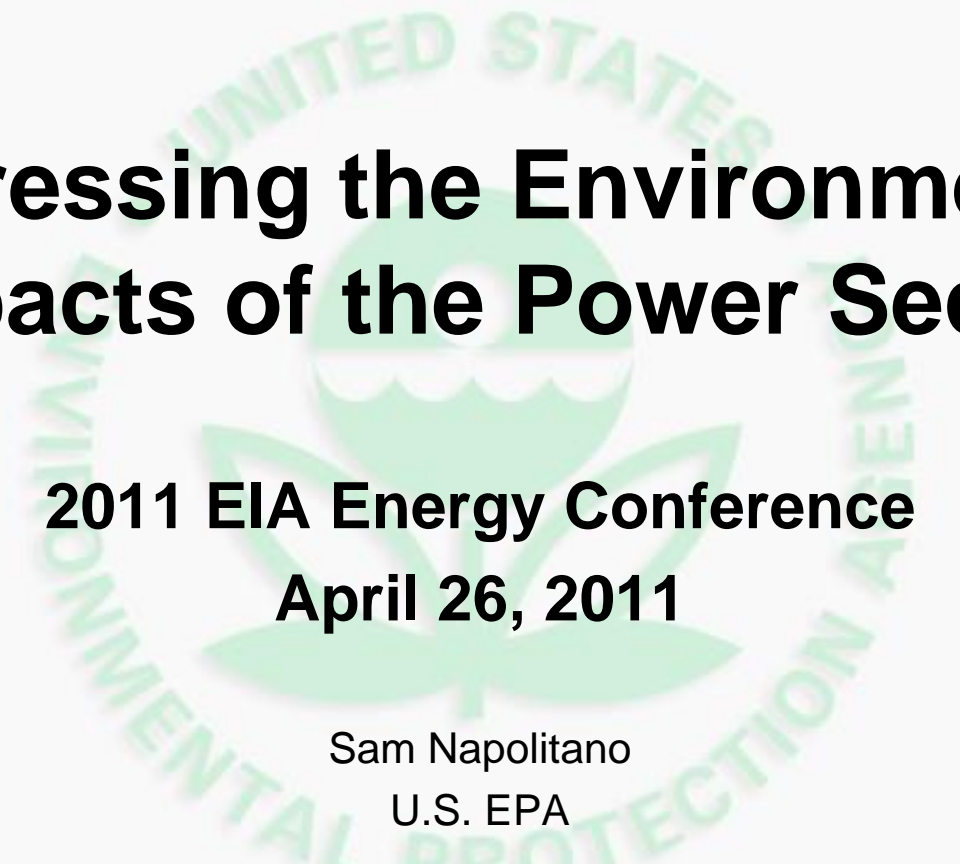




Addressing the Environmental Impacts of the Power Sector

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Context

- EPA has recently proposed regulations governing air emissions, coal ash handling, and cooling water intakes for power plants.
- The regulations address years of uncertainty (in some cases decades) and are designed to address harmful pollution and other impacts under existing law and mandates established by Congress.
- Several rules respond to Court direction.
- The overall goal is to provide positive environmental outcomes for the public and provide industry with greater certainty using common sense and flexible solutions that are reasonable and achievable.
- The benefits to public health are very substantial. For instance, air rules alone are anticipated to provide at least \$180 to \$430 billion in annual benefits by 2015.



Overview of Proposed Rules

	Coverage	Proposed	Final
Transport Rule	SO ₂ & NO _x (for PM and ozone), Eastern half of U.S.	July 2010	June 2011
Mercury and Air Toxics Rule	Hazardous Air Pollutants, Nationwide	March 2011	November 2011
Coal Combustion Residues Rule	Coal Ash Storage & Disposal, Nationwide	June 2010	To Be Determined
Cooling Water Intake Rule	Water Intake Structures, Nationwide	March 2011	Summer 2012



Transport Rule Overview

Scope: Addresses nonattainment and regional transport of air emissions across State borders (SO₂ and NO_x)

Coverage: Fossil-fuel fired units > 25 MW in Eastern half of the U.S.

Compliance: Phase I in 2012, Phase II in 2014

Other:

- Designed to replace the Clean Air Interstate Rule (CAIR)
- Preferred option is a flexible market-based mechanism
- 2012 compliance builds largely off controls already in place and under construction



Transport Rule Impacts

Annual Cost: \$2.8 billion* in 2014

Other Impacts:

- Electricity price increase: 2% in 2014
- Coal retirements: 1.2 gigawatts (could occur as early as 2012, mostly smaller and less efficient units)

* In 2006 dollars.



