

Institute for
Policy Integrity

new york university school of law

The Future of U.S. Climate Policy: Coal, Carbon Markets, and the Clean Air Act

October 28, 2014

CLE Materials: Clean Power Plan: A Primer

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May 2014

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.

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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 CO₂ 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 CO₂ 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 CO₂ 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 CO₂ emission limit to affected EGUs; the CO₂ 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 CO₂ 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 CO₂ 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 CO₂ 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 CO₂ 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 CO₂ emissions from affected sources. Under this approach, all of the measures combined would be designed to achieve the

¹⁰ EPA, Projecting EGU CO₂ 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 CO₂ 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 CO₂ emissions (p. 481). Under such a process, measures that avoid EGU CO₂ emissions from affected EGUs, such as quantified and verified end-use energy savings and renewable energy generation, could be credited toward a demonstrated CO₂ emission rate for EGU compliance purposes or used by the state to administratively adjust the average CO₂ 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 CO₂ 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 CO₂ 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 CO₂ emission reductions among states in the multi-state area, as long as the total CO₂ 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 CO₂ 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 CO₂ 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 CO₂ 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 CO₂ emission reductions among states in the multi-state area, as long as the total CO₂ emission reductions claimed are equal to the total of each state's in-state emission reductions from RE measures; or jointly demonstrate CO₂ 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 CO₂ 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 CO₂ 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) CO₂ 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 CO₂ 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 CO₂ 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 CO₂ 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 CO₂ 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 CO₂ 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 TSD¹² 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 TSD¹³ 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 CO₂ Emission Performance in State Plans

This TSD¹⁵ describes methods for projecting future CO₂ 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 CO₂ 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 CO₂/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 CO₂ 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 CO₂ 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 CO₂ 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 TSD¹⁷ 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/cleanpowerplanttoolbox>.
- 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 CO₂ 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>.

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Environmental Law

Legal Challenges to Obama Administration's Clean Power Plan

Michael B. Gerrard, New York Law Journal

September 11, 2014

The centerpiece of the Obama administration's efforts to fight climate change is the "Clean Power Plan." The plan would utilize an existing statute—Section 111(d) of the Clean Air Act—to reduce emissions from existing coal-fired power plants, which are by far the largest source of greenhouse gases in the United States.

The Environmental Protection Agency announced its [proposed rules](#) on June 2, 2014,¹ and plans to finalize them by June 2015. Three lawsuits have already been filed against them. Far more are expected when the rules become final.

This column discusses the theories and timing of this litigation.

Clean Air Act Structure

First it is necessary to explain a bit about the Clean Air Act, which is the longest and most complex of all the federal environmental statutes. It sets up numerous separate air pollution control programs. Five are especially relevant here.

State Implementation Plan Program. Each state must formulate a plan so that its air meets the National Ambient Air Quality Standards.

New Source Review. The states (or, in some cases, EPA) determine what is the best available control technology for various kinds of sources, and require that all new sources or significantly modified sources use that technology or at least get the equivalent emissions reduction. In those places where the air quality meets the national standards, this is called the prevention of significant deterioration program; where it does not, the program is called nonattainment new source review. This is the program that was at issue in a June 23, 2014, Supreme Court decision, [Utility Air Regulatory Group v. EPA](#),² which upheld most of EPA's actions on greenhouse gases but overturned EPA's application of the prevention of significant deterioration program to greenhouse gases from sources that are not otherwise regulated.

New Source Performance Standards for New Sources. Under Section 111(b) of the Clean

Air Act, EPA sets national standards for emissions from various kinds of sources. The program only applies to newly built sources, or existing sources that are significantly modified. Earlier this year, EPA proposed standards under this program for new fossil fuel power plants. These standards would basically prohibit a new coal-fired plant unless it had carbon capture and sequestration. Since almost no one is starting construction of new coal-fired plants in the United States anyway, due largely to the low cost of natural gas, this proposed rule in itself is not especially important, but it is a prerequisite to the rule that is the focus of this column.

Performance Standards for Existing Sources. This is the key Section 111(d) program. Under it, EPA sets nationwide guidelines, but it is up to each state to prepare its own plan for meeting these guidelines.

National Emissions Standards for Hazardous Air Pollutants. The programs just mentioned all concern the conventional air pollutants, such as sulfur dioxide, nitrous oxide, particulate matter, and now, carbon dioxide and other greenhouse gases. In contrast, the national emission standards for hazardous air pollutants, under Section 112 of the Clean Air Act, concern a long list of other pollutants that are much more toxic in small quantities.

All of these programs are distinctive with their own statutory bases and regulations. But they interrelate with each other, and that leads to the legal theories that are going to be used to attack the Clean Power Plan.

Theories to Attack Proposal

Three major theories are being advanced by the industries and states that oppose the Clean Power Plan proposal.

- **Argument that EPA cannot regulate existing fossil fuel plants because they are already regulated under the hazardous air pollutant program.** In February 2012, EPA issued a standard for mercury and certain other air toxins from fossil fuel power plants under the National Emission Standards for Hazardous Air Pollutants program created under Section 112. Section 111(d) allows EPA to mandate standards for emissions that are not "from a source category which is regulated under [Section 112]."³ That poses a problem because the source category of fossil fuel power plants is now regulated under Section 112.

The 1990 amendments to the Clean Air Act may or may not solve this problem. The House and the Senate passed versions that were slightly different in one respect, and the differences were never reconciled. Both versions appear in the Statutes at Large.⁴

Under the House version of Section 111(d), if a source category is regulated under Section 112, other pollutants emitted by that source category cannot be regulated under Section 111(d). Under the Senate version, only the pollutants that are regulated under Section 112 cannot be regulated under Section 111(d). So if the House version governs, the fact that mercury and other hazardous air pollutants from power plants are regulated under Section 112 could be fatal for regulating power plants under Section 111(d). But if the Senate version governs, this is not a problem because the Section 112 rules on power plants do not regulate greenhouse gases, which is what the Section 111(d) rules seek to limit.

- **Argument that EPA cannot regulate beyond the fenceline.** Section 111(d) tells EPA to set its emissions guidelines based on a "standard of performance," defined as a standard reflecting

the "degree of emission limitation achievable" through the "best system of emission reduction" that EPA "determines has been adequately demonstrated."⁵ What "system" means is hotly debated. Does it apply only to reductions that can be achieved within the power plant, or does it allow EPA to regulate beyond the fenceline of the power plant? And if the latter, can EPA require not only direct reductions in emissions, but also (as EPA has proposed) indirect measures, such as end-use energy efficiency, renewable energy, and keeping old nuclear power plants open?

Only small reductions can be achieved within the fenceline, such as by upgrading the boiler. Thus if EPA is limited to requiring such measures, the Section 111(d) rules could not lead to anywhere close to the emissions reductions that EPA is seeking. The argument that the statutory language, especially "best system of emission reduction," does not allow EPA to go beyond the fenceline is closely related to its opponents' suggestion that the proposed rules would turn EPA into an energy regulator that is inappropriately making broad choices about such matters as fuel choice.

• **Argument that the 111(b) rule for new sources, which is a prerequisite to the 111(d) rules, is invalid.** The Section 111(d) authority only applies to existing sources where there are standards of performance for new sources of the same type—the Section 111(b) rules. That is why the proposed Section 111(b) rule for new coal plants is so important, even though almost none are proposed. Opponents of the proposed rule have raised questions about whether carbon capture and sequestration, on which the proposed rule relies, is adequately demonstrated, whether it has a reasonable cost, and whether the fact that the Department of Energy has funded much research on this technology runs afoul of a particular provision of the Energy Policy Act of 2005.

EPA has also proposed a new source standard under Section 111(b) that would cover modified and reconstructed power plants (as opposed to entirely new power plants). That one does not rely on new technology, so it creates an argument for EPA that this is enough to satisfy the prerequisite. EPA might also avoid this problem by issuing final Section 111(b) rules for new sources that do not rely on new technology, with a pledge to revisit the rule in a few years to see if new technology is available by then.

When the Section 111(d) rule is finally issued, there will no doubt be further theories. EPA must make many decisions in creating the rule, and people may argue with many of them. For example, there will be complaints about how EPA set the targets for emissions reductions by each state; what baseline year is chosen; how various kinds of sources were subcategorized; the way that electricity imports and multistate issues are dealt with; and the selection of strategies and approaches.

Early Lawsuits

Murray Energy Corporation, the largest underground coal mining company in the United States, which is emerging as a major litigant against a variety of federal regulations, has filed two lawsuits in the U.S. Court of Appeals for the D.C. Circuit challenging the proposed 111(d) guidelines.⁶ In the first of these, it has received amicus support from nine states—West Virginia, Alabama, Alaska, Kentucky, Nebraska, Ohio, Oklahoma, South Carolina, and Wyoming. Separately, a group of most of those same states (plus a few more) filed a petition with the same court asking it to review a settlement agreement under which EPA committed to

issue the contested rule.⁷ On Sept. 2, a coalition of 11 states (including New York and California), plus the District of Columbia and New York City, moved to intervene in that lawsuit to support EPA's position.

Ordinarily, the Administrative Procedure Act only allows challenges to final agency action. Additionally, Section 307(b) of the Clean Air Act sets forth the procedures for challenging EPA rulemaking action, and it, too, requires final action. Murray Energy says the pendency of the proposed rule is disrupting utility decision-making on whether to keep plants open or close them, and it is taking the extraordinary step of relying on the All Writs Act of 1789. A similar effort to overturn a proposed rulemaking before it went final was made two years ago in a challenge to the proposed Section 111(b) rules for new power plants even before they went final; unsurprisingly, it was dismissed as premature.⁸

Timeline for Litigation

Assuming that the proposed rule is not derailed by these early lawsuits (or by those in Congress who are trying to block it), when it goes final in June 2015 there will surely be multiple lawsuits, as there were after the endangerment finding, the motor vehicle rule, and the tailoring rule—the actions that ultimately led to the Supreme Court's decision in *Utility Air Regulatory Group*. If the D.C. Circuit follows here the same pattern it did then, it will not grant a stay that would put the rules on hold while the litigation plays out, and it will hear them all at once.

In the cases challenging the prior rules, 26 months passed between the issuance of the endangerment finding and the oral argument in the D.C. Circuit, and another four months passed before the decision. So if there is a similar 30-month delay between the final Section 111(d) rule and the D.C. Circuit decision, that would take us to December 2017.

Two years passed between when the D.C. Circuit issued its ruling (called [*Coalition for Responsible Regulation v. EPA*](#)⁹) in June 2012 and when the Supreme Court ruled (June 2014). If it takes two years between the D.C. Circuit's decision in the Section 111(d) challenge and the Supreme Court's decision on it (should they grant certiorari), that would be December 2019. Since four members of the current court will be in their 80s by then, it is possible that there will have been some retirements and new justices.

