA proposes that only one plan would be submitted on behalf of all participating states, signed by authorized officials for each state. A joint-submittal would adequately address plan components that apply jointly to all participating states and for each individual state (p. 434).
    - EPA seeks comment on two alternative options for multi-state approaches: first, whether states participating in a multi-state approach should be given the option of providing a single submittal that addresses common plan elements, but each state would also be required to provide individual submittals for state-specific elements of the multi-state approach; second, whether all states participating in a multi-state approach should be required to separately make individual submittals that address all elements of the multi-state plan.

Compliance Demonstration

EPA proposes final and interim goal performance periods, designed to provide states with flexibility for the timing of programs and measures and for year-to-year variation in actual emission performance during the interim goal period, while ensuring that state plans are designed to achieve the final goal by 2030.

- Performance periods (p. 408)
    - **Interim goal – Projected plan performance demonstration:** To be approvable, a state plan must demonstrate that the emission performance of affected EGUs will meet the interim emission performance level on average over the 2020-2029 period.
    - **Interim goal – Actual plan performance check:** In 2030, the emission performance of affected EGUs during the period 2020-2029 must be compared against the interim goal. (In addition, as described separately below, interim emission performance checks will occur during this 10-year period.)
    - **Final goal – Projected plan performance demonstration:** To be approvable, a state plan must demonstrate that the emission performance of affected EGUs will meet the final emission performance level no later than 2030, on a single-year basis.
    - **Final goal – Actual plan performance check:** Starting at the end of 2032, emission performance of affected EGUs must be compared against the final goal on a three-year rolling average basis (i.e., 2030-32, 2031-33, 2032-2034, etc.).
- Implementation milestones and interim emission performance checks (p. 412)
    - "Self-correcting" plans (i.e., plans that inherently assure interim performance and full achievement of the state plan's required level of emission performance) need not contain interim milestones, because they require federally enforceable progress.
        - Examples of self-correcting plans include: a state plan with a rate-based emission performance level that requires affected EGUs collectively to meet the state's required emission performance level, and allows EGUs to comply through an emission rate averaging system; or a plan that includes measures or actions (e.g., emission limits that apply to affected EGUs and ensure full plan performance) that take effect automatically if the plan's required emission performance level is not met, in accordance with a specified milestone.
    - Plans that are not self-correcting must identify periodic program implementation milestones (e.g., start of an end-use energy efficiency program, retirement of an affected EGU, or increase in RPS). If the state misses a milestone, it must report to EPA and describe steps to accelerate subsequent implementation.
- Tracking (p. 413)
    - For all plans, the state and EPA would track state plan emission performance on an ongoing basis, with states reporting performance data to EPA annually by July 1.
    - During the interim performance period, beginning in 2022, the state must include a comparison of emission performance achieved to performance projected in the state plan each year.
    - A report and corrective measures would be required if an interim emission check showed that actual emission performance of affected entities was not within 10 percent of the performance projected in the state plan. Corrective measures could be adopted into regulation prior to plan submittal to enable the state to implement the measures administratively, or the state could wait to adopt corrective measures into regulation until after a plan performance deficiency is discovered.

Requests for Comments (*note: list not comprehensive*)

EPA seeks comments on a number of issues, including but not limited to:

- **Overall**
    - The proposed BSER, the proposed methodology for computing state goals based on application of the BSER, and the state-specific data used in the computations. Once the final goals have been promulgated, a state would no longer have an opportunity to request that the EPA adjust its CO_2 goal (p. 27).
    - All aspects of EPA's legal interpretations, including the discussion in the Legal Memorandum (p. 125).
- **BSER**
    - The application of only the first two building blocks as the basis for BSER; however, EPA notes that such an application would result in fewer CO_2 reductions at a higher cost (p. 36).

- Different combinations of building blocks and different levels of stringency for each building block, as well as on the methodologies for calculating reasonable levels of emissions reductions each building block is expected to achieve (p. 50).

