



Selling with Bio-Fuel Technologies

Chain Grate Boiler Technology

2008 Pellet Fuels Institute Conference

Robert Rice, President and CEO

Agenda



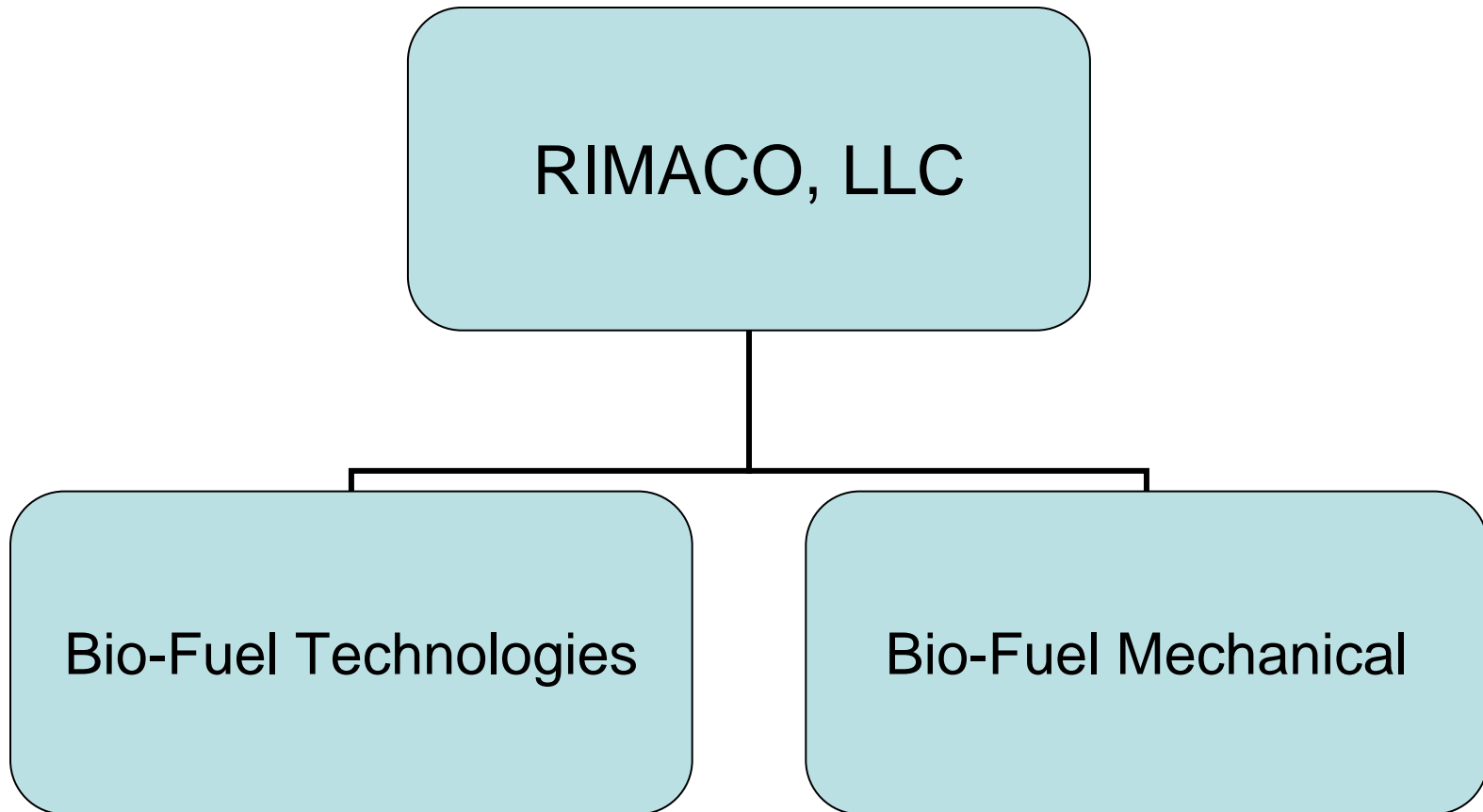
- Bio-Fuel Technologies
 - History
 - Organization
- Multi-fuel Boiler Technology
 - Overview
 - Components
- Installations
- Call to action