The happenstance of judicial personnel may also be important to the outcome in the D.C. Circuit. In the Supreme Court, of course, all nine justices hear all cases. But in the D.C. Circuit, there are currently 17 judges, and each case is heard by a randomly selected panel of three judges. Various judges on that court differ profoundly on how they tend to rule in suits against EPA, so the composition of the panel may make a big difference.

Since the state plans under Section 111(d) will be due in June 2016, or two years later if part of a multistate plan, it seems likely that the states acting on their own will need to finalize their plans during the pendency of the D.C. Circuit litigation challenging the Section 111(d) rule, and even those entering into multistate plans may need to finish them before the Supreme Court rules.

Moreover, the decisions on the challenges to the final Section 111(d) guidelines will probably not be the end of litigation about this program. When the state plans are issued, they are likely to be subject to state-by-state challenges, as interests in each state argue that they are too stringent or not stringent enough. Those cases will not initially go to the D.C. Circuit. They could

be brought in the federal district courts, or in state court, or both.

Once the state plans are in place, their requirements become enforceable in federal court. There is also the possibility of citizen suits. For example, if the state plan requires a particular fossil fuel plant to install certain equipment by a set date, and the deadline is missed, a neighbor of the plant might be able to go to federal court to seek an injunction.

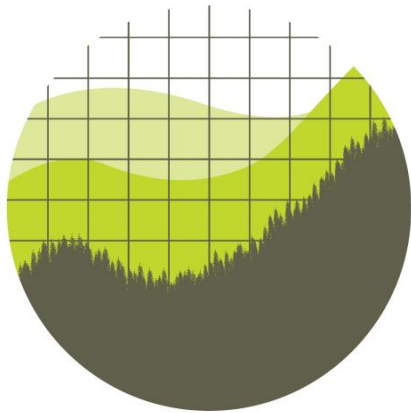
EPA can issue federal implementation plans in states that do not propose adequate plans, but that presumably will not start happening until at least 2017, when the next president is in office. Any federal implementation plan will be subject to its own set of legal challenges, including some interesting federalism questions about what EPA can and cannot tell the states to do. If some of the states receive federal plans but refuse to implement them, that will be yet another round of litigation.

The year 2017 is two congressional election cycles away, and it is conceivable that by then the congressional deadlock will have broken and we will have a statute that is better designed to deal with the climate change problem. That, alas, is probably the least likely outcome of all.

Endnotes:

1. The proposal was published in the Federal Register on June 18, 2014. See Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, [79 Fed. Reg. 34830](#) (June 18, 2014).
2. 134 S. Ct. 2427, 189 L. Ed. 2d 372 (2014).
3. 42 U.S.C. §7411(d)(1)(A)(i).
4. Clean Air Act Amendments of 1990, Pub. L. 101-549, §§108(g), 302(a), 104 Stat. 2399, 2467, 2574.
5. 42 U.S.C. §7411(a)(1), (d)(1)(A).
6. *Murray Energy Corp. v. EPA*, No. 14-1112 (D.C. Cir., filed June 18, 2014); *Murray Energy Corp. v. EPA*, No. 14-1151 (D.C. Cir., filed Aug. 15, 2014).
7. *West Virginia v. EPA* (D.C. Cir., filed Aug. 1, 2014).
8. *Las Brisas Energy Ctr. v. EPA*, 2012 U.S. App. Lexis 25535 (D.C. Cir. Dec. 13, 2012).
9. 684 F.3d 102 (D.C. Cir. 2012).

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Institute *for*
Policy Integrity

new york university school of law

Prevailing Academic View on Compliance Flexibility Under Section 111 of the Clean Air Act

Gregory E. Wannier, Jason A. Schwartz, Nathan
Richardson, Michael A. Livermore, Michael B. Gerrard,
and Dallas Burtraw

Discussion Paper No. 2011/2

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Prevailing Academic View on Compliance Flexibility Under Section 111 of the Clean Air Act¹

Gregory E. Wannier, Jason A. Schwartz, Nathan Richardson, Michael A. Livermore,
Michael B. Gerrard, and Dallas Burtraw²

Executive Summary

EPA will soon propose performance standards under Section 111 of the Clean Air Act for greenhouse gas pollution from the two largest emitting sectors—fossil-fueled power plants and petroleum refineries. The form these standards will take remains unclear. Many from industry, environmental groups, and academia argue that to be effective and efficient, the standards should incorporate compliance flexibility. This broad term encompasses a range of design choices that provide spatial or temporal flexibility in achieving aggregate emissions outcomes.

There is widespread agreement in the academic community that § 111 authorizes the use of many types of flexible approaches. Given agency discretion to define uncertain statutory terms like “best system of emission reduction,” and given the potential of compliance flexibility mechanisms to reduce costs while preserving total emissions reduction goals, EPA and the states should be able to fit a variety of flexible approaches into the statutory criteria for performance standards.

EPA and states can likely grant compliance flexibility to existing sources. EPA can outline specific flexible structures in its guidance to states, though it likely cannot reject state implementation plans solely for failure to adopt a flexible approach.

Compliance flexibility may be possible for new sources, albeit limited in practice. The plain statutory text supports flexibility for new sources, though a lack of precedent and possible interactions with New Source Review could complicate application.

Inter-sector trading is probably permissible. EPA has broad statutory authority to define the scope of categories of regulated polluters. EPA can likely define a category encompassing multiple types of major greenhouse gas emitters, and thereby allow trading between sources currently in different categories. Alternatively, even without newly defined or larger categories, there is no express statutory preclusion to trading across existing categories.

No consensus exists on whether offsets are permissible. But even if offsets are not compatible with performance standards, states have broad authority to use offsets for additional emissions reductions.

Banking and price floors are likely permissible; borrowing and price ceilings are more uncertain. States likely have broad powers to assign compliance responsibilities among sources, including the allocation of allowances within a trading program. Whether EPA’s powers are as broad is unclear.

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² Dallas Burtraw, Senior Fellow and Darius Gaskin Chair, Resources for the Future; Nathan Richardson, Resident Scholar, Resources for the Future; Michael B. Gerrard, Director, Center for Climate Change Law, Columbia Law School; Gregory E. Wannier, Deputy Director, Center for Climate Change Law, Columbia Law School; Michael A. Livermore, Adjunct Professor, New York University School of Law, Executive Director, Institute for Policy Integrity at New York University School of Law; and Jason A. Schwartz, Legal Director, Institute for Policy Integrity, New York University School of Law.

Pre-planned changes in the breadth and stringency of standards over time are likely permissible. Both EPA and the states can likely identify a schedule of incremental steps over time to implement additional emissions reductions and lower costs.

Compliance Flexibility Tool	Legal under CAA?
General compliance flexibility (existing sources)	Probably
General compliance flexibility (new sources)	No consensus*
EPA rejection of state plans granting more/less flexibility	Probably not
Inter-sector trading	Probably
Offsets	No consensus
Banking	Probably
Borrowing	No consensus
Price floors	Probably
Price ceilings	No consensus
Declining caps/increasing stringency	Probably
State programs that exceed EPA-mandated stringency	Probably
State use of tools unavailable under CAA	Probably**
Discretionary allocation/auction authority (states)	Probably
Discretionary allocation/auction authority (EPA)	No consensus

*Even if permissible, New Source Review may be a practical barrier.

**But sources likely cannot use these tools to comply with CAA requirements.

Introduction

EPA will soon propose performance standards under Section 111 of the Clean Air Act (CAA) for greenhouse gas (GHG) pollution from the two largest emitting sectors—fossil-fueled power plants and petroleum refineries. These standards will apply to both new sources and, via § 111(d) and the states, existing sources—they will be the first federal GHG regulations on these sources.

The form these standards will take remains unclear. Many from industry, environmental groups, and academia argue that to be effective and efficient, the standards should incorporate *compliance flexibility*.¹ This broad term encompasses a range of design choices that provide spatial or temporal flexibility in achieving aggregate emissions outcomes. The array of policy options includes tradable rate-based performance standards, bubbles over commonly owned facilities, trading between plant-specific lifetime emissions budgets, and nationwide emissions budgets with market-based exchange, with banking and borrowing—all of which feature the common characteristic of lowering costs without sacrificing ultimate emissions goals.

This document addresses whether the CAA, and specifically § 111, allows EPA to use these tools. Generally the relevant legal questions have not yet been directly answered by the courts.² Nevertheless, there is widespread agreement in the academic community that § 111 does authorize the use of many types of flexible approaches. This document explores some areas of potential confusion surrounding flexibility and § 111. Where the prevailing academic view is identified, the findings presented reflect general agreement in the academic community and the unanimous position of the authors.

Overview of Statutory Structure

Section 111 of the CAA governs EPA's powers to set performance standards for "source categories" (sectors) defined by the agency. First, the agency must list categories of stationary sources that contribute significantly to air pollution that endangers public health or welfare.³ Once a category has been defined, EPA must propose a federal standard of performance to regulate all *new* sources within that category.⁴ These standards must reflect emissions cuts achievable under "the best system of emission reduction which . . . the administrator determines has been adequately demonstrated," taking into account costs and other factors.⁵

For pollution regulated elsewhere under the CAA, the § 111 process ends here. But if emissions from *existing* sources are not controlled via other CAA regulation (and so far for GHG emissions, they are not), § 111(d) of the CAA authorizes EPA to regulate them with performance standards.⁶ EPA sets guidelines for these standards, but the states implement them. This process is explicitly similar to that found in § 110 of the CAA⁷ and requires states to submit a plan establishing a "standard of performance for any existing source for any air pollutant."⁸ States have broad flexibility to implement § 111(d) standards,⁹ though EPA retains approval power and the ability to regulate if a state fails to do so.¹⁰ The only explicit limitations on state authority are the requirement that they establish "performance standards" and the EPA regulations requiring that plans be at least as stringent as, and occur at least as quickly as, the federal guidelines, creating a federal emissions backstop.¹¹

FINDING #1: EPA and states can likely grant compliance flexibility to existing sources.

Compliance flexibility (as defined above) for existing sources is almost certainly available to state authorities. EPA can outline specific flexible structures in its guidance to states, though it likely cannot reject state implementation plans solely for failure to adopt a flexible approach.

a. Fundamental Justifications for a Flexible System

Section 111 of the CAA allows for a high degree of flexibility in implementing standards of performance. As defined under § 111, a standard of performance is based on “the best system of emission reduction . . . taking into account the cost.” This language almost certainly is broad enough to enable both EPA and states to incorporate compliance flexibility: using their statutory discretion, those authorities can define many flexible approaches as the most efficient (and therefore the “best”) systems for reducing emissions at the sector level.¹² This discretion to define statutory criteria is central to EPA and states’ ability to implement any flexibility mechanisms.

