



**Department of the Environment**

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# Federal Climate Action Plan: CAA §111 (b + d) Issues and Opportunities

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**Diane Franks**

**Manager, Air Quality Planning Program**





# Overview

- **Review Clean Air Act §111**
- **Compliance Pathways: More Than One**
- **Role of Energy Efficiency**





# Clean Air Act §111

- On Sept. 20, 2013, the U.S. Environmental Protection Agency (EPA) announced its first steps under President Obama's Climate Action Plan to reduce carbon pollution from power plants
- Power plants generate about one third of all greenhouse gas pollution in the U.S.
- Clean Air Act recognizes the opportunity to build emissions controls into a source's design is greater for new sources than for existing sources, so §111 has different approaches to standards for new and existing sources





# Clean Air Act §111 (b + d)

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- The Clean Air Act lays out distinct approaches for addressing new and existing sources under Section 111: a federal program for new sources and state programs for existing sources
- Section 111 (b) is the federal program to address new, modified and reconstructed sources by establishing standards of performance
- Section 111 (d) is a state-based program for existing sources. EPA establishes guidelines. States then design programs to fit their particular mix of sources and policies and get the needed reductions





# §111 (b) Proposal

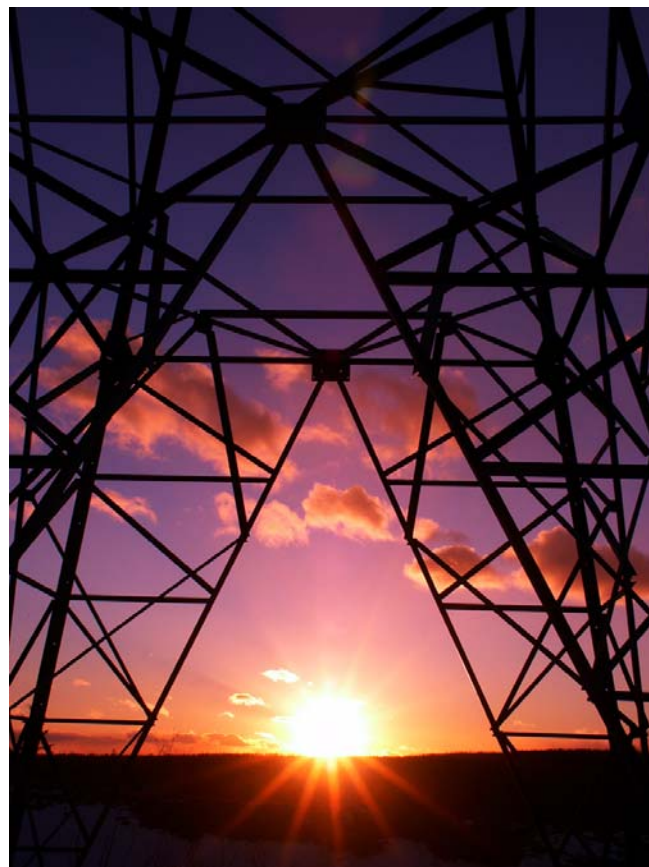
- EPA proposed CO<sub>2</sub> standards for new fossil fuel fired units in April 2012. Overwhelming stakeholder comment resulted in the withdrawal of the 2012 proposal
- EPA issued a new proposal in September 2013 responding to comments from industry in response to President Obama's Climate Action Plan
- New standards in line with current industry investment patterns indicated in prior stakeholder comments; not projected to impact electricity prices or reliability





# Proposed Standards for Gas Units

- **Natural gas-fired stationary combustion turbines**
  - 1,000 pounds of CO<sub>2</sub> per megawatt-hour (lb CO<sub>2</sub>/MWh-gross) for larger units (>850 mmBtu/hr)
  - 1,100 lb CO<sub>2</sub>/MWh-gross for smaller units (≤850 mmBtu/hr)
- Based on new turbine performance
- New turbines can meet the proposed standard without add-on control technology





# Proposed Standards for Coal Units

- **Fossil fuel-fired utility boilers and integrated gasification combined cycle units**
- Proposed limits for fossil fuel-fired utility boilers and IGCC units based on new efficient coal unit implementing partial carbon capture and storage (CCS)
- Two limits for compliance period that best suits the unit
- Require capture of only a portion of the CO<sub>2</sub> from the new unit
  - 1,100 lb CO<sub>2</sub>/MWh-gross over a 12-operating month period, or
  - 1,000-1,050 lb CO<sub>2</sub>/MWh-gross over an 84-operating month (7-year) period





