



October 5, 2015

TO: Members, Subcommittee on Energy and Power

FROM: Committee Majority Staff

RE: Hearing entitled “EPA’s CO2 Regulations for New and Existing Power Plants”

I. INTRODUCTION

On Wednesday, October, 7, 2015, at 10:00 a.m. in 2123 Rayburn House Office Building, the Subcommittee on Energy and Power will hold a hearing entitled “EPA’s CO2 Regulations for New and Existing Power Plants.”

II. WITNESS

- **The Honorable Janet McCabe**, Acting Assistant Administrator, Air and Radiation, U.S. Environmental Protection Agency.

III. BACKGROUND

On August 3, 2015, the Environmental Protection Agency (EPA) announced two final rules and a third proposed rule to regulate carbon dioxide (CO₂) emissions from new and existing fossil fuel-fired power plants.¹ The rules are being promulgated pursuant to the President’s [Climate Action Plan](#) and a [Presidential Memorandum](#), which directs the EPA to develop new regulations for power plant pursuant to section 111 of the Clean Air Act (CAA). The rules exceed 3,000 pages and have not yet been published in the Federal Register.²

Section 111 of the CAA authorizes the Administrator of EPA, under certain circumstances, to establish standards of performance under section 111(b) for new stationary sources,³ and to issue guidelines under section 111(d) for existing stationary sources.⁴ Such regulations are referred to by

¹ The final rules were transmitted to Congress on Sept. 11, 2015. See [Sept. 15, 2015 Congressional Record – House](#), at H5978; [Sept. 17, 2015 Congressional Record-Senate](#), S6807-S6808.

² The rules are accompanied by hundreds of additional pages of documentation, including regulatory impact statements, technical supporting documents, legal memoranda, draft guidance, and other documents, and the total number of pages released by the agency on August 3, 2015, exceeds 4,400 pages.

³ Section 111(b) applies to new, modified, and reconstructed facilities and authorizes the EPA Administrator to establish Federal standards of performance for certain stationary sources that the Administrator has determined “causes or contributes significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare,” and to establish “standards of performance” for such sources. 42 U.S.C. §7411(b)(1)(B).

⁴ Section 111(d) authorizes the EPA Administrator to prescribe guidelines establishing a procedure under which States submit to the Administrator a plan establishing standards of performance for certain existing sources and

the agency as “New Source Performance Standards” and “Existing Source Performance Standards.” The rules announced on August 3, 2015, are summarized briefly below:

Final Rule for New Plants (a/k/a “111(b) Rule”): In its final rule for new fossil fuel-fired plants,⁵ EPA establishes separate CO₂ standards for natural gas-fired and coal-fired electric generating units. For new natural gas-fired power plants, the rule determines that the “best system of emissions reduction”⁶ (BSER) is based on the performance of a natural gas combined cycle (NGCC) unit, and the agency sets a standard of 1,000 pounds of CO₂ per megawatt-hour on a gross-output basis (lb CO₂/Mw-gross).⁷ For new coal-fired units, the rule determines that the BSER is based on the performance of a supercritical pulverized coal utility boiler implementing partial carbon capture and storage (CCS) and sets a standard of 1,400 lb CO₂/Mw-gross.⁸

There are currently no full-scale coal-fired power plants in commercial service in the United States that have installed and operated the CCS technologies necessary to comply with the rule. The only operating power plant unit using CCS cited by the agency is a Canadian government funded, small-scale 110 megawatt (MW) unit, retrofitted to an existing plant, for enhanced oil recovery in the province of Saskatchewan, Canada.⁹ Concerns have been raised that a standard based on CCS would constitute a de facto ban on the construction of new coal-

certain air pollutants. 42 U.S.C. §7411(d). Section 111(d) has been invoked rarely by the agency, and EPA has regulated pollutants under this section from only five source categories: phosphate fertilizer plants (1977)(fluorides), sulfuric acid plants (1977)(acid mist), Kraft pulp mills (1979)(total reduced sulfur), primary aluminum plants (1980)(fluorides), and municipal solid waste landfills (1996)(landfill gas). See 79 Fed. Reg. at 34844, n.43. EPA also has regulated sewage sludge incinerators under section 111(d) in conjunction with CAA section 129. *Id.* at 34845, n. 44.

⁵ See “Standards of Performance for Greenhouse Gas Emissions from New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units” (“Final 111(b) Rule”), [Prepublication Version](#) signed Aug. 3, 2015 (768 pages); see also EPA [Overview Fact Sheet](#); [Regulatory Impact Analysis](#); [Rulemaking Documents](#).