- **State Goals**
  - All aspects of the proposed form of the goals, and all aspects of the goal computation procedure (p. 345, 356).
  - Methodology for calculating a weighted average, rate-based CO_2 emission performance goal for multiple states participating in a joint plan (p.439).[11]
  - Whether EPA should provide a presumptive translation of rate-based goals to mass-based goals for all states, for those who request it, and/or for multi-state regions. Alternatively, whether EPA should provide guidance to use in translation, including acceptable methods and tools, default input assumptions for key parameters that will likely influence projections, and coordination in addressing the assumptions applied by multiple states within a grid region (p. 440-41).
  - A state may demonstrate during the comment period that application of one of the building blocks to that state would not be expected to produce the level of emission reduction quantified by the EPA because of technical infeasibility or cost; however, EPA will not adjust the state's goal unless a state also shows that it could not achieve additional reductions from the other building blocks (p. 334).
- **State Plans**
  - Two other options for multi-state plan submittal:
    - Requiring submittal of a common multi-state plan *and* individual state submittals that provide state-specific elements.
    - Requiring that states participating in a multi-state plan each submit individual plans that are materially consistent for all common plan elements that apply to all participating states, as well as state-specific aspects of the multi-state plan.
  - Methodology used to incorporate renewable generation and energy efficiency measures under a rate-based approach (p. 481).
  - The amount of emission rate improvement or emission reduction that corrective measures included in a plan must be designed to achieve, and whether the emission guidelines should establish a deadline for implementation of corrective measures. (p. 444).
  - Treatment of existing programs: EPA is proposing that "states may apply toward the required emission performance level the emission reductions that existing state programs and measures achieve during a plan performance period as a result of actions taken after the date of this proposal." (p. 475). They seek input on alternatives, including an option that recognizes reductions that existing state programs achieved starting from a specified date prior to the initial plan performance period. (p. 478).
- **Compliance**
  - The compliance consequences and appropriateness of allowing states to adopt a "portfolio approach" or a "state commitment approach" in their plans (p. 383, 387).
  - An alternative approach that includes a 5-year period for compliance in combination with a less stringent set of CO_2 emission performance levels. These options are fully described in Sec. VIII of the preamble, and the state goals associated with the alternative option are described in Sec. VII.E. of the preamble. (p. 50).

Projected Emission Reductions, Benefits, and Costs

- EPA projects that implementation of the rule as proposed would achieve a 30 percent reduction in greenhouse gas emissions from 2005 levels by 2030.
- EPA projects that in 2030, the reductions achieved by the proposed rule would yield net climate and health benefits of $48 billion to $84 billion (RIA p. ES-20).

[11] Discussed in more detail in Projecting EGU CO2 Emission Performance TSD, *supra* note 2.

- EPA projects that annual compliance costs will range between $5.4 and $7.4 billion in 2020 and between $7.3 and 8.8 billion in 2030. (RIA p. ES-8).
- The reductions achieved by the proposed rule would prevent 2,700 to 6,600 premature deaths and 140,000 to 150,000 child asthma attacks in 2030 (EPA Fact Sheet: Cleaner, More Efficient Power Sector, p. 2).
- The proposed rule would also reduce the pollutants that contribute to soot and smog by 25 percent (EPA Fact Sheet: Cleaner, More Efficient Power Sector, p. 1).
- For every $1 invested through the proposed rule, American families would see up to $7 in health benefits from soot and smog reductions alone (EPA Fact Sheet: Cleaner, More Efficient Power Sector, p. 2).
- In 2030, when the proposed rule would be fully implemented, electricity bills would be roughly 8 percent lower than they would be without the state plans called for by the rule, saving Americans an average of $8 a month (EPA Fact Sheet: Cleaner, More Efficient Power Sector, p. 2).
- EPA projects that in 2020 the proposed rule would result in job growth of 25,900 to 28,000 job-years in the power production and fuel extraction sectors, and an increase of 78,000 jobs in the demand-side energy efficiency sector (Proposed Rule, p. 59-60).

Selected Technical Support Documents & Other Resources

Technical Support Document: GHG Abatement Measures

- This TSD[12] explains the technical basis for the development of the Best System of Emission Reductions (BSER), including EPA's evaluation of all adequately demonstrated GHG abatement measures, and consideration of each measure's technical feasibility, applicability and use, application level appropriate for BSER, and cost effectiveness associated with reducing GHG emissions at EGUs.

