

CIBO FBC MAY 2004
Equipment, A/E, & Services Suppliers Session

- Capability and Limitations
 - Emissions - General
 - What is measurable - real data?
 - It's political (political agendas vary)
 - Emission limits should match available monitoring technology
 - Test to meet permit limits Don't over test.
 - Do your homework
 - Economics driven, if it makes sense!

CIBO FBC MAY 2004
Equipment, A/E, & Services Suppliers Session

- SO_x
 - 95 - 98% generally requires scrubber (Fuel and Sorbent dependant)
- NO_x
 - New source limits 0.07 lbs/mmbtu
 - Urea vs. Ammonia costs/permit issues

CIBO FBC MAY 2004
Equipment, A/E, & Services Suppliers Session

- SO₃ Mist
 - Accuracy of measurements (low levels)
 - Test methods
- Chlorides
 - Typically avoided
 - Co-firing limitations

CIBO FBC MAY 2004

Equipment, A/E, & Services Suppliers Session

- Fuel Flexibility
 - 15% blending typically not an issue (could be an issue)
 - Opportunity fuels evaluated on individual basis
 - Fuel / Ash handling and delivery equipment just as critical to success of flexibility
 - Range of capability of fuel prep equipment
 - TDF 1” top size for successful firing

CIBO FBC MAY 2004

Equipment, A/E, & Services Suppliers Session

- Economical choice of technology (FBC vs Others)
 - Fuel selection
 - Fuel flexibility
 - Fuel economics (I.e. nat. gas costs)
 - Choice of renewable sources
 - Permitting related costs.
 - How small can classic CFB technology go?
 - Bubbling / Hybrid for smaller sizes

CIBO FBC MAY 2004
Equipment, A/E, & Services Suppliers Session

- Economical choice of technology (con't)
 - Perception with tech. (developers comfort level with FBC)
 - Customer expectations
 - Cycling
 - Operating patterns.

CIBO FBC MAY 2004

Equipment, A/E, & Services Suppliers Session

- New Development where is it coming from, what's needed?
 - Gov't funds for fossil fuel is not there.
 - Going to gassification and fuel cells
 - Reduction of sorbent consumption
 - Increasing outlet steam temps (smaller units)
 - Further reducing emissions
 - PFBC hot filtration, others (water needs)
 - Host sites for tech development

CIBO FBC MAY 2004

Equipment, A/E, & Services Suppliers Session

- New Development Where is coming from what's needed? (con't)
 - Fuel preparation
 - Material handling
 - Industry Standards for selections of equip with higher ash fuels
 - Scale up factor challenges

CIBO FBC MAY 2004
Equipment, A/E, & Services Suppliers Session

- General
 - Lowest cost not always best way to go
 - Cost benefit analysis to justify equipment that will improve availability maintainability