



U.S. EPA's Carbon Pollution Standards for Existing Power Plants

Coal Finance 2014

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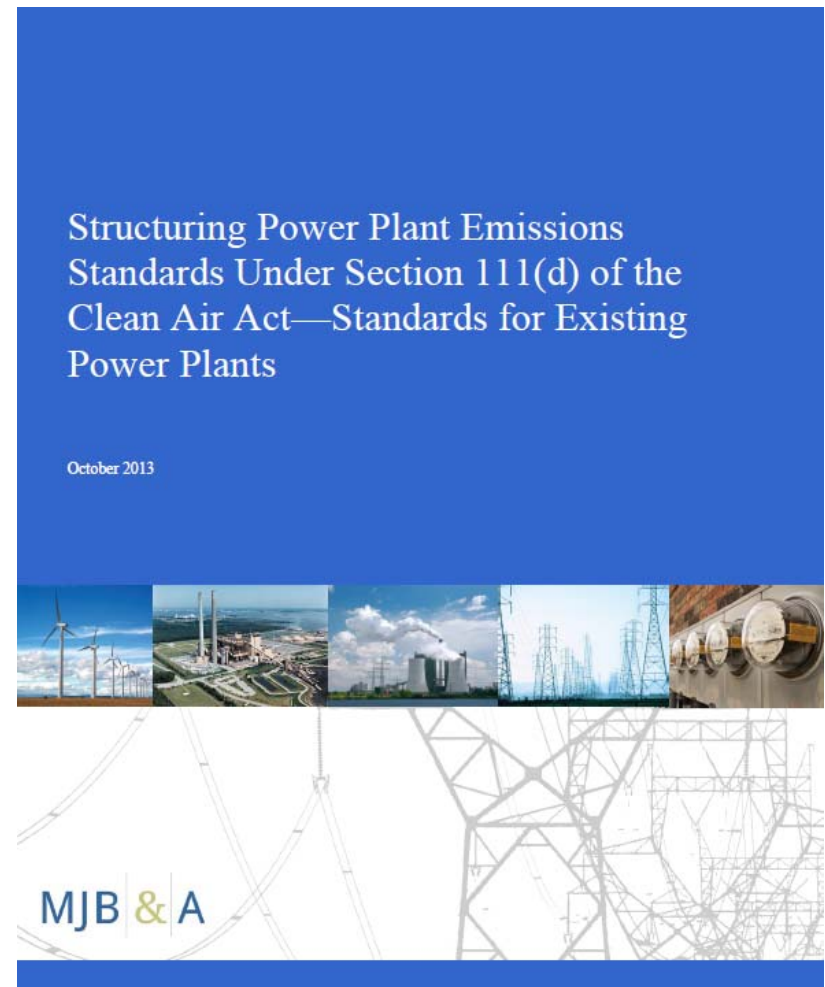
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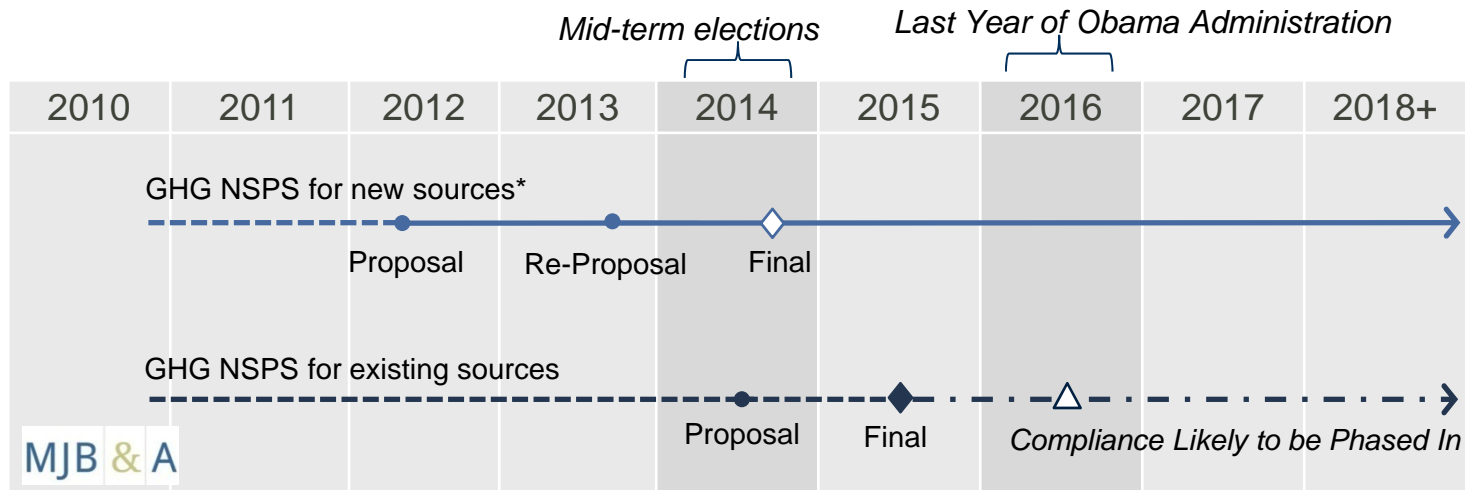
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Introduction