Technical Support Document: Goal Computation

- This TSD[13] provides information to support EPA's determination of state emission rate goals in the proposed rule, presenting EPA's methodology for calculating the state goals based on the application of BSER factors to individual state generation and emission data.
- The Georgetown Climate Center has compiled data from this TSD into a reference guide, which compares current state carbon dioxide intensity levels with EPA's proposed state goals.[14] It also identifies the percentage change necessary to achieve state goals. Please note that the percentage change numbers are provided in the guide for illustrative purposes based on proposed EPA state goals, but they do not necessarily represent the levels of additional effort that would be required by states. EPA proposes or takes comment on a number of factors in the proposed rule that would bear on what a state would additionally need to do to meet its goal, for example, EPA is proposing that states could receive credit for reductions from existing state programs that reduce emissions after the date that the proposal was issued but before the start of the plan performance period.

Technical Support Document: Projecting EGU CO_2 Emission Performance in State Plans

This TSD[15] describes methods for projecting future CO_2 emissions from EGUs, and discusses methods for translating rate-based goals to mass-based goals.

---

[12] EPA, GHG Abatement Technical Support Document, http://www2.epa.gov/sites/production/files/2014-05/documents/20140602tsd-ghg-abatement-measures.pdf.
[13] EPA, Goal Computation Technical Support Document, http://www2.epa.gov/sites/production/files/2014-05/documents/20140602tsd-goal-computation.pdf.
[14] Georgetown Climate Center, Percentage Changes to Achieve Proposed State Carbon Pollution Rate Goals, http://www.georgetownclimate.org/sites/www.georgetownclimate.org/files/GCC_EPACleanPowerPlanProposedRule_StateBudgets_Final.pdf.
[15] EPA, Projecting EGU CO_2 Emission Performance in State Plans Technical Support Document, http://www2.epa.gov/sites/production/files/2014-05/documents/20140602tsd-projecting-egu-co2emission-performance.pdf.

- Although EPA's individual state goals are given in lb CO_2/MWh, the proposed rule would allow states to translate that rate into a mass-based goal expressed in total tonnage over the course of the performance period.
- Translations are based on projections of affected EGU utilization and dispatch. Projection scenarios must include:
    - **A Reference Case Scenario** that projects the average CO_2 emission rate for affected EGUs in the absence of the EPA guidelines or any components of the state plan. This includes on-the-books state requirements, programs or measures not included in as enforceable measures in a state plan.
    - **A Mass-Based CO_2 Emission Goal Policy Scenario** that adds a proxy emission limit to the above reference case. The proxy limit is equivalent to EPA's state-specific rate-based goal, but does include crediting for the end-use EE, RE, and nuclear generation included in building blocks 3 and 4.
    - **A State Plan Policy Scenario** constructed by adding the components of the state plan to the reference case to project CO_2 emission performance by affected EGUs under the state plan.
- EPA is taking comment on the level and type of guidance it should give to states regarding projections and translation. More information on the projection and translation process can be found in the TSD.[16]

Technical Support Document: State Plan Considerations

- This TSD[17] provides further information on the state plan considerations discussed in the proposal at Sec. VIII.F (p. 470). Considerations include: enforceability; incorporation, quantification, and reporting of end-use energy efficiency and renewable energy (EE/RE) programs; and treatment of interstate emission effects.

Clean Power Plan Toolbox for States

- EPA is providing states with a Toolbox that provides information and resources to assist with the development of state plans, found at http://www2.epa.gov/cleanpowerplantoolbox.
- EPA's toolbox includes:
    - Examples and explanations of effective policies that states are already using.
    - Technical resources for reducing on-site EGU emissions.
    - Tools and projections to help states calculate the emissions reduced by EE and RE programs and measures, including EPA's AVERT tool.

Funding for this project was provided by The William and Flora Hewlett Foundation. The Georgetown Climate Center is grateful for their support and the support from all of the funders who make our work possible: http://www.georgetownclimate.org/support.

Please contact Gabe Pacyniak (pacyniak@law.georgetown.edu) with any questions.

GEORGETOWN CLIMATE CENTER

[16] EPA, Projecting EGU CO_2 Emission Performance in State Plans Technical Support Document, http://www2.epa.gov/sites/production/files/2014-05/documents/20140602tsd-projecting-egu-co2emission-performance.pdf.
[17] EPA, State Plan Considerations Technical Support Document, http://www2.epa.gov/sites/production/files/2014-05/documents/20140602tsd-state-plan-considerations.pdf.