



Upgrading Wet ESP and RTO Equipment in the Panel Board Industry

*2014 Panel & Engineered Lumber Conference
& Expo*



- Technology company serving process industries
- Established in 1930's
- ISO 9001 certification since 1998
- Acquired Geoenergy® technology in 2002
- Full range of supply capability
 - ☒ Engineering studies/audits
 - ☒ Process engineering and equipment supply
 - ☒ Turnkey engineering and installation
 - ☒ After-market and spare parts



Company Profile



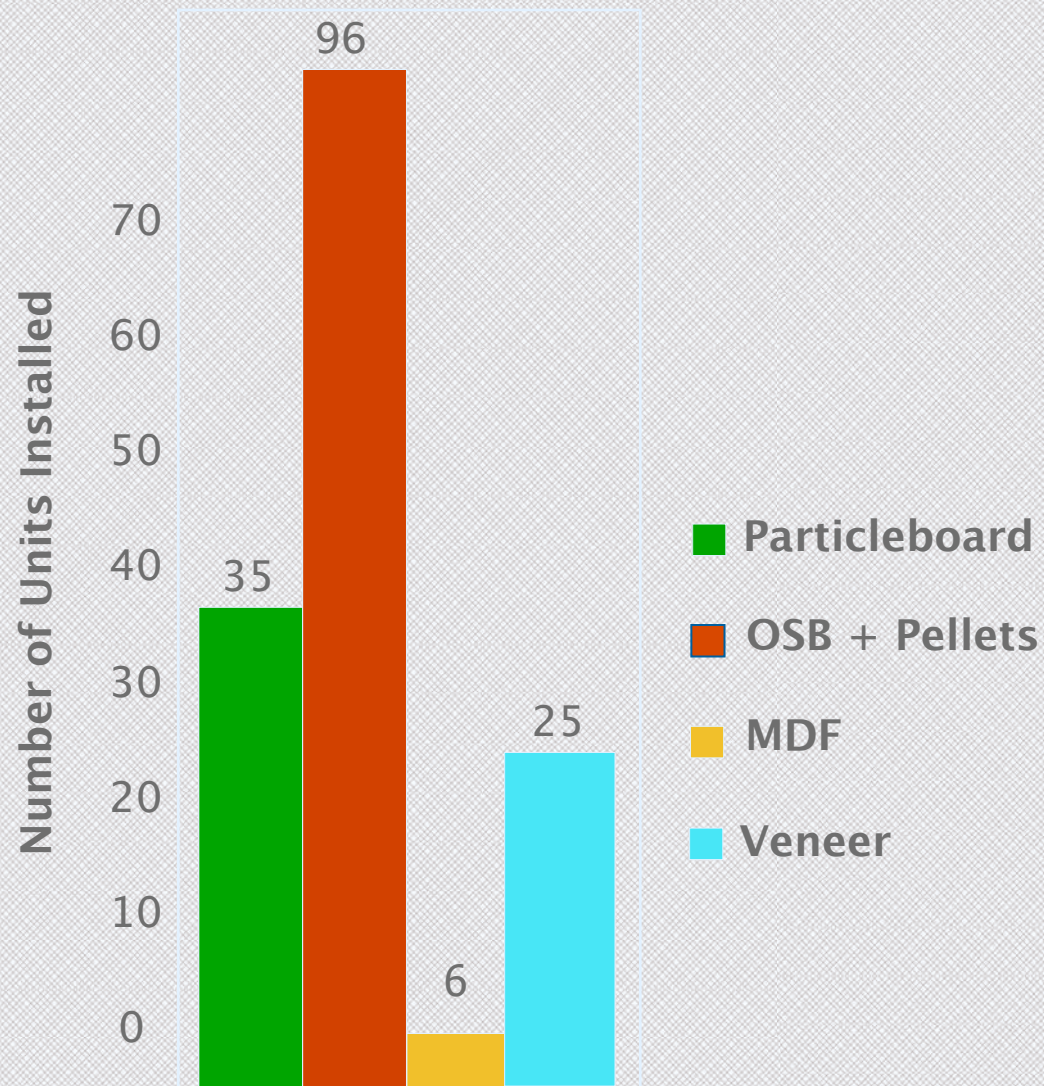
E-Tube[®] Wet Electrostatic Precipitator