Mercury and Air Toxics Rule Overview

Scope: Addresses emissions of hazardous air pollutants (mercury, lead, acid gases, arsenic, etc.)

Coverage: Coal and oil steam electric units > 25 MW, nationwide

Compliance: 2015, with possible 1-year extension

Other:

- Provides flexibility through facility-level compliance
- Uses surrogates to control for certain HAPs
- Emission limits based upon engineering performance standards



Mercury and Air Toxics Rule Impacts

Annual Cost: \$10.9 billion* in 2015

Other Impacts:

- Electricity price increase: 3.7% in 2015, 2.6% in 2020
- Will result in substantial upgrading of coal-fired units that have not yet installed advanced pollution controls
- Coal retirements: 10 gigawatts in 2015 (mostly smaller, less efficient units)

* In 2007 dollars.



Coal Combustion Residues Rule Overview

Scope: Addresses the storage & disposal of coal combustion residuals (CCR; aka coal ash) by the electric utility industry.

Coverage: Existing and new CCR surface impoundments and CCR landfills (about 500 coal-fired power plants)

Compliance: Co-proposed options under Subtitle C and D that have varying compliance dates

- Subtitle C: States must adopt the rule, which could take 3-5 years to be effective. Existing facilities must meet land disposal restrictions and retrofit within 5 years; if a facility chooses not to retrofit, they have an additional 2 years to close (up to 7 years total from the effective date to close).
- Subtitle D: Self-implementing and effective 6 months after promulgation. Existing facilities must remove solids and retrofit or cease receiving waste within 5 years.

Other:

- Compliance costs vary depending on option (RCRA Subtitle C or Subtitle D).
- However, the requirements for the CCR disposal units (e.g. ground-water monitoring & bottom liners) are similar under both options.
- Rule will not apply to CCR "beneficial uses" by other industries, only to CCR disposal.
- Rule will not apply to non-utility electricity plants operated by other industries (e.g., universities, manufacturing facilities, etc.)



Coal Combustion Residues Rule Impacts

Annual Cost: \$600 million to \$1.5 billion*

Other Impacts:

- Electricity price increase: 0.2 to 0.8%
- Coal retirements: None anticipated

* In 2009 dollars.



Cooling Water Intake Rule Overview

Scope: Requires additional technology to reduce impacts to aquatic life

Coverage: Any facility (power sector or industrial) capable of drawing over 2 million gallons of water per day, using at least 25% of that water for cooling purposes

Compliance: by 2020

Other:

- Requires relatively inexpensive screens on affected facilities to protect aquatic life
- Requires significant study prior to determining need for more costly cooling systems for additional protection (e.g., cooling towers), and determination is case-by-case
- Does not prescribe technologies – uses environmental performance standards



Cooling Water Intake Rule Impacts

Annual Cost: \$400 million*

Other Impacts:

- Electricity price increase: less than 1%
- Total Retirements: 9 gigawatts (almost all are oil and gas steam units)

* In 2009 dollars.



There is a “Train-wreck” of Analyses

Over a dozen studies have been released that attempt to assess the impacts of EPA rules.

- **Speculative:** All of them are based upon subjective judgments concerning EPA policy, since the Mercury and Air Toxics and Water Rules had been only recently proposed.
- **Pessimistic:** The analyses tend to either be static in nature (NERC), or have limited and expensive technology representation for HAP reductions (almost all studies). Some assume an overly aggressive compliance schedule or do not account for different categories of facilities.
 - The few studies that include less stringent alternate scenarios and improved technology representation show less overall impact.
- **Compliance Flexibility Missing:** Analyses often did not include the flexibility that EPA has incorporated into proposed rules. 12



Moving Forward

- The studies show a lot of stakeholder interest and the desire to focus on compliance.
- EPA's primary rules covering the power sector over the next several years are now proposed and out for public comment.
- EPA is pursuing a reasonable approach to provide ample flexibility where possible.
- EPA's recent analysis indicates reserve margins are quite large in many parts of the U.S.
- To ensure a smooth path towards compliance, stakeholders need to engage sooner, rather than later, and begin to prepare for these rules now.
- EPA will work closely with state and local officials, industry, and other stakeholders to ensure that the suite of tools needed to respond are fully utilized.
 - These measures include harnessing energy efficiency, ensuring that new sources of cleaner energy are brought online smoothly, supporting the timely addition of pollution controls, and identifying and dealing with potential challenges early in the process. These tools, like energy efficiency, can also help mitigate the costs and improve effectiveness.