The minority opposing view holds that flexible mechanisms cannot be justified, based on an assumed negative inference from statutory silence on specific flexibility mechanisms. A further objection claims that § 111 requires regulation of individual sources, implying no single source can be allowed to emit more and then pay for it.¹³ However, particularly given the deference owed to agencies under *Chevron v. NRDC*,¹⁴ such a negative inference is unwarranted. Courts do not typically act on negative inferences without clear congressional intent.¹⁵ Furthermore, to the extent that Congress has spoken on the issue, it has removed, rather than added, barriers to flexible mechanisms in EPA regulations. In 1990, Congress amended § 111 to remove the word “technology” from its definition of performance standards, indicating that standards need not be technology-based.¹⁶

The legality of flexibility for existing sources under § 111 also has support from past EPA actions. EPA explicitly agreed with, and defended, this interpretation in its 2005 Clean Air Mercury Rule (CAMR).¹⁷ It is true that EPA’s interpretation does not have a long history; as recently as 1998, EPA believed that “trading across plant boundaries is impermissible under sections 111 and 112.”¹⁸ However, agencies have generally been granted deference in their evolving interpretation of statutes.¹⁹

Moreover, states may have some augmented authority to use compliance flexibility for existing sources. Section 111(d) gives states extra authority to consider “other factors” when regulating existing sources. Additionally, the § 111(d) procedure explicitly mimics the § 110 process, which grants states great leeway in designing State Implementation Plan equivalents (SIPe)—and which specifically mentions the use of “economic incentives such as . . . marketable permits, and auctions of emissions rights.”²⁰

b. EPA Guidance and Approval of SIP-like State Programs

EPA has the authority to outline flexible structures in its guidance to states on existing source regulation, either in the form of a specific preferred option or by listing several alternative options.²¹ EPA almost certainly also has the authority to implement flexible systems in any Federal Implementation Plan equivalent (FIPE), because the CAA gives EPA the identical authority as states in the design of a federal “backstop” program for existing sources.²² In fact, if EPA includes some of these flexible mechanisms in its proposed FIPE, it may reduce some of the uncertainty around the question of state equivalency (which is measured against a federal backstop that the FIPE helps to set).

There has been little scholarship on whether states will be able to submit a joint or coordinated SIPE, which would allow trading between states and might be useful in meshing CAA standards with existing regional trading programs (like RGGI). However, neither is there any explicit statutory bar. A limitation on joint SIPes might arise if EPA interprets the statute to require each individual state to develop equivalency with the federal standards. In such a scenario, states buying allowances from other states might fail to reduce their own emissions sufficiently. A negative inference against joint bids may also arise from the fact that other sections of the CAA do explicitly allow for state coordination. However, nothing in the statute requires that EPA mandate state compliance on an individualized basis,²³ and so states can likely assert this flexibility.

States retain substantial discretion under the CAA to design their own SIPes for existing sources.²⁴ EPA probably lacks the ability to disapprove a given SIPE simply for failing to include flexibility mechanisms that EPA might prefer. States otherwise achieving sufficient reductions cannot be forced to implement any specific flexible system. Nor, conversely, could EPA disapprove a SIPE that includes flexibility that the model rule does not, so long as the flexibility mechanisms are allowable under the CAA.

State efforts to implement reductions through other techniques, including renewable portfolio standards (RPSs), demand-side management, utility planning, and other indirect emission reduction systems, might also qualify for SIPE treatment to the extent that they achieve equivalent emissions reductions and satisfy the criteria of “performance standards.” EPA has issued guidance that would allow states to claim credit for emissions reductions of criteria pollutants (like ozone) achieved through adopting energy efficiency and RPS measures under their § 110 SIPs.²⁵ Because § 111(d) allows states to consider “other factors” and makes explicit reference to following a § 110 SIP-like process, it is possible that states could similarly receive credit for RPSs and energy efficiency efforts under § 111.²⁶

c. Potential Conflict with NAAQS

There is no legal certainty on whether EPA can be forced to adopt National Ambient Air Quality Standards (NAAQS) for greenhouse gases. This is a complex question outside the scope of this document.²⁷ However, if EPA were forced to adopt a GHG NAAQS (or chose to do so), regulation of existing sources under § 111(d) would be prohibited.²⁸ It is worth noting that the legal path to forcing EPA to issue NAAQS would be a very long one: even if this potential conflict does eventually become a problem, a § 111-based program could operate successfully for many years.

FINDING #2: Compliance flexibility may be possible for new sources, albeit limited in practice.

The plain statutory text supports flexibility for new sources, though a lack of precedent and possible interactions with New Source Review could complicate application.

a. Fundamental Justifications for a Flexible System

Unlike states’ authority over existing sources under § 111(d), Congress did not grant EPA leeway to consider “other factors” or use SIP-like mechanisms to regulate new sources under § 111(b).²⁹ EPA’s ability to use flexible mechanisms therefore turns entirely on whether such approaches fit the definition of “performance standard.” As explored above, flexible mechanisms can satisfy all the criteria of a performance standard under the plain statutory text.³⁰

Nevertheless, the application of flexible approaches to new sources is legally and practically more uncertain than for existing sources. The negative inference argument is plausibly stronger for new sources, given legislative history that continued to link new source standards to technology-specific controls even after the 1990 Amendments.³¹ The regulatory precedent is also weaker: though EPA did include new sources in the market created by CAMR, that rule also simultaneously bound new sources to baseline performance standards.³² Finally, some argue that a D.C. Circuit Court of Appeals decision, *ASARCO v. EPA*, disallowed trading under § 111(b), although EPA and others believe the subsequent Supreme Court case *Chevron v. NRDC* invalidated *ASARCO*. We further note that the statute has been amended since both those cases and the original decision concerned the definition of “source” rather than “performance standard”³³—*ASARCO*’s holding apparently would not apply to an EPA definition of compliance flexibility as “the best system of emission reduction.”

Ultimately, courts typically only accept negative inferences if they are confident that Congress intended to preclude the unmentioned policy option.³⁴ Additionally, agencies are generally granted deference in their evolving interpretation of statutes,³⁵ and EPA will be afforded some discretion to interpret the statutory criteria for “performance standards” under § 111(b).³⁶ Thus, flexible mechanisms are likely available for new sources,³⁷ though they remain a risky option because they are untested.³⁸ A safer option might be for EPA to issue baseline performance standards for new sources (as it did in CAMR) and, in a separate and severable rulemaking, incorporate new sources under a single flexible regime with existing sources.

Note that any limitations on EPA’s authority to regulate new sources under § 111(b)—either due to negative inferences or legal precedents—will not affect its more expansive authority to regulate existing sources with a § 111(d) FIPE in lieu of adequate state action.

b. Potential Interactions with New Source Review

New sources are also subject to permit requirements under a different CAA program: new source review (NSR). Traditionally, performance standards are less stringent than NSR’s “best available control technology” (BACT) requirements.³⁹ As the flexibility created under § 111 incentivizes new sources to adopt tighter emissions controls, emerging technologies may become “available” for purposes of BACT determinations and ratchet up NSR requirements even further. EPA will likely need to provide guidance on the interaction between § 111 performance standards and NSR, particularly if flexibility for new sources is explored.

FINDING #3: Inter-sector trading is probably permissible.

EPA has broad statutory authority to define the scope of categories of regulated polluters. EPA can likely define a category encompassing multiple types of major greenhouse gas emitters, and thereby allow trading between sources currently in different categories. Alternatively, even without newly defined or larger categories, there is no express statutory preclusion to trading across existing categories.

a. Defining Source Categories

EPA has broad authority to “distinguish among classes, types, and sizes within categories of new sources.”⁴⁰ Courts have found EPA has “considerable discretion under section 111” and have upheld EPA’s decision to issue a single, uniform standard for sources that were previously treated as separate subcategories.⁴¹ Thus, EPA can likely expand any existing category to include sources from any other existing category or newly regulated source types (though the latter would also require a new endangerment finding). EPA could even plausibly create a single category for all sources with GHG emissions above a certain threshold. While EPA should be able to exercise this

authority to recategorize at any time, it could be more complicated legally or practically for EPA to adjust categories in the future after performance standards already exist. Though EPA is only contemplating GHG performance standards for one or two categories initially, if the agency wants to pursue this option of combining multiple categories in the future, it may want to start soliciting comments now.

b. Trading Between Source Categories

There is no express statutory preclusion to trading across existing categories. In fact, a flexible mechanism that allows trading across categories could arguably fit the definition of “the best system of emission reduction.”⁴² Nevertheless, several academics worry that the lack of clear statutory authority or precedent creates some doubt, particularly on the question of whether state equivalency must be demonstrated independently in every regulated category.⁴³ The existence of such doubts may suggest that the recategorization method discussed above is the least risky path to inter-sector trading. In any case, states with emissions limits more stringent than EPA’s could allow inter-category trading to meet emissions goals beyond EPA’s. EPA will likely need to provide guidance on how states will establish equivalency.

c. Other Coverage Issues

A few other legal issues relating to flexibility and scope of coverage are worth mentioning. As with EPA’s § 202 endangerment finding, the agency should be able to define the targeted pollutant under § 111 as the mix of all GHGs;⁴⁴ therefore, trading among GHGs should not present any legal problems. Trading between states is also plausibly permissible; though the D.C. Circuit recently limited interstate trading of other pollutants in *North Carolina v. EPA*, that decision was based on language in § 110 that does not apply to § 111 regulation.⁴⁵ However, there are some limitations on the scope of potential flexibility programs under § 111. For example, the categories of sources covered by § 111 only include “buildings, structures, facilities, or installations which emit or may emit any air pollutant.”⁴⁶ Since upstream sources of GHGs, like natural gas importers, do not directly emit the pollution generated when a consumer burns the natural gas it processed or sold, these indirect emissions likely cannot be covered under § 111.

FINDING #4: No consensus exists on whether offsets are permissible.

Consensus is lacking on whether offsets are compatible with § 111 performance standards. Even if not, states have broad authority to use offsets for additional emissions reductions.

a. Offsets under § 111(d)

As noted above, the prevailing view among legal scholars is that EPA, states operating under § 111(d) regulations, and states operating independently can permit trading among sources covered by regulation. This general agreement breaks down somewhat when considering whether emissions reduction measures taken outside the regulated sphere can be included within trading programs. The most prominent such measures are offsets. Analysts taking the position that offsets are permissible point to elements of legislative history, like the statute’s move away from requirements for on-site, technology-based compliance and congressional references to allowable reductions achieved by third parties;⁴⁷ to the lack of statutory preclusion;⁴⁸ and to the explicit availability of a limited class of offsets under NAAQS.⁴⁹ Other proponents argue that it is difficult to draw principled distinctions between inter-sector trading (see Finding #3 above) and offsets.⁵⁰

Those taking the opposite position argue that the availability of NAAQS offsets generates a negative inference,⁵¹ or that offsets appear incompatible with the source category-driven design of § 111.⁵² Section 111 performance standards, unlike NAAQS, explicitly target emissions reductions from regulated source categories, rather than concentrations of a regulated pollutant.⁵³ Offset critics argue that this may pose a modest problem for offsets created by reducing emissions at unregulated facilities, since they do not reduce emissions from any regulated source category. They further suggest that it poses more serious problems for offsets that have no effect on emissions, but putatively affect ambient greenhouse gas concentrations (such as forest offsets).⁵⁴

b. Federal-State Interactions under § 111(d)

There appear to be few limits on states' ability to incorporate offsets into their independent state and regional-level programs, such as AB32 and RGGI.⁵⁵ If states are able to use offsets (or other alternative compliance mechanisms) in their independent programs, but not under § 111(d), the relationship between the CAA and state/regional programs becomes more complex. To the extent that emitters use offsets or other tools to comply with state program requirements, EPA and the states may be unable to count those reductions for purposes of compliance with § 111(d) regulations. This is not necessarily fatal to efforts to achieve compatibility: the CAA does not preempt state programs, which would presumably be more stringent. Offsets and related tools could still be used to meet this additional compliance burden.