The Company

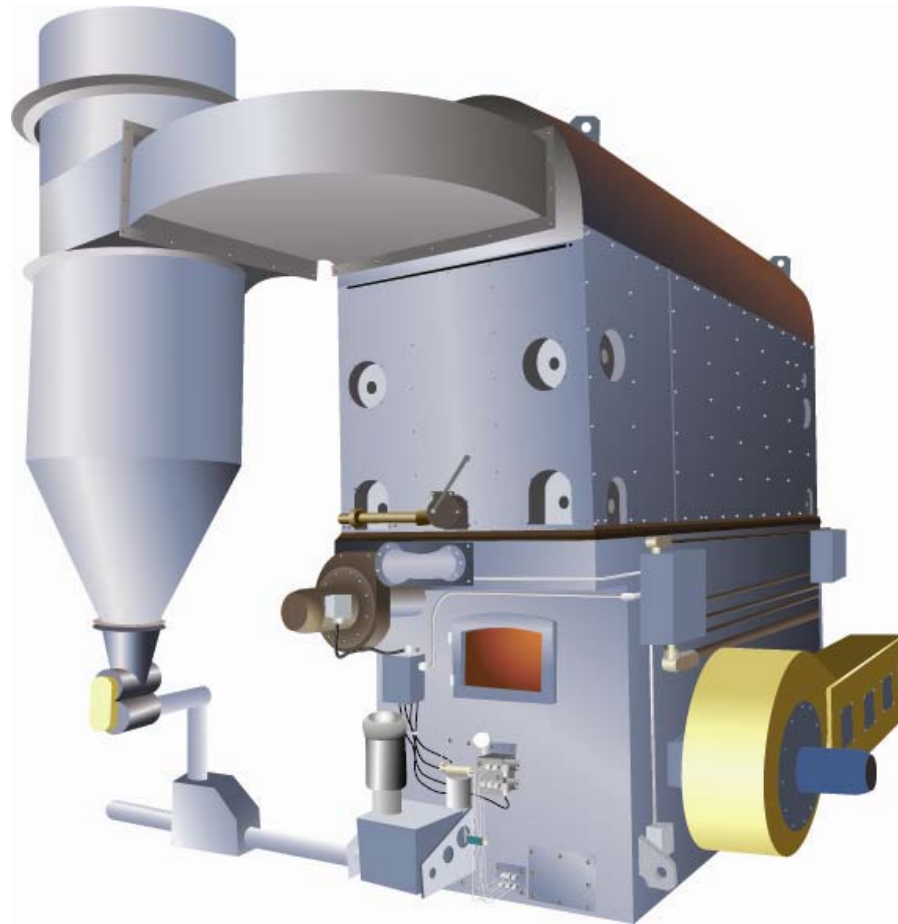


- Founder - 20 years selling boilers and processing equipment
- Bio-Fuel Technologies formed to concentrate on alternative fuel opportunities
- Enhanced existing technology to burn “multiple bio-fuels”