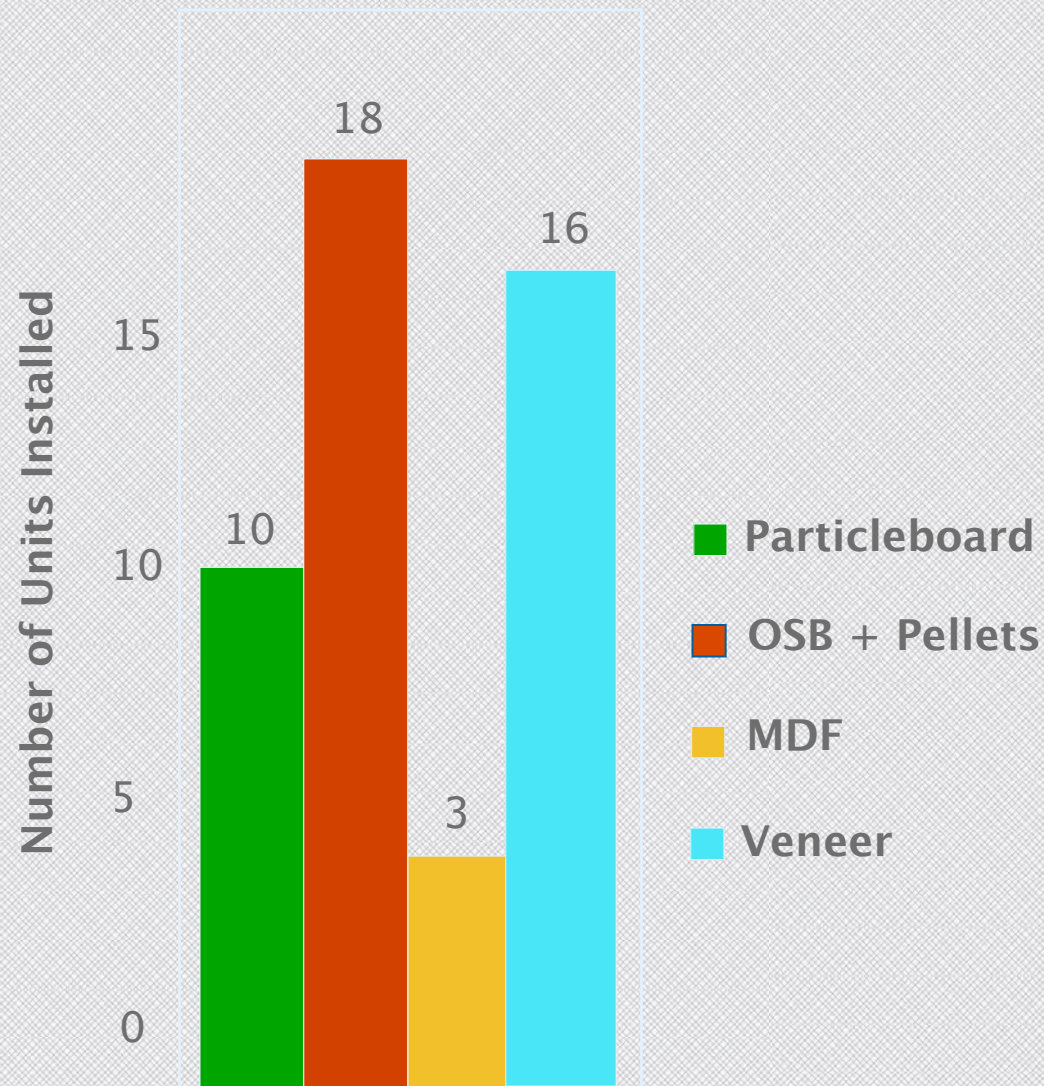
GeoTherm[®] & GeoCat[®] Oxidizers



Geoenergy[®] Clean Air Technologies



E-Tube[®] Wet ESP Installations
Wood Dryers & Press Vents



GeoTherm[®] RTO & GeoCat RCO[®] Installations
Wood Dryers & Press Vents



- Emission controls became standard equipment in the panel board industry over the last 25 years.
- The industry learned how important the emission control equipment is to keeping mills in operation.
- The industry gained experience with wet ESP and RTO equipment.



- Several panel board mills have wet ESP and RTO equipment that is 15 – 20+ years old.
- Maintenance, performance and capacity related issues are common.