It is not clear whether a state could implement more stringent regulation, perhaps including offsets, via its SIPE (relying on CAA authority)⁵⁶ or if separate supporting state legislation would be required. Constitutional limits on state power (for example, the requirement for congressional approval of inter-state compacts,⁵⁷ or the inability of states to engage in binding international agreements⁵⁸) may also limit certain types of offset arrangements.

FINDING #5: States have broad allocation authority; EPA's powers are less clear. Banking and price floors are likely permissible; borrowing and price ceilings are more uncertain.

States likely have broad powers to assign compliance responsibilities among sources, including the allocation of allowances within a trading program. Whether EPA's powers are as broad is unclear. Banking and price floors are likely permissible, though there is no consensus on borrowing or price ceilings.

a. General Allocation Authority

States almost certainly have the authority to allocate permits however they choose, provided minimum federal emissions standards are still met.⁵⁹ For example, states could conduct a coordinated auction or distribute permits in a manner that promotes policy goals, such as protecting consumers by allocating based on output in order to lessen electricity price changes and preserve in-state generation, or rewarding individual facilities for repowering and/or biomass use.⁶⁰ EPA can also allocate permits in many different ways. There is no consensus on whether EPA can auction permits,⁶¹ but if it can, any revenue would need to go directly to the treasury.⁶²

b. Banking and Borrowing

Several existing market-based approaches to flexible compliance include banking and borrowing mechanisms, whereby excess reductions can be saved for future compliance periods or facilities with insufficient reductions can

pay extra in future compliance periods. Unlimited banking would probably not compromise state equivalency requirements, because emissions reductions need only be realized at least as quickly as the federal standard.⁶³ Borrowing against future compliance periods is more legally ambiguous, since it could violate the requirement that a SIPE achieve reductions at least as quickly as the EPA backstop would. Some scholars have pointed to § 110(a)(2)(A), which allows SIPs to include schedules and timetables for compliance, as granting states some independence on the timeline for compliance from federal norms (recall that § 111(d) references the § 110 SIP-approval process).⁶⁴ Further, the ability of states to account for “other factors” under § 111(d) may imply that states can consider future compliance promises in allowing more immediate deviations from EPA baselines. However, there is no academic consensus on whether such language in fact justifies borrowing. The strongest language against borrowing comes in EPA’s own requirements that state plans achieve emission reductions “at least as quickly” as the federal baseline⁶⁵—though this requirement is not explicitly mandated by the statutory text, and EPA could change this regulation in the context of GHGs in order to more clearly permit some borrowing mechanisms.

c. Cost-Containment Mechanisms

Another common feature of emissions markets is a floor and ceiling price beyond which no allowances can be sold. A floor price does not present any complications, because if it has any effect, it will be to reduce emissions. However, a ceiling price on allowances enforced with an unlimited ability to buy allowances at a given maximum price could (similar to offsets, above) cause a SIPE to fail the equivalency requirement. A ceiling price that works by borrowing future allowances might be permissible if borrowing itself is allowed.

The ability of states to consider cost and other factors in setting up their emissions reduction systems under § 111(d) may independently allow for controls on allowance prices.⁶⁶ EPA may be able to reduce some of the uncertainty around the question of state equivalency and price ceilings if it uses its own statutory authority to apply reasonable cost constraints to its FIPE and emissions standards.⁶⁷ States could then likely set a price ceiling at or above EPA’s own determination of reasonable costs.

FINDING #6: Pre-planned changes in the breadth and stringency of standards over time is likely permissible.

Both EPA and the states can likely identify a schedule of incremental steps over time to implement additional emissions reductions and lower costs.

The text and structure of § 111 likely authorize rulemakings that both set an initial emissions reduction target and establish a schedule for incremental steps over time to implement additional reductions. It is possible that § 111(b)(1)(B)’s description of a specific process for the review and revision of performance standards creates a negative inference against a prospective timetable of automatically increasing requirements. However, the eight-year review process could apply as easily to prospective timetables; the provision requires retrospective analysis regardless of the rule’s form, but it does not bind EPA’s hands on policy design choices.

The real question is whether an automatic timetable could fit the definition of a “performance standard.” Performance standards must reflect the *degree of emissions limitations achievable* through application of the best system *adequately demonstrated*. However, at least as applied to new sources, the courts have found that § 111 “looks toward what may fairly be projected for the regulated future, rather than the state of the art at present.”⁶⁸ Neither “adequately demonstrated” nor “achievable” means that the standard is limited to what can already be

routinely achieved.⁶⁹ While EPA cannot base standards on pure theory or speculation, it can make reasonable extrapolations of technological performance.⁷⁰ This understanding of the definition of “performance standard” could support a rule that prospectively sets a schedule of incremental steps.

EPA’s mandate to consider costs⁷¹ could also support such an interpretation of its authority. Implementation costs will be affected by the implementation schedule. A timetable allows the agency to gradually increase the emissions limitations in line with cost-sensitive predictions about the rate of technological development. If the agency instead were forced to set a single standard meant to govern for the foreseeable future, that standard would likely be initially more stringent and, therefore, more costly.

States should also have the ability to establish a series of incremental steps under § 111(d). As described above,⁷² states are given two sources of additional authority under § 111(d). First, the section references the procedures under § 110; section 110 specifically notes the states’ ability to set “schedules and timetables for compliance.”⁷³ Second, § 111(d) instructs states to consider other relevant factors, including the remaining useful life of existing sources. One way to account for the remaining lifetimes of plants might be to establish a timetable of gradually increasing stringency.

Even if EPA or the states choose not to exercise this authority to adopt mandatory timetables with incremental steps, they can still include non-binding language in the rule or the preamble signaling future intent to increase stringency, redefine categories, or make other changes. If the agency does ultimately make substantive changes to its policies pursuant to such signaling statements, new rulemakings would be required. But in the meantime, such signals can be helpful in aligning expectations and investments in the regulated community, even though such signaling statements are not likely binding on the agency. Moreover, either the signaling of intent or enactment of a series of incremental steps could be relevant to the ability of the United States to make commitments in international negotiations.

Conclusion

There is agreement—broad among legal academics and universal among the authors here—that EPA has the tools under § 111 of the CAA to implement relatively flexible and efficient GHG regulation. The agency could use a range of compliance flexibility options itself, or facilitate state implementation plans that adopt such measures at the state or regional level.

EPA appears to have authority to include many specific flexible or market-design tools in § 111 regulation, including tradable performance standards operating across sectors, price floors, banking of credits or allowances, and, in principle, nationwide cap-and-trade. Regulations likely can also increase in breadth or stringency over time—EPA appears to have the authority (and the opportunity) to achieve ambitious environmental goals while providing regulatory predictability to industry. These tools can make CAA policy more effective and more efficient. More broadly, EPA can—indeed must—consider both costs and other environmental impacts in setting GHG performance standards.

Authority under § 111 is not unlimited and at times not clear, however. For instance, it is unclear whether EPA can grant full compliance flexibility to new sources. Moreover, even for existing sources it is unclear what powers EPA would have to allocate any allowances, and whether the use of offsets, borrowing, or price ceilings by either the states or EPA would be compatible with § 111 standards. Courts (or Congress) may ultimately resolve these ambiguities—though litigation is likely even if EPA is cautious.

States are key to the CAA pathway. The statute allows and requires substantial participation by the states, which retain significant control over the degree of compliance flexibility allowed for in-state emitters regardless of EPA's position. If their chosen system involves emissions allowances, states can likely allocate them as they see fit. States can also regulate more stringently than EPA if they wish—§ 111 regulation does not preempt existing state emissions programs like RGGI and AB32. Tools unavailable to EPA likely remain available to the states in their presumably more stringent programs, though states that use such tools may be forced to choose between subjecting emitters to dual requirements or allowing their use only for the additional local compliance burden. The above uncertainty should not, however, distract from the larger conclusion that EPA has much of the authority it needs. To forgo compliance flexibility would be excessively cautious; arguably, carefully designed compliance flexibility is required for the agency to meet its statutory requirement to implement the best system of emissions reductions.

Notes

¹ For example, see Coalition for Emission Reduction Policy, Comments on EPA's Forthcoming Proposal to Establish New Source Performance Standards for GHG Emissions from Electric Generating Units and Refineries, Mar. 18, 2011 (support for compliance flexibility from industry groups); Franz T. Litz, Nicholas M. Bianco, Michael B. Gerrard, & Gregory E. Wannier, World Resources Institute & Columbia Law School Center for Climate Change Law, *What's Ahead for Power Plants and Industry? Using the Clean Air Act to Reduce Greenhouse Gas Emissions, Building on Existing Regional Program* (World Resources Institute Working Paper, 2011) (support from an environmental group and an academic center).

² Notably, the D.C. Circuit Court of Appeals had the opportunity to rule on whether § 111 allows one form of compliance flexibility (a nationwide cap-and-trade system), during litigation challenging EPA's 2005 Clean Air Mercury Rule. The court did not reach the issue and instead rejected the rule on other, unrelated grounds. See *New Jersey v. EPA*, 517 F.3d 574 (D.C. Cir. 2008). Recently, in *Am. Elec. Power Co. v. Connecticut*, No. 10-174 (U.S. June 20, 2011), the Supreme Court discussed that EPA will be using § 111 to regulate GHGs from power plants, but did not explore EPA's authority in depth.

³ Clean Air Act § 111(b)(1)(A), 42 U.S.C. § 7411 (2010) [hereinafter CAA].

⁴ CAA § 111(b)(1)(B).

⁵ CAA § 111(a)(1). States also have an important role here: under § 111(c), they are free to propose plans to implement and enforce the new source standards created by EPA.

⁶ Specifically, if existing sources are not already covered by national ambient air quality standards under § 110 or hazardous air pollutant standards under § 112, then § 111(d) is triggered.

⁷ This section governs the National Ambient Air Quality Standards (NAAQS), under which "conventional" pollutants such as NO_x, SO₂, lead, ozone, and particulates are regulated.

⁸ CAA § 111(d). Note that the same § 111(a) definition of "standard of performance" applies to states' § 111(d) regulation.

