Clean Air Act Update
MATS (and CSAPR)

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MATS and CSAPR

- **Power Plant Mercury and Air Toxics Standards**
  - MATS - “Utility MACT”
  - Final Rule in Federal Register on February 16th, 2012

- **Cross-State Air Pollution Rule (CSAPR)**
  - was CAIR, then CATR
  - Final July 2011
  - Court “Stay” on December 30, 2011
Other Looming Environmental Drivers

- SO$_2$ NAAQS (Attainment by 2017 - w/3 yrs of measurements?)
- Industrial Boiler MACT (currently stayed)
- Coal Combustion Residuals (CCRs or ash) (final rule in 2012)
- Cooling Water Intake Structures (final rule in 2012)
- GHG NSPS (expected in 2012)
- Ozone and PM NAAQS (currently delayed until 2013)
- Title V Operating Permit Renewals
- Consent Decrees
MATS Changes from the Proposed Rule

- EPA:
  - Approach and methodology remained the same
- HCl, Hg, and PM limits mostly unchanged
- PM measurement changed and is now only “filterable”
  - EPA dropped condensable portion, citing selenium is controlled by acid gas limits
- More specific coal subcategory
  - Mine-mouth lignite → low-rank virgin coal
- Sub categories for oil units
  - Non-continental (better defined) and added limited use
- Work practice standards during start up and shut down
  - Controversial in that it might not match actual SS practices
  - Startup has to use natural gas or distillate oil
- Longer Hg averaging (90 days) with a lower limit (1 lb/TBtu)
- Adjustments for New Source Standards
EPA’s Expected MATS Impact

EPA Regulatory Impact Analysis December 2011
Figure 3-4. Mercury Emissions from the Power Sector in 2015 with and without MATS
EPA Projected MATS HCl Reduction

Figure 3-5. Hydrogen Chloride Emissions from the Power Sector in 2015 with and without MATS
Retirement Predictions Leading to Reliability Concerns

Amlan Saha
MJB&A
EUEC 2012

Utility Toxics Rule Proposed: Mar 16, 2011

Retired Capacity (GW)

NERC  Brattle Group  EEI  Bernstein Research  EPA  CERA  EIA  NERA  Bipartisan Policy Center  Citi

Date Released

Regulations Considered

Baseline Exclusions
15 GW of announced retirements (may include non-coal units)  6 GW of retirements  13 GW of retirements  12 GW projected to retire due to “unliq. age”  13 GW of retirements  Figure indicated above is the assumed total  4 GW of retirements  5 GW of retirements  14-17 GW of retirements  Figure indicated above is the assumed total
$2/MMBtu Natural Gas - Will it stay?

Natural Gas vs Coal Prices ($/mmBtu)

Gary Helm
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EUEC 2012
Timing

- EPA expects most facilities will comply with this rule through a range of strategies, including the use of existing emission controls, upgrades to existing emission controls, installation of new pollution controls, and fuel switching.

- Existing sources generally will have up to 4 years if they need it to comply with MATS.
  - This includes the 3 years provided to all sources by the Clean Air Act. EPA’s analysis continues to demonstrate that this will be sufficient time for most, if not all, sources to comply.
  - Under the Clean Air Act, state permitting authorities can also grant an additional year as needed for technology installation. EPA expects this option to be broadly available.

- EPA is also providing a clear pathway for reliability critical units to obtain a schedule with up to an additional year to achieve compliance. This pathway is described in a separate enforcement policy document. The EPA believes there will be few, if any situations, in which this pathway will be needed.
  - Still in violation → Can NGOs sue?
Coal Limits

- **Proposed Limits:**
  - **PM** 0.030 lb/MMBtu (total PM) - 0.30 lb/MWh
    - Includes only filterable pm
    - Will won’t be as hard for ESPs to get there
    - Doesn’t preclude SO$_3$ injection for ash resistivity improvements
  - **HCl** 0.002 lb/MMBtu - 0.02 lb/MWh
    - ~1.4 ppm @ 6% O$_2$ wet
    - DSI where there isn’t already WFGD/DFGD
    - Some DFGD expected
  - **Hg** 1.2 lb/TBtu - 0.013 lb/GWh
  - **Hg** 4.0 lb/TBtu - 0.04 lb/GWh (low rank virgin coal)
    - Fuel and backend dependent (equipment & temperature)
  - **CO and D/F**
    - Work Practice Standards every 3 to 4 years
Continental Liquid Oil Limits

- Proposed limits (liquid oil) - different from solid fuel
  - Metals Changed to PM
    - Can still do a direct metal measurement
  - PM 0.030 lb/MMBtu - 0.30 lb/MWh
    - Filterable only
  - HCl 0.002 lb/MMBtu - 0.01 lb/MWh
    - ~1.3 ppm @ 6% O₂ wet
    - Fuel moisture measurement requirement
  - HF 0.0004 lb/MMBtu - 0.004 lb/MWh
  - Organic HAP (CO and D/F)
    - Work Practice Standards (GCP - Good Combustion Practice)

- Will DSI be used for oil-fired units?
  - PM capture device issues...
Biomass is not in Utility MACT

- Coal fired if
  - > 10% coal per year heat input for 3 years, or
  - > 15% coal heat input for one year

- Utility MACT only covers “Fossil Fuel Fired”

- Biomass is not regulated under Utility MACT
  - Biomass EGUs fall under Boiler MACT
Startup and Shutdown

- **Startup** means either the first-ever firing of fuel in a boiler for the purpose of producing electricity, or the firing of fuel in a boiler after a shutdown event for any purpose. Startup ends when any of the steam from the boiler is used to generate electricity for sale over the grid or for any other purpose (including on site use).

- **Shutdown** means the cessation of operation of a boiler for any purpose. Shutdown begins either when none of the steam from the boiler is used to generate electricity for sale over the grid or for any other purpose (including on-site use) or at the point of no fuel being fired in the boiler, whichever is earlier. Shutdown ends when there is both no electricity being generated and no fuel being fired in the boiler.

- Perhaps an issue with “generation of electricity” happening before the boiler is stable.
Malfunction “Affirmative Defense”

- Defined as: “sudden, infrequent, and not reasonably preventable failure of air pollution control and monitoring equipment, process equipment or a process to operate in a normal or usual manner…”

- Emissions during malfunction are *not regulated*

- Each Malfunction needs to be documented and reported to EPA

- The EPA will determine an appropriate response based on:
  - Good faith efforts to reduce the likelihood of malfunction
  - Root cause analyses to ascertain and rectify excess emissions
  - Was it, in fact, “sudden, infrequent, not reasonably preventable”? 
  - OR was it “caused in part by poor maintenance or careless operation”?

- EPA is proposing an *affirmative defense* to civil penalties for exceedances of emission limits that are caused by malfunctions
• A couple of words about coordinating with CSAPR

• *Final* CSAPR Signed on Wednesday July 6, 2011

• Court Stay on December 30, 2011
  - Both sides claim victory

• Currently reverted back to CAIR

• Reduce NOx and SOx with intrastate cap-and-trade
  - To reduce “fine particles (PM$_{2.5}$)” and “ozone” (NAAQS)

• ISSUE: MATS requires acid reduction *at the same time*
  - MATS might crash the SO$_2$ credit market for CSAPR
CAIR versus CSAPR

CAIR

CSAPR

Short Term

Long Term?

Annual SO2/NOx and Ozone Season NOx
Annual SO2/NOx
Ozone Season NOx

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Thank You

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