- *Structuring Power Plant Emissions Standards Under Section 111(d) of the Clean Air Act* was released in October 2013.
- The white paper examines options for regulating greenhouse gas emissions from existing power plants.
- Stakeholders, including states, industry, and environmental organizations, have been actively discussing and evaluating options for the rule. EPA is scheduled to issue its proposed rule in June 2014.
- The white paper is available at: www.mjbradley.com



GHG Regulatory Roadmap for the Electric Sector



- ◇ Final Rule, estimated
- Proposed Rule, as announced
- ◆ Final Rule, as announced
- △ State Plans Due to EPA, as announced

Source: Based on the White House Memorandum for the Administrator of the EPA, dated June 25, 2013

* **Note:** 111(b) standards for modified and reconstructed units are likely to be on a similar schedule as existing sources.

Proposed 111(b) Emissions Limits

Separate determinations of the best system of emission reduction (BSER) adequately demonstrated

Type of unit	Design Heat Input	Emission standard
Natural gas-fired stationary combustion turbines	Small Greater than 250 MMBtu/hr and equal to or less than 850 MMBtu/hr	1,100 lb CO ₂ /MWh _{gross} (12-month rolling average)
	Large Greater than 850 MMBtu/hr	1,000 lb CO ₂ /MWh _{gross} (12-month rolling average)
Fossil-fuel fired boilers and IGCC units	Greater than 250 MMBtu/hr	1,100 lb CO ₂ /MWh _{gross} (12-month rolling average) OR 1,000-1,050 lb CO ₂ /MWh _{gross} (7-year rolling average)

Section 111(d)

- Section 111(d) requires regulation of existing sources only where the pollutant in question is neither (1) a “criteria” air pollutant subject to national ambient air quality standards (NAAQS), nor (2) a toxic air pollutant regulated under section 112 of the CAA (e.g., mercury). GHGs fall within this narrow category.
- Section 111(d) uses a different mechanism in regulating existing sources than section 111(b) uses for new and modified sources. Instead of giving EPA direct authority to set national standards applicable to existing sources, section 111(d) requires EPA to issue regulations establishing “a procedure” similar to the State Implementation Plan (SIP) process for regulating criteria pollutants subject to NAAQS.
- According to the Act, each state must submit a plan that (1) “establishes standards of performance” for the existing sources in the category, and (2) “provides for [their] implementation and enforcement.” Section 111(d)(1) further states that the regulations have to allow each state “to take into consideration, among other factors, the remaining useful life of the existing source to which such standard applies.” These state plans must be submitted to EPA for approval.

Two Central Questions

1) How should EPA set the performance standard for state plans?

- “Standard of performance” means “a standard for emissions of air pollutants which reflects the degree of emission limitation achievable through the application of the best system of emission reduction which (taking into account the cost of achieving such reduction and any non-air quality health and environmental impact and energy requirements) the Administrator determines has been adequately demonstrated.”
- The Administrator can establish different standards based on the size, type, or class of unit when costs of control, physical limitations, geographical location, or similar factors make subcategorization appropriate.