⁹ States are guided in part by § 111(d)(1)'s reference to § 110's State Implementation Plan process, notably including § 110(a)(2)(A), which allows states to employ "other control means, measures or techniques (including economic incentives such as fees, marketable permits, and auctions of emissions rights)." States are also permitted by § 111(d)(2)(B) to take into account the remaining useful life of an existing source.

¹⁰ See CAA § 111(d)(2).

¹¹ Emissions Standards and Compliance Schedules, 40 C.F.R. § 60.24(c) (2010).

¹² See Standards of Performance for New and Existing Stationary Sources: Electric Utility Steam Generating Units (Clean Air Mercury Rule), 70 Fed. Reg. 28,606 (July 18, 2005) (EPA's interpretation of the definitions of "performance standard" under §§ 111 and 302); Inimai M. Chettiar & Jason A. Schwartz, *The Road Ahead: EPA's Options and Obligations for Regulating Greenhouse Gases* 86-88 (Institute for Policy Integrity Report No. 3, 2009). The statutory mandate to "tak[e] into account the cost" could also be important here. While courts have determined that this language does not require EPA to base its determinations on a formal cost-benefit analysis, they have stated "because Congress did not assign the specific weight the Administrator should accord each of these factors, the Administrator is free to exercise his discretion in this area." *New York v. Reilly*, 969 F.2d 1147, 1150 (D.C. Cir. 1992).

¹³ For a description—and refutation—of the alleged negative inference from statutory silence and the structure of § 111(h), as well as of the argument that §§ 111 and 302 require emissions reductions from individual sources, see Chettiar & Schwartz, *supra* note 12, at 87-89.

¹⁴ *Chevron U.S.A. v. Natural Res. Def. Council, Inc.*, 467 U.S. 837 (1984).

¹⁵ See *Texas Rural Legal Aid Inc. v. Legal Serv. Corp.*, 940 F.2d 685, 694 (D.C. Cir. 1991) (explaining that the *expressio unius est exclusio alterius* canon "has little force in the administrative setting. Under *Chevron*, we normally withhold deference from an agency's interpretation of a statute only when Congress has 'directly spoken to the precise question at issue,' and the *expressio* canon is simply too thin a reed to support the conclusion that Congress has clearly resolved this issue"); *Fin. Planning Assoc. v. SEC*, 482 F.3d 481 (D.C. Cir. 2007) (noting "this court has repeatedly held that *expressio unius* is 'an especially feeble helper in an administrative setting, where Congress is presumed to have left to reasonable agency discretion questions that it has not directly resolved'").

¹⁶ See Jonas Monast et al., *Avoiding the Glorious Mess: A Sensible Approach to Climate Change and Clean Air Act* (Nicholas Institute for Environmental Policy Solutions Working Paper, Duke University, 2010) (citing EPA's reference to these amendments).

¹⁷ See CAMR, 70 Fed. Reg. 28,606. Note that although CAMR was overturned in the D.C. Circuit Court of Appeals, the grounds for this decision were based on EPA's incorrect delisting of mercury under § 112, and did not address EPA's § 111 interpretations. *New Jersey*, 517 F.3d 574. EPA has also permitted states to use trading programs for solid waste combustion performance standards under § 129, a statutory section that shares some common elements and history with § 111 (though § 111(d) arguably gives states even more flexibility). See EPA, Section 129 Rules for Solid Waste Combustion, <http://www.epa.gov/ttn/atw/129/gil2.pdf>.

¹⁸ See Memorandum from Jonathan Cannon, EPA General Counsel, to Carol Browner, EPA Administrator, Apr. 10, 1998, available at <http://www.law.umaryland.edu/environment/casebook/documents/EPACO2memo1.pdf>.

¹⁹ See *Nat'l Cable & Telecomm. Assoc. v. Brand X Internet Services*, 545 U.S. 967 (2005).

²⁰ CAA § 110(a)(2)(A).

²¹ Such language would not have legal force, and therefore would likely be unreviewable; any limits to EPA's authority to allow innovative systems will instead likely come in its SIPE approval process.

²² CAA § 111(d)(2) ("The Administrator shall have the same authority").

²³ We do not address the issue here of whether such joint SIPs would be open to challenge on constitutional grounds, such as possible violation of the Compacts Clause.

²⁴ See *Virginia v. EPA*, 108 F.3d 1397 (D.C. Cir. 1997); *Florida Power & Light Co. v. Costle*, 650 F.2d 579 (5th Cir. 1981); *Train v. NRDC*, 421 U.S. 60 (1975) ("The Act gives the Agency no authority to question the wisdom of a State's choices of emission limitations if they are part of a plan which satisfies the standards of § 110(a)(2)").

²⁵ EPA, Roadmap for Incorporating Energy Efficiency/Renewable Energy Policies and Programs into State Implementation Plans/Tribal Implementation Plans (2011); EPA, Guidance on SIP Credits for Emissions Reductions from Electric-Sector Energy Efficiency and Renewable Energy Measures (2004). This guidance has been applied successfully in Texas, Shreveport, Louisiana, and the D.C. Region, all of which altered their SIPs to receive credit for reductions achieved through energy efficiency and renewable energy efforts. *Id.*

²⁶ Pew Ctr. on Global Climate Change, *GHG New Source Performance Standards for the Power Sector: Options for EPA and the States* 10 (2011).

²⁷ For some different perspectives, see Nathan Richardson, *Greenhouse Gas Emissions under the Clean Air Act: Does Chevron Set the EPA Free?*, 29 STAN. ENV. L. J. 283 (2010) (arguing that courts could interpret the CAA to require EPA to set a NAAQS for GHGs based on its endangerment finding); Nathan Richardson, Dallas Burtraw, and Art Fraas, Resources for the Future, *Greenhouse Gas Regulation Under the Clean Air Act: Structure, Effects, and Implications of a Knowable Pathway*, 41 ENV. L. NEWS & ANALYSIS 10098 (2011) (noting EPA will not want to waste resources creating complex regulations under § 111 if they may eventually fail when NAAQS are triggered); Jonas Monast et al., *supra* note 16 (suggesting that § 111 regulations, if designed right, might be portable into the NAAQS system); and Chettiar & Schwartz, *supra* note 12 (discussing whether NAAQS are discretionary and the workability of market-based programs under NAAQS). EPA has been petitioned to adopt NAAQS for greenhouse gases, and the issue may be resolved independently in litigation before the D.C. Circuit Court of Appeals.

²⁸ See CAA § 111(d)(1)(A) (limiting § 111(d) standards to those pollutants not regulated under §§ 110 or 112 of the Act).

²⁹ Note that § 111(c) only allows states to step into EPA's shoes and help regulate new sources; it does not transport their § 111(d)-type authority into the arena of new sources controls.

³⁰ See *supra* note 12 and accompanying text.

³¹ See Chettiar & Schwartz, *supra* note 12, at 89.

³² In other words, new sources could exceed minimum emissions reductions and generate tradable credits, but could not enter the program as net buyers of credits. See CAMR, 70 Fed. Reg. 28,606.

³³ See Brief for Respondent, *New Jersey v. EPA*, 517 F.3d 574 (D.C. Cir. 2007) (No. 05-1097).

³⁴ See *supra* note 15.

³⁵ See *Nat'l Cable & Telecomm. Assoc. v. Brand X Internet Services*, 545 U.S. 967 (2005).

³⁶ See *supra* note 14 and accompanying text.

³⁷ Monast et al., *supra* note 16; Chettiar & Schwartz, *supra* note 12.

³⁸ Richardson, Burtraw, & Fraas, *supra* note 27; Pew Ctr. on Global Climate Change, *supra* note 26.

³⁹ See EPA, Air Quality Management, <http://www.epa.gov/apti/course422/apc4d.html> (explaining NSPS sets a national baseline, which NSR allows state authorities to apply more stringent controls on a case-by-case basis).

⁴⁰ See CAA § 111(b)(2).

⁴¹ *Lignite Energy Council v. EPA*, 198 F.3d 930, 933 (D.C. Cir. 1999).

⁴² Chettiar & Schwartz, *supra* note 12.

⁴³ Litz, Bianco, Gerrard, & Wannier, *supra* note 1; Richardson, Burtraw, & Fraas, *supra* note 27; Pew Ctr., *supra* note 26.

⁴⁴ Cf. Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202 of the Clean Air Act, 74 Fed. Reg. 66,496 (Dec. 15, 2009).

⁴⁵ See *North Carolina v. EPA*, 531 F.3d 896 (D.C. Cir. 2008); compare CAA § 110(a)(2)(D) with CAA § 111.

⁴⁶ CAA § 111(a)(3).

⁴⁷ Chettiar & Schwartz, *supra* note 12.

⁴⁸ *Id.*

⁴⁹ Coalition for Emission Reduction Policy, *supra* note 1.

⁵⁰ Correspondence with Kyle Danish, Van Ness Feldman P.C. (July 7, 2011).

⁵¹ Richardson, Burtraw, & Fraas, *supra* note 27.

⁵² *Id.*; Litz, Bianco, Gerrard, & Wannier, *supra* note 1.

⁵³ See Molly Macauley & Nathan Richardson, *Seeing the Forest and the Trees: Technological and Regulatory Impediments for Global Carbon Monitoring*, BERKELEY J. L. & TECH. (forthcoming 2011).

⁵⁴ *Id.*

⁵⁵ Some scholars have identified potential constitutional issues if states attempt to include international carbon offsets. See Douglas A. Kysar & Bernadette A. Meyler, *Like a Nation State*, 55 UCLA L. REV. 1621 (2008); Erwin Chermersky et al., *California, Climate Change, and Constitution*, 37 ELR 10,653 (2007). These could arise under the Compacts Clause or other doctrines restricting states' interference with federal foreign affairs powers. While the outcome of any such constitutional challenges is of course uncertain, many scholars appear to believe that they would be relatively unlikely to succeed. See, e.g., Litz, Bianco, Gerrard, & Wannier, *supra* note 1.

⁵⁶ See Litz, Bianco, Gerrard, & Wannier, *supra* note 1.

⁵⁷ U.S. CONST. Art. I § 10.

⁵⁸ But see Curtis A. Bradley, *The Treaty Power and American Federalism*, 97 MICH. L. REV. 390, 461 (quoting *Virginia v. Tennessee*, 148 U.S. 503, 519 (1893)).

⁵⁹ Pew Ctr. on Global Climate Change, *supra* note 26.

⁶⁰ Note that while there may be some legal limits on the ability of EPA or states to exempt biomass from coverage or apply different performance standards to them, such limitations do not affect states' ability to distribute their permits as they see fit.

⁶¹ Compare Richardson, Burtraw, & Fraas, *supra* note 27 (rejecting EPA authority to auction permits) with Chettiar & Schwartz, *supra* note 12 (supporting EPA authority to auction permits).

⁶² See Miscellaneous Receipts Act, 31 U.S.C. § 3302 (2010).