⁶ See EPA [Overview Fact Sheet](#). Under section 111, a “standard of performance” is defined as: “a standard for the emissions of air pollutants which reflects the degree of emission limitation achievable through the application of the *best system of emission reduction* which (taking into account the cost of achieving such reduction and any nonair quality health and environmental impact and energy requirements) the Administrator determines has been adequately demonstrated.” See 42 U.S.C. §7411 (emphasis added).

⁷ See e.g., [Final 111\(b\) Rule](#) at 13-14; see also EPA [Overview Fact Sheet](#). Non-base load natural gas units must meet a clean fuels input-based standard. See EPA [Overview Fact Sheet](#).

⁸ See, e.g., [Final 111\(b\) Rule](#) at 13-14; see also EPA [Overview Fact Sheet](#). EPA determines the standard for coal plants could be met by natural gas co-firing, but does not consider natural gas co-firing as BSER. [Final 111\(b\) Rule](#) at 281-285.

⁹ The only commercial-scale CCS power plant project in the United States currently under construction is a 582 MW [project](#) in Kemper County, Mississippi, which has been subject to years of delay and cost overruns, and has not yet commenced operation. Other U.S. CCS power plant projects cited to in EPA’s proposed rule include a 400 MW Texas Clean Energy Project (TCEP) [project](#) and a 300 MW Hydrogen Energy California Project (HECA) [project](#) (see 79 Fed. Reg. 1430, 1432, n. 4(Jan. 8, 2014)), but neither have begun construction and DOE [suspended funding](#) for the HECA project in July 2015.

fired power plants in the United States, including the most state-of-the art coal-fired units presently under construction in other nations.¹⁰

Final Rule for Existing Plants (a/k/a “Clean Power Plan” or “111(d) Rule”): In its final rule for existing fossil fuel-fired plants,¹¹ EPA establishes mandatory CO₂ emissions “goals” for each state’s electricity sector, including “interim” goals beginning in 2022 (separated into three steps in 2022-2024, 2025-2027, and 2028-2029), and a “final” goal in 2030.¹² The mandatory goals are expressed in terms of statewide rate-based and mass-based CO₂ emissions goals. *Id.* at pp. 1556-1560. The goals are calculated based on 2012 emissions data, and EPA has prepared “[State Specific Fact Sheets](#)” and a [Table](#) estimating the percentage reductions from 2012 CO₂ emissions. *See also* Appendix 1.

For existing fossil fuel-fired electric generating units, EPA has determined that three “building blocks” reflect the BSER, including 1) heat rate improvements at existing coal units; 2) shifting from coal-fired generation to generation from existing NGCC units; and 3) shifting from coal-fired generation to generation from renewables, primarily wind and solar.¹³ EPA calculates state goals based on this BSER, and has developed separate emissions performance rates for coal and natural gas plants, including an interim emissions rate for existing coal units of 1,534 lbs CO₂ per Net MWh and a final rate of 1,305 lbs CO₂ per Net MWh, and an interim emissions rate for existing natural gas units of 832 lbs CO₂ per Net MWh and the final rate is 771 lbs CO₂ per Net MWh.¹⁴

Under the rule, states would be required to submit detailed plans to meet their mandatory CO₂ goals. State plans must be either “rate-based” or “mass-based” and take an “emissions standards approach,” or alternatively a “state measures approach.”¹⁵ States may submit

¹⁰ *See, e.g.* Committee [Report](#) for H.R. 3826, “Electricity Security and Affordability Act,” Feb. 28, 2014 at p. 3-6.

¹¹ *See* “[Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Generating Units](#)” (“Final 111(d) Rule”), [Prepublication Version](#) signed Aug. 3, 2015 (1560 pages). *See also* EPA [Overview](#) and [Fact Sheets](#); [Regulatory Impact Analysis](#); [Rulemaking Documents](#); [Technical and Legal Documents](#); [Legal Memorandum for Proposed Rule](#); [Clean Power Plan Toolbox for States](#). *See also* CRS Report entitled “[EPA’s Clean Power Plan: Highlights of the Final Rule](#).”

¹² *See, e.g.* [Final 111\(d\) Rule](#) at 234.