- Each case needs evaluation to determine the best path
 - ☒ Evaluate all of the emission control system
 - ☒ Determine issues – maintenance, operation etc.
 - ☒ Mill capacity
 - ☒ Upstream process changes, future and past
 - ☒ Materials of construction
 - ☒ Permit requirements
 - ☒ Pilot plants can be beneficial

Upgrades for Wet ESP & RTO Systems





Objectives: Improve gas conditioning and reliability, prevent fires, eliminate maintenance

- Increased liquid to gas ratio
- Plug resistant spray nozzles
- Irrigated duct between emission source and wet ESP



Gas Quenching, Duct Irrigation
Wet ESP Systems

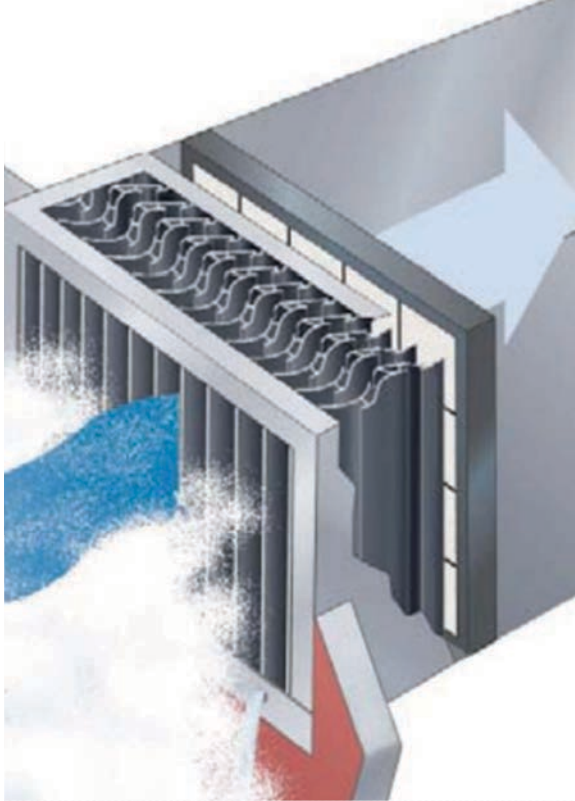


Objectives: Energy savings, increase field voltage, improve performance, reduce maintenance

- High frequency power supplies
- Discharge electrodes
- Condensing/irrigation systems
- Purged insulator compartments
- Purge air energy savings



High Voltage
Wet ESP Systems



- Low maintenance mist elimination systems, several types and options
- Close-coupled to RTO (if applicable)



Mist Elimination
Wet ESP Systems

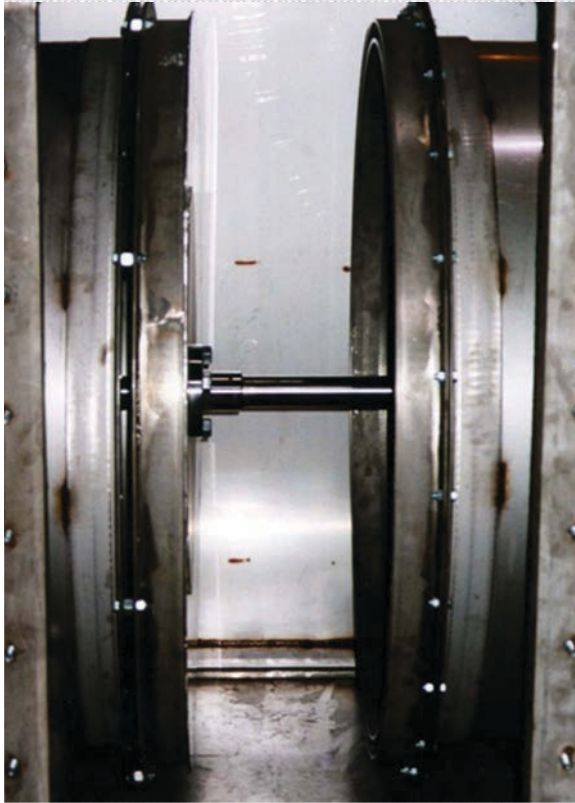


Objectives: Reduce maintenance, improve reliability, reduce operating costs

- **Low maintenance tanks**
- **Pumps and piping**
- **Filtration systems**
- **Blowdown water disposal systems**
- **Instrumentation**



Water Treatment
Wet ESP Systems



- Materials of construction
- Gas flow distribution
- Actuator system



Cold Face & Valves
RTO & RCO Systems



- Pressure drop
- Resistance to chemical attack
- Flow distribution and thermal efficiency



- Low NO_x burners
- Intelligent combustion control systems



Burners & Burner Controls



A Clear Choice for Clean Air