⁶³ Cf. Publication of Guidance Documents, Emission Guidelines, and Final Compliance Times, 40 C.F.R. § 60.22 (2010).

⁶⁴ For example, California's RECLAIM program for NO_x emissions, implemented under its §110 SIP, allowed limited borrowing by establishing overlapping compliance periods. See Dallas Burtraw & Sarah Jo Szambelan, *U.S. Emissions Trading Markets for SO₂ and NO_x*, in PERMIT TRADING IN DIFFERENT APPLICATIONS 29 (Bernd Hansjürgens ed. 2010).

⁶⁵ 40 C.F.R. § 60.22.

⁶⁶ CAA § 111(d).

⁶⁷ Under the definition of performance standard, EPA must “tak[e] into account the cost.” CAA § 111(a).

⁶⁸ Portland Cement Ass’n v. Ruckelshaus, 486 F.2d 375, 391 (D.C. Cir. 1973).

⁶⁹ Essex Chemical Corp. v. Ruckelshaus, 486 F.2d 427 (D.C. Cir. 1973).

⁷⁰ Weyerhaeuser Co. v. Costle, 590 F.2d 1011, 1054 n.70 (D.C. Cir. 1978); *Essex*, 486 F.2d 427.

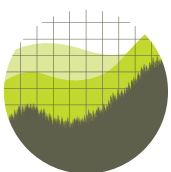
⁷¹ *See supra* note 67.

⁷² *See supra* note 20 and accompanying text.

⁷³ CAA § 110(a)(2)(A).

Regulating Greenhouse Gas Pollution from Existing Power Plants

The State of the Debate



Institute for
Policy Integrity
new york university school of law

Jack Lienke
Jason A Schwartz
Policy Brief No. 14
May 2014

Executive Summary

In June 2014, the Environmental Protection Agency (EPA) will propose a set of carbon pollution guidelines for the nation's aging fleet of power plants pursuant to Section 111(d) of the Clean Air Act. Power plants are the largest source of greenhouse gas emissions in the United States, and EPA's forthcoming rule is the centerpiece of the Obama Administration's second-term effort to address climate change through executive action. With the details of EPA's plan still under wraps, a wide variety of stakeholders—ranging from environmental nonprofits to industry coalitions to state government officials—have recently weighed in with policy design recommendations for the agency. This policy brief surveys those proposals and identifies points of consensus and contention regarding the appropriate form and stringency of the power plant guidelines, as well as the degree of flexibility that should be afforded states in complying with them. The brief also summarizes Policy Integrity's own positions on these issues.

With respect to **compliance flexibility**, we find broad agreement that market-based mechanisms like emission trading and averaging should be a permissible means of satisfying the guidelines. We also find widespread support for crediting investments in renewable energy and energy efficiency. Stakeholders disagree, however, as to whether EPA may consider such “outside the fence line” or “system-based” abatement techniques when determining the appropriate stringency of its emission guidelines. Some maintain that EPA may only mandate a level of reduction that is achievable through technological updates “inside the fence line” of an individual plant (a.k.a. a “source-based” guideline). For our part, Policy Integrity has long maintained, first, that market-based trading programs constitute a “system of emission reduction” within the meaning of the Clean Air Act and, second, that the availability of such cost-reducing mechanisms justifies more stringent emission guidelines.

As for the **form of the standards**, a majority of the surveyed proposals support the idea of allowing states to adopt mass-based “emission budgets” (caps on aggregate carbon emissions) in lieu of rate-based performance standards (limits on emissions per megawatt-hour generated). Proposals differ, however, as to whether mass-based limits should be the *default* option for states—that is, whether EPA's emission guidelines should be expressed in terms of mass. Some prominent stakeholders recommend that EPA issue rate-based guidelines and require states proposing mass-based implementation plans to demonstrate that they can achieve equivalent results. Because a mass-based standard is more efficient and easier to administer than a rate-based standard, Policy Integrity recommends reversing that presumption. EPA's guidelines should be mass-based, and states that choose to adopt rate-based implementation schemes should bear the burden of demonstrating equivalency.

Finally, we note that only a handful of the proposals specify a **preferred level of emission reduction**, and none claims to have identified an *optimal* level of reduction. In keeping with the Clean Air Act's instruction to take cost into account when establishing standards of performance, Policy Integrity recommends that EPA use cost-benefit analysis to identify a level of guideline stringency that will maximize the net benefits of its regulation.

Introduction

Last summer, President Obama unveiled a “Climate Action Plan” outlining a suite of executive actions designed to reduce greenhouse gas pollution in the United States.¹ More specifically, the Plan seeks to cut emissions to 17% below 2005 levels by 2020, fulfilling a pledge the President first made at the United Nations’ Copenhagen Summit in 2009.² The Plan’s most ambitious component, by far, is a directive to regulate carbon emissions from power plants under the Clean Air Act.³

Power plants produce just under a third of the United States’ greenhouse gas emissions, and using the Clean Air Act to regulate their carbon output is hardly a new idea.⁴ Years before the President’s announcement, EPA committed to constraining plant emissions as part of a litigation settlement agreement with a group of states, municipalities, and environmental organizations.⁵ By June 2013, however, the deadlines specified in the settlement had come and gone,⁶ and the President’s Plan provided a fresh sense of urgency to EPA’s regulatory efforts. The President instructed EPA to release a proposed rule for *new* power plants by September 2013 and to finalize that rule “in a timely fashion.”⁷ For older plants, the President provided an even more detailed timeline: EPA is to propose a regulation by June 2014, promulgate a final rule by June 2015, and collect state plans for implementing the rule by June 2016.⁸

EPA has already complied with the President’s first instruction: it proposed performance standards for new plants last September.⁹ But those standards are unlikely to have much effect on emissions. The newest gas-fired generators already meet EPA’s proposed standards, and historically low gas prices have effectively dissuaded the electricity sector from constructing new coal-fired generators.¹⁰

Issuing standards for new (or modified) plants under Section 111(b) of the Clean Air Act, however, is a necessary legal predicate to regulating *existing* plants under the infrequently invoked Section 111(d) of the Act.¹¹ And it is at those existing plants—many of which are several decades old¹²—that have the real pollution-reduction potential.

Section 111(d): The Basics

Section 111 of the Clean Air Act empowers EPA to establish “standards of performance” for stationary source categories that “contribute significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare.”¹³ Typically, EPA promulgates such standards only for new stationary sources under Section 111(b). However, when the pollutant in question is neither a so-called “criteria” pollutant nor an “air toxic,” EPA must work with states to establish additional standards for existing sources pursuant to Section 111(d) of the Act.¹⁴ Greenhouse gases like carbon dioxide fall into this narrow category of non-criteria, non-toxic pollutants that are subject to Section 111(d) regulation.

Emission standards, whether for new or existing sources, must reflect “the degree of emission limitation achievable through the application of the best system of emission reduction which . . . the [EPA] Administrator determines has been adequately demonstrated.”¹⁵ Accordingly, the 111(d) regulatory process begins with EPA issuing a set of “emission guidelines” containing its findings regarding (1) the best system of emission reduction that has been adequately demonstrated, (2) the degree of reduction achievable under such a system, and (3) the time necessary to achieve that reduction.¹⁶ The regulatory baton is then passed to states to design individual implementation plans that are consistent with EPA’s guidance.¹⁷ A state need not adopt the particular “system” of reduction identified by EPA in its emission guidelines so long as the state’s own approach will achieve an equivalent or superior level of abatement.¹⁸ Finally, EPA reviews each state’s implementation plan to ensure its compliance with the guidelines.¹⁹ If a state fails to submit a “satisfactory” plan, EPA may design and enforce a federal plan for the subject sources in that jurisdiction.²⁰

EPA’s implementing regulations for Section 111(d) have been in place for decades without legal challenge,²¹ and, while the section is not frequently invoked, the agency has used it to regulate existing sources such as municipal landfills, aluminum plants, and fertilizer manufacturing plants.²²

Applying Section 111(d) to Power Plants: The Key Issues

In considering how EPA can most sensibly apply the Section 111(d) regulatory framework to carbon emissions from power plants, two categories of questions arise. First, there are issues related to EPA’s establishment of **emission guidelines**. These include:

The Form of the Guidelines: Should EPA’s emission guidelines take the form of mass-based caps (i.e., limits on the total amount of carbon a particular source, or an entire state, can emit) or rate-based performance standards (i.e., limits on the amount of carbon a particular source can emit *per megawatt-hour generated*)?

The Proper Scope of a “System of Emission Reduction”: How should EPA define the “best system of emission reduction” for existing power plants? Is the agency limited to considering technological changes made inside the fence line of a particular plant? Or can it define the system more broadly to include activities outside the fence line, such as emission trading between sources (which would result in greater reliance on facilities that use lower-emitting fuels like natural gas), demand-side improvements in energy efficiency, and the generation of electricity by non-emitting renewable sources like wind and solar?

The Reduction Target: What level of emission reduction should the program aim to generate? At what cost?

Next, there are questions regarding **compliance options**, or the degree of flexibility that states should be afforded in

designing plans to meet EPA's emission guidelines. These include:

The Role of Emission Trading and/or Averaging: In a mass-based trading system, a state's total emissions are capped at a particular level and a corresponding number of permits or "emission allowances" are distributed among regulated sources. Sources are then able to "trade" (i.e., buy and sell) permits with each other. Plants able to reduce emissions at a relatively low cost can do so and sell their excess permits. Conversely, plants with relatively high abatement costs are better off buying permits from others. In this way, the market determines the most efficient allocation of emissions among regulated sources.

Similarly, in a rate-based trading or averaging system, a plant that emits at a rate below the applicable per-megawatt hour performance standard can sell its extra pollution rights to a higher-emitting plant, or the two plants can average their emission rates to demonstrate collective compliance.

Should states and/or individual sources be permitted to rely on such trading or averaging arrangements to demonstrate compliance with EPA's guidelines?

The Role of Renewable Electricity Generation: Renewable energy sources like wind turbines and solar panels emit no greenhouse gases in the process of generating electricity. Should states and/or individual sources receive some kind of compliance credit for increased use of renewables?

The Role of Demand-Side Energy Efficiency: Investments in demand-side energy efficiency, such as the installation of more effective building insulation or the replacement of leaky windows, can reduce overall emissions by cutting electricity demand. Should such programs contribute to states' and/or individual sources' compliance with performance standards?

The Role of Carbon Offsets: Existing trading regimes, such as the Northeast's Regional Greenhouse Gas Initiative, allow regulated entities to meet a limited portion of their pollution reduction obligation by purchasing "carbon offsets" for reductions achieved by sources *outside* the cap.²³ Offset-generating projects include efforts to sequester carbon through afforestation or to capture methane emitted by landfills. Should offsets play a similar role in a Section 111(d) trading scheme?

