Regarding Fuel Switching

MACT Working Group Meeting
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Residual Question from the February WG Meeting

- Can a boiler that was designed for a particular coal (rank) burn a different coal (rank)?
The short, albeit qualified answer is: YES

Is it as simple as switching from Pepsi® to Coke®? NO!
Engineering Case Study

- **Boiler Issues**
  - Slagging and fouling
  - Efficiency

- **Pulverizer Issues**
  - Heating value
  - Grindability
  - Abrasiveness
Case Study (Cont’d)

- **Fan Issues**
  - Utility boilers require three types/kinds of fans
    - Primary air (PA)
    - Forced draft (FD)
    - Induced draft (ID)
  - The issue for each fan type is capacity.
Specific Example

- What big problem is anticipated when switching from a lower rank coal (e.g., subbituminous) to a higher rank coal (e.g., bituminous)?
- Maintaining proper **superheat** and **reheat** temperatures.
Example (Cont’d)

- So what are the consequences of decreased superheat and reheat temperature?
- Anything between simply losing boiler efficiency (increasing heat rate) to inoperability (e.g., tearing up the turbine with condensate).
Conclusions

- Switching coals is not without costs and is not done willy-nilly.
- A large swing in coal markets can have other, very significant economic consequences.
  - Adequate coal supplies
  - Displaced mining jobs
  - Infrastructure issues