Analysis of Alternative Subcategorization Options

Utility MACT Working Group
May 13, 2002
Note:
Levels of control presented do not represent any Workgroup or Agency conclusions on appropriate levels of control. Levels of control presented are hypothetical levels for purposes of analyzing subcategorization options.
MACT Cases Analyzed - Case I & II

- **Case I - No Subcategorization**
  - High:
    - 90% removal or 0.43 lbs/TBtu for all units
  - Med:
    - 80% removal or 0.79 lbs/TBtu for all units
  - Low:
    - 70% removal or 2.53 lbs/TBtu for all units

- **Case II - Categorization by Fuel Type**
  - High:
    - 90% removal or 0.43 lbs/TBtu for Bituminous fuels
    - 85% removal or 0.66 lbs/TBtu for Subbituminous fuels
    - 55% removal or 3.98 lbs/TBtu for Lignite fuels
  - Med:
    - 80% removal or 0.81 lbs/TBtu for Bituminous fuels
    - 65% removal or 1.90 lbs/TBtu for Subbituminous fuels
    - 45% removal or 6.90 lbs/TBtu for Lignite fuels
  - Low:
    - 70% removal or 2.07 lbs/TBtu for Bituminous fuels
    - 30% removal or 4.32 lbs/TBtu for Subbituminous fuels
    - 35% removal or 10.8 lbs/TBtu for Lignite fuels
MACT Cases Analyzed - Cases III & IV

- **Case III - Categorization by Fuel Type**
  - Med:
    - 80% removal or 0.79 lbs/TBtu for Bituminous & Subbituminous fuels
    - 45% removal or 6.90 lbs/TBtu for Lignite fuels

- **Case IV - Categorization by Boiler Type**
  - Med:
    - 95% or 0.09 lbs/TBtu for FBC units
    - 80% removal or 0.79 lbs/TBtu for all other units
Modeling Assumptions

• Activated Carbon Injection
  – 80% removal
  – Capital costs between $1/kW to $55/kW
• Removal Efficiencies
  – SCR + FGD = 95% removal all coals
  – SNCR + FGD = 90% removal for all coals
• For more information:
  – http://www.epa.gov/airmarkets/epa-ipm
National Emissions

National Mercury Emissions in 2010 (tons)

- 1999 Emissions
- High Approximation
- Case I - Med
- Case I - Low
- Case II - Med
- Case II - Low
- Case III - Med
- Case IV - Med
Generation Mix

Coal Generation - Change From Basecase

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Natural Gas Generation - Change From Basecase

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Coal Impacts

Coal Produced for Power Generation Sector

Scale: Appalachia 1999 = 285 million tons
Coal Impacts

Coal Produced for Power Generation Sector

Scale: Appalachia 1999 = 285 million tons
Coal Impacts

Coal Produced for Power Generation Sector
(million tons)

2000 Coal
Case I - Med
Case II - Med
Case III - Med
Case IV - Med
Case I - Low
Case II - Low

Appalachia
Interior
West
Total Costs and Emissions

Total Costs and Emissions
Other Emissions Impacts

- No significant change in SO$_2$ and CO$_2$ emissions in all cases
- About 20% reduction in NOx emissions in all cases