The Stakeholder Proposals

The following chart summarizes 30 reports, white papers, presentations, and public letters to EPA that make specific policy recommendations on the key issues identified above. It does not encompass documents that simply explore EPA's policy options without taking positions on their relative desirability.²⁴ Nor does it reflect the many publications that focus exclusively on the scope of EPA's legal authority under Section 111 and do not address questions of policy design.²⁵

	EMISSION GUIDELINES			COMPLIANCE OPTIONS			
	Form of Guideline: <i>Mass- or Rate-Based Standard?</i>	Scope of “Best System of Emission Reduction”: <i>Inside or Outside Fence Line?</i>	2020 Reduction Target	Emission Trading or Averaging	Renewable Generation*	Demand-Side Energy Efficiency*	Carbon Offsets
Center for Clean Air Policy ²⁶	Mass (but allow rate-based compliance)	Outside	Unspecified	✓	✓	✓	
Clean Air Task Force ²⁷	Rate (but allow mass-based compliance)	Outside	27% below 2005 levels	✓	✓	✓	
Midwestern Power Sector Collaborative ²⁸	No Preference	Outside	Unspecified	✓	✓	✓	
Natural Resources Defense Council ²⁹	Rate (but allow mass-based compliance)	Outside	21-31% below 2012 levels	✓	✓	✓	
Advanced Energy Economy ³⁰	No Preference (but allow mass-based compliance)	Outside	Unspecified	✓	✓	✓	
Alliance to Save Energy & American Council for an Energy-Efficient Economy ³¹	No Preference (but allow mass-based compliance)	Outside	Unspecified	✓	✓	✓	
American Electric Power ³²	Mass	Inside	Unspecified	✓	✓	✓	
Arizona Utilities Group ³³	Rate (but allow mass-based compliance)	Inside	Unspecified	✓	✓	✓	
Great River Energy ³⁴	No Preference (but allow mass-based compliance)	Outside	Unspecified	✓	✓	✓	
Missouri Utilities ³⁵	No Preference	Inside	Unspecified	✓	✓	✓	✓
National Climate Coalition ³⁶	Rate (but allow mass-based compliance)	Inside	Unspecified	✓	✓	✓	
Xcel Energy ³⁷	No Preference	Inside	Unspecified	✓	✓	✓	
Agency Administrators & Public Utility Commissioners of CA, CO, CT, DE, IL, MA, MD, ME, MN, NH, NY, OR, RI, VT & WA ³⁸	No Preference (but allow mass-based compliance)	Outside	Unspecified	✓	✓	✓	
Arizona Department of Environmental Quality ³⁹	Neither (EPA lacks authority to establishing binding guidelines)	Leave decision to states	Unspecified	✓	✓	✓	

	EMISSION GUIDELINES			COMPLIANCE OPTIONS			
	Form of Guideline: <i>Mass- or Rate-Based Standard?</i>	Scope of “Best System of Emission Reduction”: <i>Inside or Outside Fence Line?</i>	2020 Reduction Target	Emission Trading or Averaging	Renewable Generation*	Demand-Side Energy Efficiency*	Carbon Offsets
Attorneys General of AK, AL, AZ, FL, GA, KS, KY, MI, MT, ND, NE, OH, OK, SC, SD, WV & WI ⁴⁰	Neither (<i>EPA lacks authority to establishing binding guidelines</i>)	Inside	Unspecified				
Attorneys General of CA, CT, DC, DE, MA, ME, MD, NM, NY, OR, RI, VT & WA ⁴¹	No Preference	Outside	Unspecified	✓	✓	✓	
California Air Resources Board ⁴²	Mass	Outside	Unspecified	✓	✓	✓	
Florida Public Service Commission ⁴³	No Preference	Inside	Unspecified	✓**	✓	✓	
Kansas Department of Health & Environment ⁴⁴	No Preference	Inside	Unspecified				
Kentucky Energy & Environment Cabinet ⁴⁵	Mass	Outside	17% below 2005 levels	✓	✓	✓	✓
Louisiana Department of Environmental Quality ⁴⁶	No Preference	Inside	Unspecified	✓	✓	✓	
Michigan Department of Environmental Quality ⁴⁷	Mass (<i>but allow rate-based compliance</i>)	Unspecified	Unspecified	✓	✓	✓	
Nebraska Power Association ⁴⁸	No Preference	Inside	Unspecified	✓	✓	✓	
Nevada Department of Conservation & Natural Resources ⁴⁹	No Preference	Outside	Unspecified	✓	✓	✓	✓
North Carolina Department of Environment & Natural Resources ⁵⁰	Neither (<i>“work practices” in lieu of numerical standard</i>)	Inside	Unspecified				
Pennsylvania Department of Environmental Protection ⁵¹	Mass	Inside	Unspecified	✓	✓	✓	
Public Utilities Commission of Ohio ⁵²	No Preference (<i>but any rate-based limit should be long-term—e.g., 30-day rolling average</i>)	Inside	Unspecified	✓**	✓	✓	

	EMISSION GUIDELINES			COMPLIANCE OPTIONS			
	Form of Guideline: <i>Mass- or Rate-Based Standard?</i>	Scope of “Best System of Emission Reduction”: <i>Inside or Outside Fence Line?</i>	2020 Reduction Target	Emission Trading or Averaging	Renewable Generation*	Demand-Side Energy Efficiency*	Carbon Offsets
Regional Greenhouse Gas Initiative ⁵³	Rate <i>(but allow mass-based compliance)</i>	Outside	Unspecified	✓	✓		
Texas Commission on Environmental Quality & Public Utility Commission of Texas ⁵⁴	No Preference <i>(but allow mass-based compliance)</i>	Inside	Unspecified	✓	✓	✓	
West Virginia Department of Environmental Protection ⁵⁵	Mass	Inside	Unspecified	✓	✓	✓	

Blue = Corporation or Industry Coalition; Green = Environmental Organization; Orange = State Government Official or Agency.

*Note that any mass-based trading system will automatically “credit” use of renewables and improvements in energy efficiency to the extent that they reduce aggregate demand for conventional, fossil fuel-fired electricity generation.

**Neither the Florida nor the Ohio proposal explicitly endorses trading. Both, however, note their support for a November 2013 resolution by the National Association of Regulatory Utilities Commissioners, which states that EPA’s guidelines should “recognize and credit any and all existing State emission reduction programs” for compliance purposes.⁵⁶ The resolution approvingly notes that the Regional Greenhouse Gas Initiative—which permits trading—“is recognized as reducing emissions and provides a net consumer and economic benefit.”⁵⁷

The Takeaways

The chart above necessarily simplifies stakeholder positions and obscures certain nuances. Taking a bird’s-eye view of the debate, however, allows us to identify a handful of broad themes for EPA to keep in mind as it finishes drafting its proposed emission guidelines. Our findings will also be useful for states to consider as they evaluate and comment on EPA’s proposal and look toward the crafting of their implementation plans.

Embrace Broad, Market-Based Compliance Mechanisms

Almost all stakeholders agree that EPA should afford states wide latitude in complying with its emission guidelines, and that compliance options should include emission trading or averaging, increased use of renewable energy, and improved demand-side energy efficiency. (There is considerably less support for the use of carbon offsets with no connection to electricity generation.⁵⁸) The two proposals that decline to support flexible compliance mechanisms maintain that EPA lacks authority to promulgate any kind of binding, numerical emission guidelines.⁵⁹ In other words, they are not so much opposed to the idea of compliance *flexibility* as they are to the idea of states having any sort of compliance obligation in the first place.

The near universal embrace of system-wide compliance mechanisms is unsurprising, given that each type of stakeholder has something to gain from flexibility. States that have already implemented cap-and-trade systems, renewable portfolio standards, or electricity demand management programs want to ensure that these efforts are credited for Section 111(d) purposes.⁶⁰ Higher-emitting, coal-dependent states, meanwhile, find investments in energy efficiency and renewables to be a far more palatable prospect than the widespread retrofitting of coal-fired plants with carbon capture technology or the accelerated retirement of such plants in favor of lower-emitting gas-fired units.⁶¹ Industry, for its part, sees a more expansive universe of abatement options as a means of controlling compliance costs.⁶² Finally, environmental groups believe that, by lowering the cost of abatement, flexibility will enable a greater overall degree of emission reduction.⁶³

That last justification—flexibility as a path to deeper emission cuts—is contentious, because some stakeholders draw a distinction between supporting flexible mechanisms for purposes of compliance and supporting them for purposes of standard-setting. A number of industry groups and states fully approve of EPA’s *allowing* states to adopt flexible trading programs but balk at the idea of EPA *presuming* that states will adopt such schemes when it establishes emission guidelines. For example, the National Climate Coalition, an industry group, argues that “EPA does not have clear legal authority to go beyond the [individual] source to define [the best system of emission reduction] for purposes of its guidelines.”⁶⁴ Yet the Coalition points to no statutory language or case law suggesting that EPA *lacks* such discretion. Further, a majority of legal academics who have examined the issue have concluded that the language of Section 111 “is broad enough to enable *both EPA and states* to incorporate compliance flexibility: using their statutory discretion, those authorities can define many flexible approaches as the most efficient (and therefore the “best”) systems for reducing emissions at the sector level.”⁶⁵ Accordingly, Policy Integrity maintains that EPA can and should consider market-based trading to be the “best system of emission reduction” when establishing its emission guidelines.



Encourage Mass-Based Standards

The majority of proposals recommend that EPA allow states to establish and enforce mass-based emission caps in lieu of rate-based performance standards.⁶⁶ There is less agreement, however, as to whether EPA's own emission guidelines should be expressed in terms of mass. The Natural Resources Defense Council (NRDC), for instance, proposes that EPA calculate a rate-based benchmark for each state and then require states that wish to implement (or continue operating) a mass-based cap-and-trade system to demonstrate equivalence with the rate-based standards.⁶⁷ In other words, a rate-based program serves as the default option under the NRDC proposal. Another prominent proposal, from the Clean Air Task Force, suggests a hybrid approach whereby EPA would encourage states to adopt a rate-based standard for their gas-fired units and a mass-based budget for their coal-fired fleets.⁶⁸

The economics literature, however, shows that mass-based, cap-and-trade systems offer more efficient and predictable reductions than rate-based trading schemes.⁶⁹ By placing a hard cap on a state's total emissions, a mass-based trading program effectively puts a price on each ton of carbon emitted by regulated sources. If the cap is set at the point where the marginal abatement cost equals the social cost of carbon—that is, the point where the price of preventing an additional ton of emissions is equivalent to the harm that ton imposes on society—the electricity sector will perform all abatement that is cost-benefit justified.

A rate-based trading program, by contrast, only raises the cost of *some* emissions—namely, those above the relevant performance standard. Emissions below the performance standard remain implicitly subsidized. As a result, even if the rate-based standard is set at the level that would prevail under an optimal cap, total emissions will end up inefficiently high. Put another way, to achieve an optimal reduction in its total emissions under a rate-based trading scheme, a state will need to impose a stricter (read: costlier) emissions rate than would result from a properly calibrated mass-based scheme.