¹³ *See, e.g.* [Final 111\(d\) Rule](#) at 27, 422-459. EPA further determines that for coal units the second a third building blocks can be implemented through a set of actions that may range from purchasing a full or partial interest in existing NGCC or renewable energy assets, to purchasing credits or allowances depending on whether a state has chosen a rate-based or mass based standard, to reducing operation. *See, e.g., id.* at 27, 239-240.

¹⁴ *Id.* at 1556; *see also* [EPA Overview Fact Sheet](#).

¹⁵ *See, e.g.* [Final 111\(d\) Rule](#) at 31-35. An emissions standard plan “includes source specific requirements ensuring all affected power plants within the state meet their required emissions performance rates or state-specific rate-based or mass-based goal.” *See* EPA [Overview Fact Sheet](#). A state measures plan “includes a mixture of measures implemented by the state, such as renewable energy standards and programs to improve residential efficiency that are not included as federally enforceable components of the plan.” *Id.* A “state measures plan” must also include a “federal backstop.” *Id.* “States may use the final model [trading] rule, which EPA proposed August 3, for their backstop.” *Id.*

individual or multi-state plans, and are encouraged to use emissions trading,¹⁶ and develop plans that will make their affected units “trading ready.”¹⁷ The final rule includes detailed provisions relating to development and implementation of state plans, including provisions relating to state measures, Emission Rate Credits (ERCs), allowances, emissions trading, demonstrations, monitoring and verification requirements, and recordkeeping and reporting requirements.¹⁸ The rule includes an optional “Clean Energy Incentive Program” pursuant to which states would award early action ERCs for eligible renewable energy or demand-side energy efficiency projects that generate megawatt hours or reduce energy demand during 2020 and 2021.¹⁹ The rule also includes provisions restricting the construction of new natural gas plants as a compliance measure.²⁰

Under the rule, states must submit plans by September 6, 2016, with the possibility of a two year extension to be granted at the discretion of the agency.²¹ In the event that a state fails to submit a satisfactory plan, the EPA would impose a yet to be finalized “Federal Plan.”²²

Accompanying the final 111(d) rule is a proposed rule setting forth two approaches to the “Federal Plan” that EPA would implement in any state that does not submit an approvable state plan.²³ For this “Federal Plan,” the agency proposes both a rate-based trading program and a

¹⁶ EPA states: “One cost-effective way that states can meet their goals is emissions trading, through which affected power plants may meet their emission standards via emission rate credits (for a rate-based standard) or allowances (for a mass-based standard).” See EPA [Overview Fact Sheet](#).

¹⁷ “In addition to including mass-based state goals to clear the path for mass-based trading plans, the final rule gives states the opportunity to design state rate-based or mass-based plans that will make their units “trading ready.” See EPA [Overview Fact Sheet](#). “EPA is committed to supporting states in the tracking of emissions, as well as tracking allowances and credits, to help implement multi-state trading or other approaches.” *Id.*

¹⁸ [Final 111\(d\) Rule](#) at 1456-1542.

¹⁹ *Id.* at 1453-1455; see also EPA [Fact Sheet](#).

²⁰ [Final 111\(d\) Rule](#) at 837-839, 1175-1186.

²¹ *Id.* at 1475. To request an extension, a state must submit an “initial plan” and address in its submittal: “(1) An identification of final plan approach or approaches under consideration and description of progress made to date on the final plan components; (2) An appropriate explanation of why the State requires additional time to submit a final plan by September 6, 2018; and (3) Demonstration or description of opportunity for public comment on the initial submittal and meaningful engagement with stakeholders, including vulnerable communities, during the time in preparation of the initial submittal and the plans for engagement during development of the final plan.” *Id.* at 1475-1476.

²² *Id.* at 1451.

²³ See “*Federal Plan Requirements for Greenhouse Gas Emissions from Electric Utility Generating Units Constructed on or Before January 8, 2014; Model Trading Rules; Amendments to Framework Regulations*,” (“Proposed Federal Plan”) [Prepublication Version](#) signed Aug. 3, 2015 (755 pages); see also related EPA [Fact Sheet](#); see also [Draft Guidance](#) entitled “*Evaluation Measurement and Verification (EM&V) Guidance for Demand-Side Energy Efficiency (EE)*,” August 3, 2015 (72 pages).

mass-based trading program, but intends to finalize only a single approach.²⁴ These proposals also constitute proposed “Model Trading Rules” that would be “presumptively approvable” for inclusion in state plans.²⁵ The proposed rule also includes revisions to the agency’s current regulations for implementing section 111(d), including provisions relating to the disapproval of state plans.²⁶