Organization Chart



System Overview



Multi-fuel Boiler Components

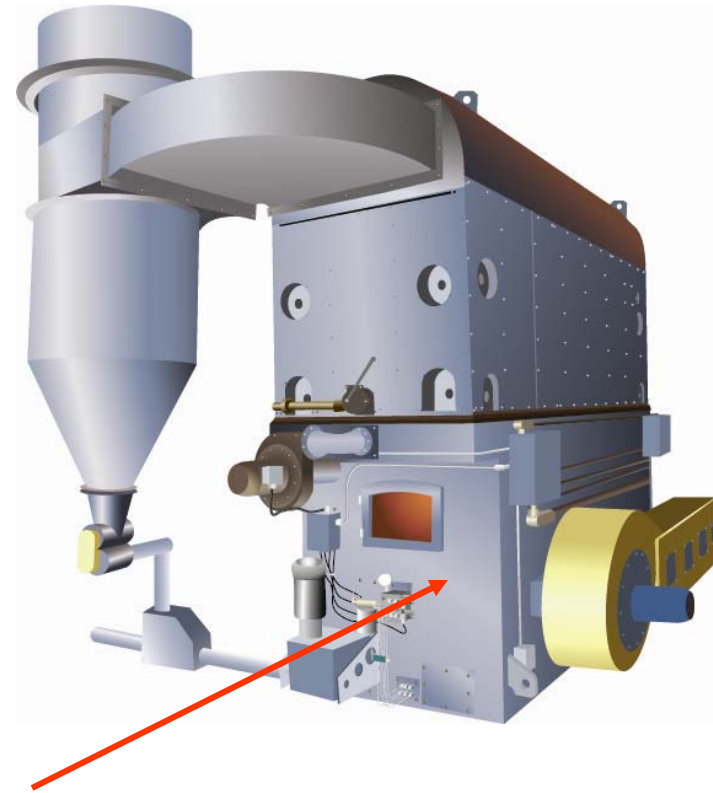


- Chain Grate Firebox (stoker)
- Under and Over Combustion Air Blower
- Multi-Screw Fuel In-feed Conveyor
- Automatic Ash Removal
- 3-Pass Boiler Vessel
- Automated Tube Cleaning System
- Multi-Cyclone Dust Collector
- PLC Control Panel

Chain Grate Firebox

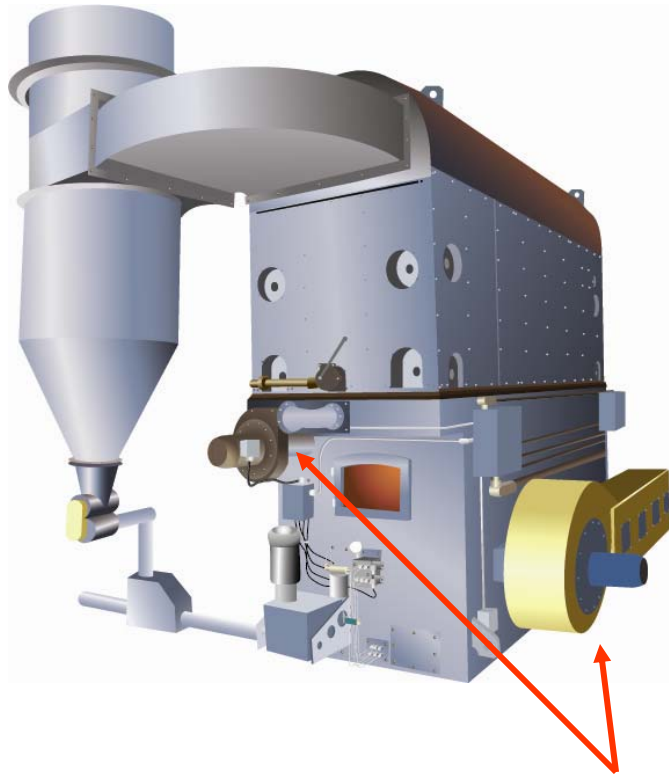


- Large combustion volume
- 6" thick sheet insulation
- 6" poured refractory
- Heat resistant alloy chain grate