2) What will EPA approve in states’ plans as demonstrations of compliance with EPA’s emissions guidelines?

- Performance standards or state budget approach?
- Equivalent programs (e.g., RGGI)?
- Credit for energy efficiency and renewables?

Defining EPA's Systems of Emission Reduction

3 System-Wide Reduction Opportunities

Non-emitting generation (new and incremental nuclear and renewables)
Demand-side energy efficiency and conservation



2 Across Covered Sources

Changes in dispatch to lower carbon fossil generators (including retirements)



1 Within the Fence Line



Unit efficiency upgrades
Co-firing: NG or Biomass
Topping Repowering
Carbon Capture and Sequestration

Options Discussed in Whitepaper

Section 111(d) requires that each state submit to EPA a plan for implementing and enforcing the emissions guidelines. There is nothing in section 111(d) that specifies the specific form that the standards must take.

The basic options include:

- (1) plant-specific CO₂ emissions standards (lb/MWh) or heat rate standards (Btu/kwh) (performance standard with limited or no flexibility);
- (2) CO₂ emissions standards (lb/MWh) with the option of banking, averaging, and trading (performance standard with flexibility); or
- (3) State budget approach—with banking and trading.

EPA's Key Messages from Stakeholders

EPA has identified several common themes that have emerged from stakeholder outreach and engagement:

- Broad agreement that opportunities exist to lower the carbon emissions of power generation through a wide range of measures
- Multiple opinions about how broader system measures could factor into programs
 - System-wide measures factored into the goals EPA establishes
 - System-wide measures allowed for compliance, but not factored into goals
- Varied views regarding form and stringency of standards
 - Rate-based versus mass-based
 - Provide states flexibility to choose among multiple forms of the goals or to set their own goals
 - Goal stringency should vary by state to account for different circumstances

EPA's Key Messages from Stakeholders, continued

Key messages (cont.)

- General support for giving states flexibility
 - Recognize existing programs and achievements in reducing CO₂ emissions
 - Allow compliance options that permit the use of approaches that are outside the facility fence line (e.g., demand-side management)

- Broad agreement that states need more time to develop and submit plans
 - Necessary due to legislative/regulatory schedule in many states
 - Would allow and promote multi-state and regional programs and cooperation

- Support for flexibility in the timing of state plan implementation and compliance with goals
 - Accommodates diverse CO₂ reduction potential
 - Supports approaches that are more cost-effective

- General concern that rulemaking could have negative impacts on:
 - Jobs and ratepayers
 - Reliability of power
 - Utilities (e.g., stranded generation assets)

Source: EPA, Rulemaking for Greenhouse Gas Emissions from Electric Utility Generating Units, Update Briefing, February 26, 2014

Appendix

Text of Clean Air Act Section 111(d)

d. Standards of Performance for Existing Sources

1. The Administrator shall prescribe regulations which shall establish a procedure similar to that provided by section 7410 of this title under which each State shall submit to the Administrator a plan which
 - A. establishes standards of performance for any existing source for any air pollutant
 - i. for which air quality criteria have not been issued or which is not included on a list published under section 7408 (a) of this title or emitted from a source category which is regulated under section 7412 of this title but
 - ii. to which a standard of performance under this section would apply if such existing source were a new source, and
 - B. provides for the implementation and enforcement of such standards of performance. Regulations of the Administrator under this paragraph shall permit the State in applying a standard of performance to any particular source under a plan submitted under this paragraph to take into consideration, among other factors, the remaining useful life of the existing source to which such standard applies.
2. The Administrator shall have the same authority—
 - A. to prescribe a plan for a State in cases where the State fails to submit a satisfactory plan as he would have under section 7410 (c) of this title in the case of failure to submit an implementation plan, and
 - B. to enforce the provisions of such plan in cases where the State fails to enforce them as he would have under sections 7413 and 7414 of this title with respect to an implementation plan.

In promulgating a standard of performance under a plan prescribed under this paragraph, the Administrator shall take into consideration, among other factors, remaining useful lives of the sources in the category of sources to which such standard applies.