A mass-based program is also far easier to administer, particularly with respect to crediting energy efficiency efforts. Successful energy efficiency projects decrease demand for electricity and, in turn, reduce *aggregate* emissions, but they have no effect on the *rate* at which generators emit carbon. Thus, integrating efficiency efforts into a rate-based program requires EPA and the states to make complex predictions about the degree to which a particular efficiency investment will reduce electricity demand below the business-as-usual baseline.⁷⁰ Similar administrative issues are posed by renewable energy sources, which reduce demand for generation from conventional, fossil fuel-fired sources but have no impact on emission rates from such conventional sources.

Finally, a rate-based system that permits trading is no less vulnerable to legal challenge than a mass-based trading program. As one legal commentator has noted, in either scenario EPA will be interpreting the “best system of emission reduction” to entail activities undertaken outside the fence line of regulated sources.⁷¹ Further, nothing in the text of Section 111 suggests a preference for a rate-based standard.

Given the above, Policy Integrity recommends that EPA provide a statewide emission budgets as the default standards in its emission guidelines. States will still, of course, have the freedom to adopt costlier rate-based systems (so long as they demonstrate that they can achieve equivalent or greater levels of abatement).



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Optimize Reduction Targets

As a final observation, we note that only three proposals endorse a specific emission reduction target. Kentucky's submission suggests cutting plant emissions to 17% below 2005 levels by 2020, to mirror President Obama's economy-wide goal.⁷² As West Virginia rightly points out, however, EPA's guidelines must be based on its assessment of the "best system of emission reduction," not an outside political determination.⁷³

NRDC's (21-31% below 2012 levels) and the Clean Air Task Force's (27% below 2005 levels) 2020 targets are significantly more defensible, because they are derived from modeling of the reductions achievable using a specific slate of abatement techniques. Yet, while both groups show that their targets are cost-benefit justified, neither claims to have identified an *optimal* level of emission reduction that will maximize the net benefits of regulation under Section 111(d).

Policy Integrity recommends that EPA employ a full cost-benefit analysis to identify an optimal level of emission reduction. As already discussed, an optimal emission budget will be set at the point where the marginal abatement cost (based on reasonable projections of the cost of various reduction technologies and factoring in the availability of flexible compliance mechanisms) is equal to the social cost of carbon (currently estimated by the federal government at \$37 per ton⁷⁴). Using cost-benefit analysis to calibrate the emission guidelines will maximize their net benefits, and such analysis is entirely consistent with Section 111's instruction to take costs into account when identifying the best system of emission reduction.⁷⁵

Conclusion

As this policy brief illustrates, stakeholders have already spilt much ink regarding Section 111(d) standards for power plants. Yet the regulatory process is still in its infancy. Even under President Obama's relatively aggressive timeline, state implementation plans will not be complete for another two years. In the coming months, Policy Integrity will explore additional topics of interest to states and other stakeholders, such as potential conflicts between 111(d) implementation plans and state energy law. Meanwhile, in the calm before the inevitable storm of controversy surrounding EPA's June proposal, it is useful to recognize that stakeholders *are* in general agreement on some fundamental issues—namely, that the Section 111(d) regulatory scheme should make room for flexible trading mechanisms and mass-based emission caps.

Endnotes

¹ EXEC. OFFICE OF THE PRESIDENT, THE PRESIDENT'S CLIMATE ACTION PLAN (June 2013), *available at* <http://www.whitehouse.gov/sites/default/files/image/president27sclimateactionplan.pdf>.

² *Id.* at 4.

³ *See id.* at 6.

⁴ *See* EPA, Sources of Greenhouse Gas Emissions: Electricity Sector Emissions, <http://www.epa.gov/climatechange/ghgemissions/sources/electricity.html> (last visited April 16, 2014); *see also* Standards of Performance for Greenhouse Gas Emissions from New Stationary Sources: Electric Utility Generating Units, 79 Fed. Reg. 1429, 1433 (proposed Jan. 8, 2014) (to be codified at 40 C.F.R. pts. 60, 70, 71, 98) (“[E]missions from fossil fuel-fired power plants, specifically emissions of CO₂ . . . are the nation’s largest sources of carbon pollution.”)

⁵ *See* EPA, Settlement Agreements to Address Greenhouse Gas Emissions From Electric Generating Units and Refineries: Fact Sheet, <http://www2.epa.gov/sites/production/files/2013-09/documents/settlementfactsheet.pdf> (last visited Apr. 14, 2014).

⁶ *Id.* (stating that EPA will propose regulations for new and existing power plants by July 26, 2011 and finalize the regulations by May 26, 2012).

⁷ The White House, Press Release, Presidential Memorandum: Power Sector Carbon Pollution Standards (June 25, 2013), <http://www.whitehouse.gov/the-press-office/2013/06/25/presidential-memorandum-power-sector-carbon-pollution-standards>.

⁸ *Id.*

⁹ 79 Fed. Reg. at 1435.

¹⁰ *Id.* at 1496 (“The EPA does not anticipate that this proposed rule will result in notable CO₂ emission changes, energy impacts, monetized benefits, costs, or economic impacts by 2022. The owners of newly built electric generating units will likely choose technologies that meet these standards even in the absence of this proposal due to existing economic conditions as normal business practice.”).

¹¹ *Id.* at 1496 (“The proposed rule will also serve as a necessary predicate for the regulation of existing sources within this source category under CAA section 111(d). In these ways, the proposed rule will contribute to the actions required to slow or reverse the accumulation of GHG concentrations in the atmosphere, which is necessary to protect against projected climate change impacts and risks.”).

¹² EIA, ENERGY IN BRIEF: HOW OLD ARE U.S. POWER PLANTS? (Mar. 5, 2013), http://www.eia.gov/energy_in_brief/article/age_of_elec_gen.cfm (noting that 51% of generating capacity in the U.S. is more than 30 years old).

¹³ 42 U.S.C. § 7411.

¹⁴ *Id.* § 4711(d)(1).

¹⁵ *Id.* § 4711(a)(1).

¹⁶ 40 C.F.R. § 60.22(b)(5).

¹⁷ *Id.* § 60.23.

¹⁸ *Id.* § 60.24(c).

¹⁹ *Id.* § 60.27(b).

²⁰ *Id.* § 2411(d)(2)(A).

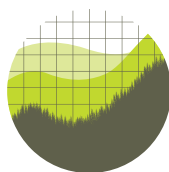
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- ²² Standards of Performance for New Stationary Sources and Guidelines for Control of Existing Sources: Municipal Solid Waste Landfills, 61 Fed. Reg. 9,905, 9,907 (Mar. 12, 1996); Primary Aluminum Plants, Availability of Final Guideline Document, 45 Fed. Reg. 26,294 (Apr. 17, 1980) (primary aluminum reduction plants); Final Guideline Document Availability, 42 Fed. Reg. 12,022 (Mar. 1, 1977) (phosphate fertilizer plants).
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- ⁵⁶ Fla. Letter, *supra* note 43, at 2; Ohio Letter, *supra* note 52, at 8.
- ⁵⁷ Fla. Letter, *supra* note 43, at 6.
- ⁵⁸ Only Kentucky and Nevada explicitly endorse offsets as a § 111(d) compliance mechanism. Ky. Letter, *supra* note 45, at 12; Nev. Letter, *supra* note 49, at 8, *available at* <http://www.naruc.org/Publications/NevadaLetter.pdf>.
- ⁵⁹ See N.C. Letter, *supra* note 50, at 16 ("§111(d) emission standards developed by States cannot be designed to achieve any preconceived emission reduction."); *id.* at 17-18 ("It is not feasible for EPA to establish any assumed numeric efficiency to any existing unit, much less a numerical standard for the approximately 1,200 coal-fired EGUs in the country."); PERSPECTIVE OF 18 STATES ON GREENHOUSE GAS EMISSION PERFORMANCE STANDARDS FOR EXISTING SOURCES UNDER §111(d) OF THE CLEAN AIR ACT, *supra* note 39, at 8 ("EPA does not have the authority to establish minimum substantive requirements."); *id.* ("To the extent § 111(d) provides authority for flexible approaches to establishing performance standards to seek reductions in CO₂ emissions, that authority is vested in States, not EPA.").
- ⁶⁰ See, e.g., CARB Letter, *supra* note 42, at 2 ("EPA should, to the greatest extent possible, build upon working programs in the states, supporting the continued operation and extension of these programs as tools to achieve and demonstrate compliance with the standards in substantial part.").

- ⁶¹ See, e.g., Ky. Letter *supra* note 45, at 8 (“[I]t is not feasible or appropriate to assume that coal facilities would be in a position to cost effectively add on control equipment to reduce adequately the pounds of CO₂ generated per MW-h produced or have the means to sequester those emissions. Furthermore, a rate-based standard that uses natural gas—specifically combined cycle systems—as a surrogate for add-on CO₂ control technologies is one that unfairly advocates for a single fuel economy.”).
- ⁶² See, e.g., AM. ELEC. POWER, *supra* note 32.
- ⁶³ See, e.g., NATURAL RES. DEFENSE COUNCIL, CLOSING THE POWER PLANT LOOPHOLE: SMART WAYS TO CLEAN UP AMERICA’S BIGGEST CLIMATE POLLUTERS 10 (March 2013), available at <http://www.nrdc.org/air/pollution-standards/files/pollution-standards-report.pdf> (“[S]ystem-wide compliance options can allow more substantial emission reductions—at lower overall cost—than the restricted set of measures that individual units can take on their own.”).
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- ⁶⁶ As with support for flexible compliance mechanisms, the outliers on this point are those who question EPA’s authority to establish *any* sort of numerical benchmark for state implementation plans.
- ⁶⁷ NATURAL RES. DEFENSE COUNCIL, CLEANER AND CHEAPER, *supra* note 29, at 5-6.
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- ⁷⁰ See, e.g., NATURAL RES. DEFENSE COUNCIL, CLOSING THE POWER PLANT LOOPHOLE, *supra* note 63, at 17 (detailing a six-step process by which state regulators will estimate and verify the reductions associated with energy efficiency projects in a rate-based trading system).
- ⁷¹ William F. Pedersen, *Should EPA Use Emissions Averaging or Cap and Trade to Implement § 111(d) of the Clean Air Act?*, 43 *Envtl. L. Rep.* 10731, 10733 (2013).
- ⁷² Ky. Letter, *supra* note 45, at 11.
- ⁷³ W. Va. Letter, *supra* note 55, at 12.
- ⁷⁴ Howard Shelanski, *Refining Estimates of the Social Cost of Carbon*, WHITE HOUSE OFFICE OF MGMT. & BUDGET (Nov. 1, 2013), <http://www.whitehouse.gov/blog/2013/11/01/refining-estimates-social-cost-carbon>.
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New York University School of Law
Wilf Hall, 139 MacDougal Street, New York, New York 10012
www.policyintegrity.org