In the Regulatory Impact Analysis ([RIA](#)) accompanying the final 111(d) rule, EPA estimates costs to range from \$1.4 billion to \$2.5 billion in 2020, \$1.0 billion to \$3.0 billion in 2025, and \$5.1 billion to \$8.4 billion in 2030 (RIA, Table 3-8 at p. 3-22). In developing these estimates, EPA assumes investments in demand side energy efficiency of \$2.1 billion to \$2.6 billion in 2020, \$16.7 billion to \$20.6 billion in 2025 and \$26.3 billion to \$32.5 billion in 2030 (RIA Tables 3-3 at p. 3-15). These additional costs are offset by projected reductions in electricity demand of up to 7.8 percent by 2030, according to the agency. (RIA, Table 3-2 at p. 3-14). According to EPA’s estimates, natural gas use in the power sector may decline by as much as 4.5 percent over the base case in 2030, and coal production for the electric power sector declines by as much as 17 percent by 2025. (RIA, Tables 3-15 and 3-16 at pp. 3-33 to 3-34).

IV. ISSUES

The following issues relating to EPA’s regulations may be examined at the hearing:

- Legal, timing, implementation and compliance issues;
- Potential impacts on states, local governments, and affected entities;
- Potential impacts on electricity rates and reliability; and
- Potential impacts on electricity markets.

V. STAFF CONTACTS

If you have any questions regarding this hearing, please contact Mary Neumayr or Tom Hassenboehler of the Committee staff at (202) 225-2927.

²⁴ See EPA [Fact Sheet](#). While EPA has proposed both trading plans for public comment, the agency plans to select only one of those plans as the emissions trading plan to be implemented in all states subject to Federal Plans. *Id.*

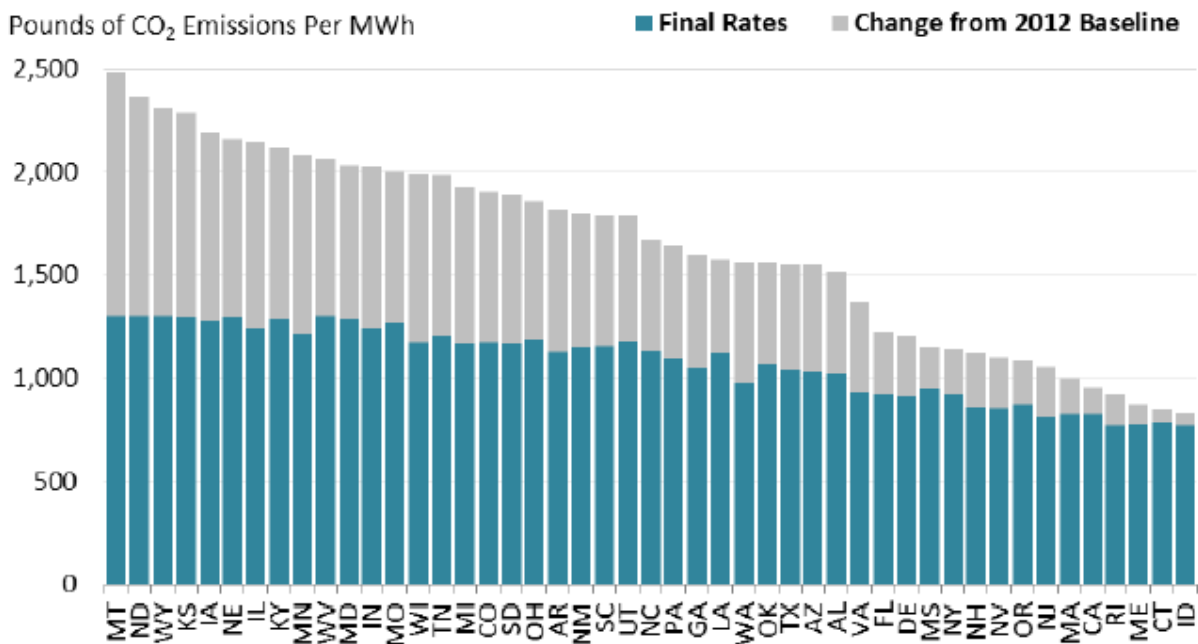
²⁵ See EPA [Fact Sheet](#). EPA intends to finalize both the rate-based and mass-based model trading rules in summer 2016. *Id.*

²⁶ See [Proposed Federal Plan](#) at 30, 345-369.

Appendix 1

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

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



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

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

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