

EPA Rules Impacting Power Plants



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Topics



Final Rules:

- Mercury and Air Toxics Standards
- Regional Haze Rule
- Tailoring Rule (Greenhouse Gas Permitting)

Proposed Rules:

- Greenhouse Gas New Source Performance Standards
- Coal Combustion Residuals Rule

Effect on Plants Owned by POUs

Mercury and Air Toxics Standards



- Final rule published on February 16, 2012, with an effective date of April 16, 2012
- 1,400 coal- and oil-fired electric generating units at 600 power plants
- Emit harmful pollutants including mercury, non-mercury metallic toxics, acid gases, and organic air toxics including dioxin
- Power plants are currently the dominant emitters of mercury (50%), acid gases (over 75%) and many toxic metals (20-60%) in U.S.

Mercury and Air Toxics Standards



- Existing coal fired EGUs are primarily subject to three emission standards:
 - Mercury (Hg),
 - Filterable PM (as a surrogate for non-Hg particulate Hazardous Air Pollutants)
 - HCl or SO₂ (as a surrogate for acid gas HAPs)
- Affected facilities have 3 years to comply (an additional year available at state's discretion)

Mercury and Air Toxics Standards



- Implementation Costs: \$9.6 billion, annually
- Value of air quality improvements for human health: \$37 billion to \$90 billion each year
- Annually will prevent:
 - Up to 11,000 premature deaths
 - 130,000 asthma attacks
 - 540,000 missed work or “sick” days

Regional Haze Rule



- Promulgated July 1999 and became effective in 2005
- Established a national goal for visibility in 156 Class I areas across the country
- Class I areas are national parks and wilderness areas (i.e., Grand Canyon)
- Goal is to achieve natural background levels by 2064 (i.e., no manmade visibility impairment)

Regional Haze Rule



- States submit plans to control emissions of visibility-affecting pollutants (such as NO_x, SO₂, and PM₁₀)
- Must examine certain older large stationary sources for installation of Best Available Retrofit Technology (BART)
- BART controls are determined on a case-by-case basis, and can vary between sources

Tailoring Rule (Greenhouse Gas Permitting)



- Impacts Prevention of Significant Deterioration (PSD) Permitting
- PSD applies to new or substantially modified facilities. Greenhouse gas triggers:
 - 75,000 tpy for modifications or already subject to PSD
 - 100,000 tpy for other new sources
- Apply Best Available Control Technology (often energy efficiency for greenhouse gases)

Greenhouse Gas New Source Performance Standards



- Proposed March 27, 2012
- Emission standard of 1,000 pounds of CO₂ per gross megawatt-hour
- Applies to fossil fuel-fired boilers, Integrated Gasification Combined Cycle and Natural Gas Combined Cycle units
- New combined cycle natural gas power plants could meet the standard without add-on controls
- New coal or petroleum coke power plants would need to incorporate carbon capture and storage technology (CCS)

Greenhouse Gas New Source Performance Standards



- New power plants would have the option of 30-year averaging CO₂ emissions
- Allows flexibility to phase in Carbon Capture & Storage (CCS) technology
- Sources with construction permits would not have to comply, provided that they begin construction within 1 year of the proposal's publication

Coal Combustion Residuals (CCRs) Rule



- Proposed June 2010, over 450,000 comments
- Coal Combustion Residuals are byproducts from the combustion of coal – fly ash, bottom ash, boiler slag, and flue gas desulfurization materials
- Proposal covers CCRs generated from the combustion of coal at electric utilities and independent power producers

Coal Combustion Residuals (CCRs) Rule



- Environmental concerns from coal ash:
 - Pollution from impoundment and landfills leaching into ground water
 - Structural failures of impoundments
 - 2008 structural failure in Kingston, Tennessee. More than 300 acres of land flooded with CCRs and flowed into the Emory and Clinch rivers

Coal Combustion Residuals (CCRs) Rule



- Two proposed approaches for regulating disposal of CCRs under the Resource Conservation and Recovery Act (RCRA)
- Both approaches require liners and ground water monitoring
- Subtitle C Approach: phase out wet handling of CCRs and existing surface impoundments
- Subtitle D Approach: existing impoundments require composite liners

Coal Combustion Residuals (CCRs) Rule



	SUBTITLE C	SUBTITLE D
Effective Date	Timing will vary from state to state, as each state must adopt the rule individually-can take 1 – 2 years or more	Six months after final rule is promulgated for most provisions.
Enforcement	State and Federal enforcement	Enforcement through citizen suits; States can act as citizens.
Corrective Action	Monitored by authorized States and EPA	Self-implementing
Financial Assurance	Yes	Considering subsequent rule using CERCLA 108 (b) Authority
Permit Issuance	Federal requirement for permit issuance by States (or EPA)	No
Requirements for Storage, Including Containers, Tanks, and Containment Buildings	Yes	No
Surface Impoundments Built Before Rule is Finalized	Remove solids and meet land disposal restrictions; retrofit with a liner within five years of effective date. Would effectively phase out use of existing surface impoundments	Must remove solids and retrofit with a composite liner or cease receiving CCRs within 5 years of effective date and close the unit
Surface Impoundments Built After Rule is Finalized	Must meet Land Disposal Restrictions and liner requirements. Would effectively phase out use of new surface impoundments.	Must install composite liners. No Land Disposal Restrictions
Landfills Built Before Rule is Finalized	No liner requirements, but require groundwater monitoring	No liner requirements, but require groundwater monitoring
Landfills Built After Rule is Finalized	Liner requirements and groundwater monitoring	Liner requirements and groundwater monitoring
Requirements for Closure and Post-Closure Care	Yes; monitored by States and EPA	Yes; self-implementing

Effect on Plants Owned by POUs



Intermountain Generating Station (IGS)

- Subject to Mercury and Air Toxics Standards (MATS)
 - IGS operates with control devices (fabric filters, FGD) that will aid in meeting MATS emission standards
 - Intermountain Power Agency is still evaluating if additional controls will be necessary to comply with MATS

Effect on Plants Owned by POUs



Navajo Generating Station (NGS)

- **Subject to Regional Haze Rule**
 - NGS impacts 11 Class I areas, including Grand Canyon
 - EPA intends to propose Best Available Retrofit Technology limits for NO_x
 - EPA set SO₂ limits in 2010
- **Subject to Mercury and Air Toxics Standards (MATS)**
 - NGS Operators are still evaluating if additional controls will be necessary to comply with MATS (current controls consist of ESPs, FGD)

Effect on Plants Owned by POUs



San Juan Generating Station (SJGS)

- **Subject to Regional Haze Rule**
 - EPA set NO_x and SO₂ limits in August 2011
 - SO₂ limits can be met with existing control technology, flue gas desulfurization
 - NO_x emission limits require installation of Selective Catalytic Reduction
 - Compliance required by September 21, 2016
- **Subject to Mercury and Air Toxics Standards (MATS)**
 - SJGS Operators are still evaluating if additional controls will be necessary to comply with MATS



- Mercury and Air Toxics Standards:
<http://www.epa.gov/mats/>
- Regional Haze Rule
<http://www.epa.gov/visibility/program.html>
- Tailoring Rule (Greenhouse Gas Permitting)
<http://www.epa.gov/nsr/ghgpermitting.html>
- Greenhouse Gas New Source Performance Standards
<http://www.epa.gov/airquality/cps/index.html>
- Coal Combustion Residuals Rule
<http://www.epa.gov/wastes/nonhaz/industrial/special/fossil/ccr-rule/index.htm>