Combustion Air Blower

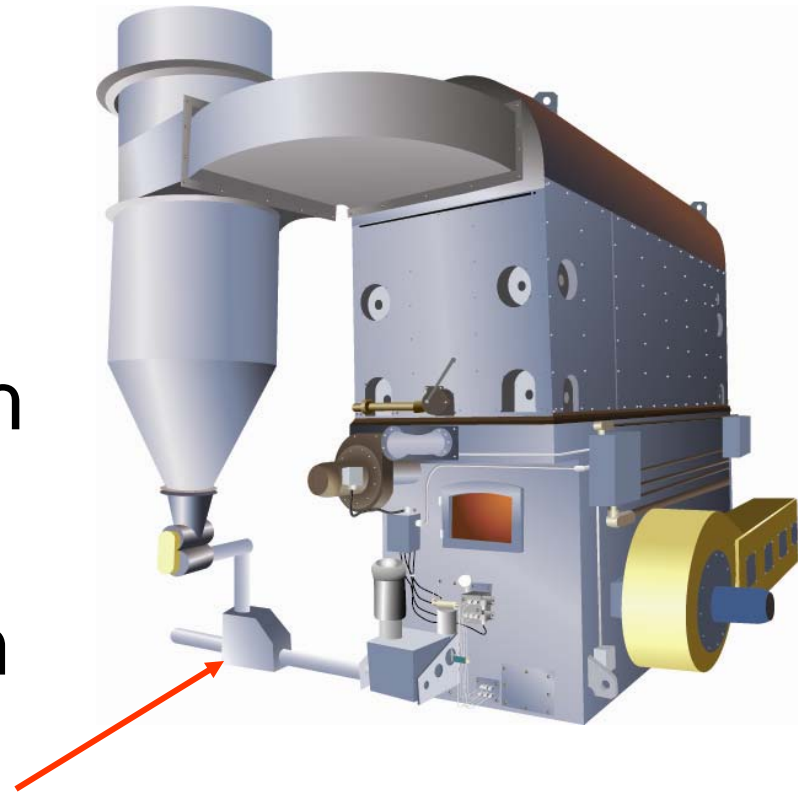


- Over and under blowers
- Modulating control
- Variable Frequency Drives (VFD)

Automatic Ash Removal



- Fully automated
- Cleans ash from stoker
- Empties cyclone ash
- Central collection
- Single waste stream



3-Pass Boiler Vessel

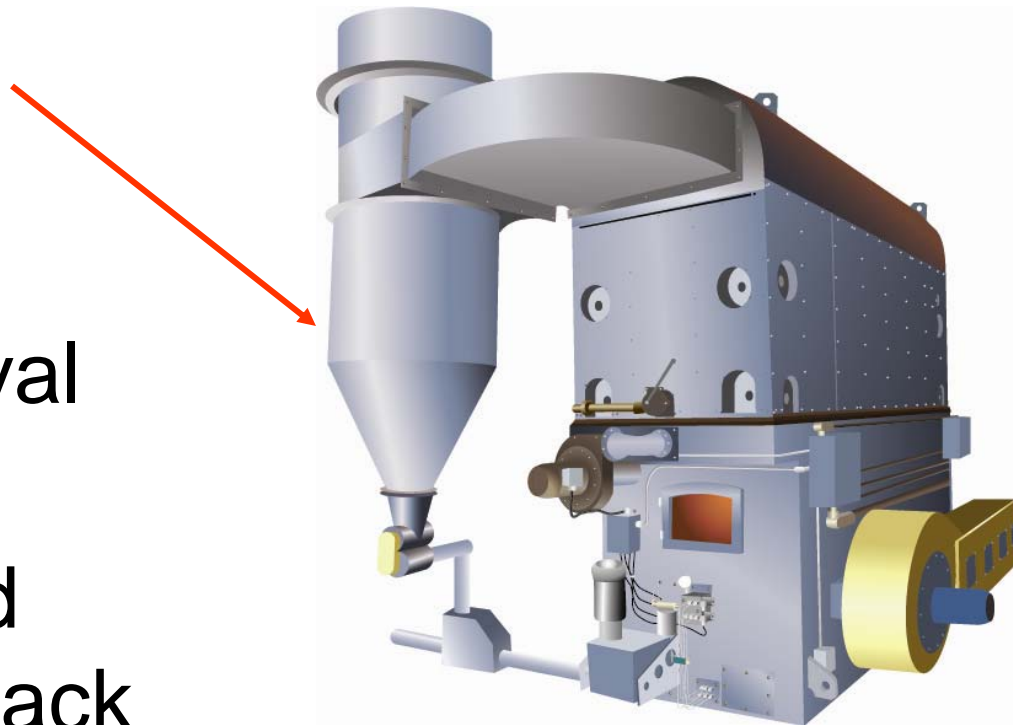
- Pressure vessel designed to ASME Code
- Hot water or steam (low and high pressure)
- Pneumatic pulsating tube cleaning
 - High pressure air soot blasters
 - PLC controlled scheduling
 - Maintains boiler efficiency