# Clean Air Act §111(d)

- **Allows EPA to establish guidelines for states to submit plans that set standards of performance for existing sources from a specific sector within the state**
- **President's Directive (6/25/13) requested EPA propose guidelines for existing power plants by June 1, 2014**
- **EPA has a draft of the 111(d) rule at OMB**
  - Is expected to meet the June deadline



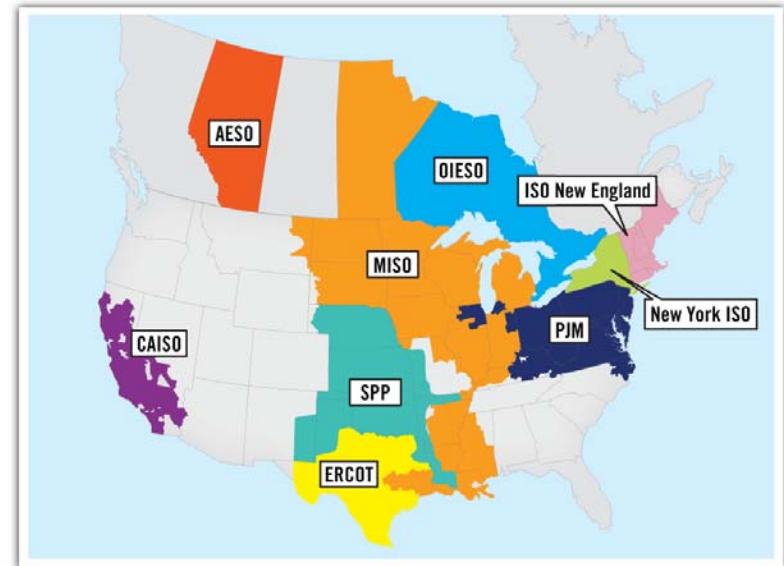




# EPA Guidelines

## EPA guidelines for states will include:

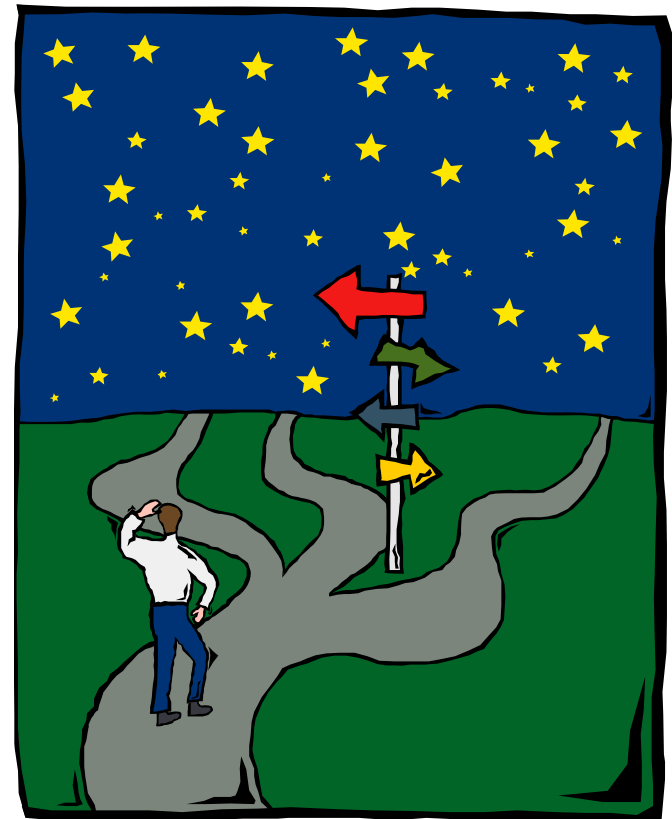
- Description of system(s) of emissions reductions EPA considers adequately demonstrated;
- Degree of emissions limitation achievable, costs, and environmental impacts;
- Time periods for compliance; and
- Other helpful information.  
(40 CFR §60.22)





# How will states show compliance?

- EPA proposal likely to include a number of different approaches
- Many stakeholders approached EPA with suggestions
  - Flexibility
  - Credit for early reductions
  - Maintain existing programs
  - Regional approaches
- How will EPA set minimum federal stringency in the face of many options?





