

Air Quality Regulations and Permitting

California Biomass Collaborative Workshop on Environmental Regulations and Implications for Biomass Management in California

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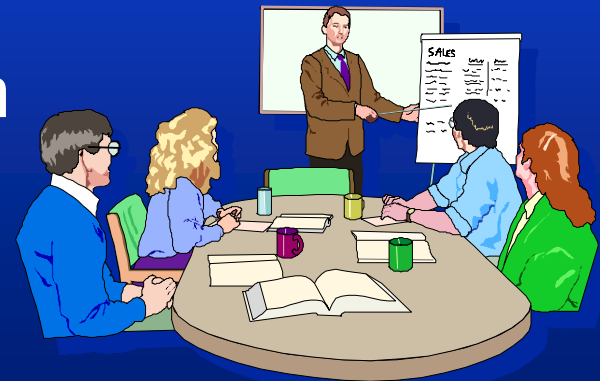
AIR RESOURCES BOARD



Today's Presentation



- ✓ Biomass Facilities Permitted by Local Air Districts
- ✓ New Source Review
- ✓ California's Typical Biomass Boiler, Engine, and Turbine Emission Requirements
- ✓ Offsets
- ✓ Distributed Generation (DG)
- ✓ ARB DG Certification Program



Biomass Facilities Permitted by Local Districts



- Majority of biomass facilities permitted by local air districts
- Construction permits required for new or expanded biomass facilities
 - Authority to Construct
 - Permit to Operate
- Units exempt from air district regulations governed by ARB's Distributed Generation regulation



New Source Review

- Preconstruction permit program governing **new** and **modified** (expanding) stationary sources in nonattainment areas
- Two major elements: BACT and Offsets
- Offsets designed to balance new emission increases with emission decreases from existing sources
- Allows industrial growth in areas that do not attain air quality standards

CA BACT for Biomass Boilers



- Examples of required pollution controls and emission limits:
 - NO_x Emissions
 - ◆ SNCR (limits from 0.08 to 0.3 lb/MMBtu)
 - ◆ Staged Combustion (limits from 0.13 to 0.25 lb/MMBtu)
 - PM₁₀ Emissions
 - ◆ ESP, Multiclone, Cyclone, and/or Baghouse (limits from 0.01 to 0.2 gr/dscf)
 - SO_x Emissions
 - ◆ LSI, FGD, or Wet Scrubber (0.24 to 1.2 lb/MMBtu)



CA Typical BACT for Biomass Engines and Turbines

- Waste gas-fired engine
 - Control Method: lean-burn technology
 - NO_x: 1.9 lb/MWh (0.6 g/bhp-hr)
 - CO: 7.8 lb/MWh (2.5 g/bhp-hr)
 - VOC: 1.9 lb/MWh (0.6 g/bhp-hr)
- Waste gas-fired turbine <50 MW
 - Control Method: water injection, SCR
 - NO_x: 1.25 lb/MWh (25 ppm @ 15% O₂)



Offsets

- Required to offset excess emissions remaining after air pollution control equipment installed
- Created by reducing emissions of air pollutants at facilities more than is required by law
- HSC allows credit for emissions benefit from biomass-to-energy plants for using wastes otherwise disposed of by open field burning



Distributed Generation

- Distributed Generation (DG) units are electrical generation technologies producing electricity near the place of use
- Every DG unit must be certified by the ARB or permitted by a local air district (SB 1298)
- Typical biomass DG applications
 - Digesters
 - Landfills
 - Oil-field waste gases

ARB DG Certification Program



- Certification Requirements
 - Applies to DG equipment manufacturers
 - Two sets of standards: 2003 and 2007
 - Affects permit-exempt equipment
 - ARB has not certified any waste-gas applications
- Why no waste-gas certification?
 - Waste gas composition varies
 - How does ARB certify statewide?
 - ARB has asked districts to issue permits for permit-exempt applications



2003 and 2007 Certification Emission Standards (lb/MWh)



	NO_x	VOC	CO
2003	0.7	1.0	6.0
2007	0.07	0.02	0.1



Questions?