# Rate-Based Approach



- **111(b) for new power plants set rate-based standard**
- **Other 111(d) sectors also have rate-based approach**
- **States would have to show reduction from baseline year(s) to compliance year**
  - i.e. 2,000 lbs of CO<sub>2</sub>/Mwh to 1,700lbs of CO<sub>2</sub>/Mwh
- **More difficult to incorporate beyond the fence line components**
- **Can combine a rate with EE/RE**
- **Rates allow increased emissions**





# Mass-Based Approach



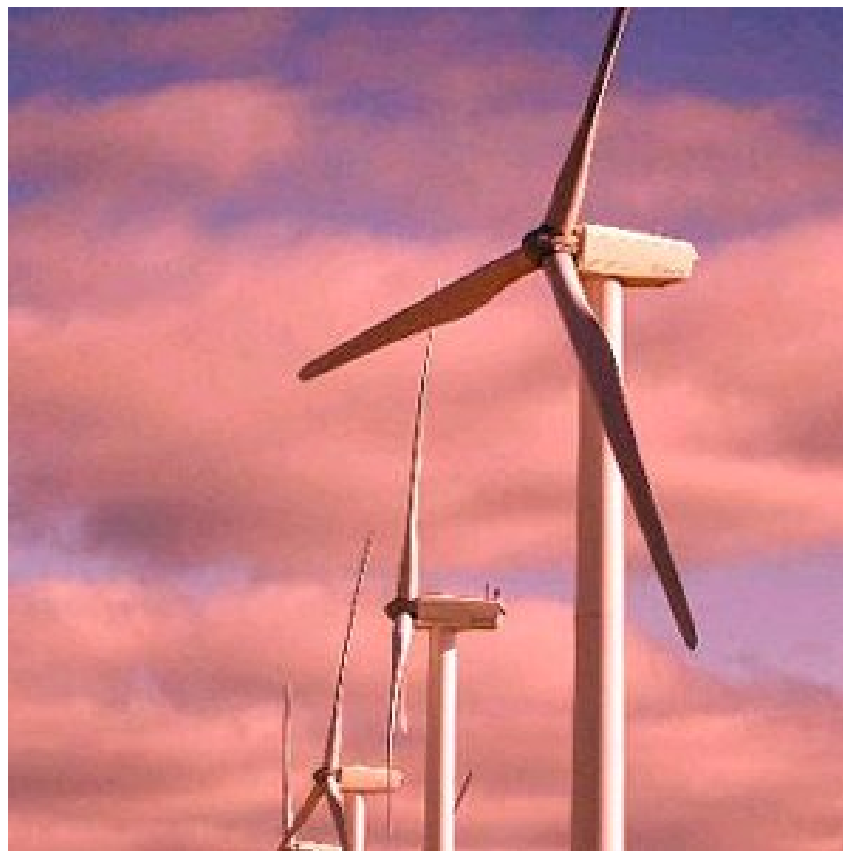
- **This approach sets a mass limit and sources figure out the best way to comply**
- **States requested that EPA either set a mass-based standard or create a path to convert rate-based reductions to mass-based reductions**
- **Compliance with mass limit in target year would be demonstration that 111(d) requirements met**
- **Can easily include EE/RE reductions without additional calculations.**





# Variations on Rate/Mass-Based Approaches

- **Regional approaches like RGGI or MISO follow the power system structure.**
  - May be easier to determine compliance.
- **Need flexible guidance to implement.**
- **Need state to state cooperation.**
  - Does it fit under the 111(d)?
  - Does this necessitate trading of reductions among states?
  - Does it solve import/export credit issues?
  - Does this allow inter-company trading of reductions?





# Regional Cooperation

- **EPA positive toward regional programs**
- **PJM supported approaches based on RTO regions to EPA**
- **Imported/exported electricity systems and seams between RTOs can complicate who gets reduction credit**
- **Cooperation between states, state agencies and organizations to foster understanding and to utilize separate authorities to reach common goals**
- **From an EPA perspective regional plans could be more difficult to approve since cooperation could encompass multiple EPA regional offices**





# Role of Energy Efficiency



- EPA has encouraged credit for energy efficiency in air quality plans for a number of years despite difficulties in quantification
- EPA created the Road Map guidance to assist states in taking credit in criteria pollutant SIPs
- EPA recently created a tool, AVERT, to calculate EE reductions
- If required utilities can create effective energy efficiency programs
- Anticipate EPA will allow states to utilize EE reductions in 111(d) plans





# Credit for Energy Efficiency

- **More difficult to calculate EE reductions for credit in a plan**
  - Guidance on how to apply to rate, or how to include EE reductions and who gets credit for reduction is complicated
- **Road Map Methods**
  - Baseline emission projections
  - Control strategy
  - Voluntary measure
  - Weight of Evidence
- **Four criteria for credit: permanent, enforceable, quantifiable, surplus**
- **Need development and standardization of evaluation, measurement and validation standards**





# Next Steps

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- **Comment constructively on the 111(d) proposal**
- **Determine the best option**
- **Determine how to determine equivalency**





# Questions/Comments

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