Cyclone Dust Collector



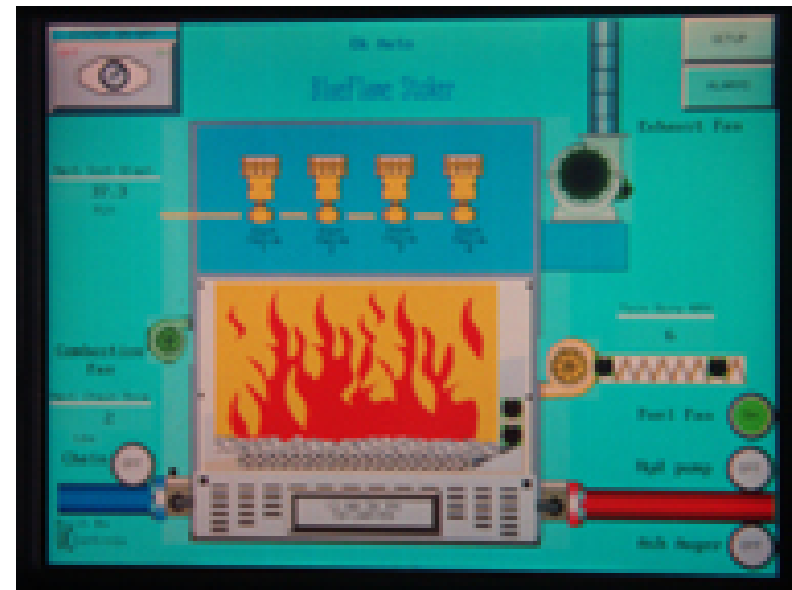
- Multi-cyclone
- VFD drive
- Air lock
- Fly ash removal auger
- Self contained double-wall stack



PLC Control Panel



- Stoker chain grate speed
- Controls twin-screw and multi-screw fuel conveyors
- Schedules ash removal augers
- Pneumatic tube cleaning system
- Modulates combustion air and exhaust fan
- Color touch screen
- Modem for remote monitoring and control



Fuel Types



- Wood chips
- Saw dust
- **Pellets**
- Poultry manure
- Nut shells
- Corn fodder
- Coal
- Many others.....

Pellet advantages

1. Consistent high efficiency
2. Low emissions
3. Simple fuel storage and transport
4. Reliable delivery
5. National availability
6. Cost
7. Clean boiler room

Storage and transfer systems



- Complete fuel storage
 - Traversing auger
 - Drag chain fuel transfer
 - Fuel sorting screener
 - Optional magnetic separation
- PLC controlled
- Fuel flexibility
- Custom solutions available
 - Storage bins
 - Grain bins
 - Flex auger
 - Special fabrications

Installations



- Current
 - Danville Vermont Public Schools
 - Walnut Creek Planning Mill
 - Summit Hardwoods
- Scheduled
 - Geremia Greenhouse
 - DeFrancisco Greenhouse
 - Montgomery Rose Greenhouse
 - Procter Academy School
 - Wessel's Greenhouse

Typical Installation



High School - Danville, VT

- 2.6 MMBTU boiler
- New construction
- Burns wood chips
 - 50% moisture
 - 4" and smaller
 - 3.5 tons per day
- BFT built fuel system
 - Chain conveyor
 - Traversing auger

Multi-fuel Boiler Technology



- **Versatile**
 - Ability to burn high moisture fuels
 - Burns most dry organic waste
- **Economical**
 - Reduce fuel costs
 - Low maintenance
 - Automated control
- **Innovative**
 - Chain grate stoker
 - PLC Control Panel
 - Automated ash and soot removal



Call to action



- Open new markets
 - Replace existing fossil fuel boilers
 - Fast payback for customer
 - “Buy Green” appeal
 - High efficiency, low emissions
- Increase sales volume
 - Commercial delivery contracts
 - 150 lb/hr - 2,000 lb/hr opportunities
- Bio-Fuel Technologies is your sell with partner

Contact



- Bob Rice – President and CEO

Bio-Fuel Technologies
543 West Market Street
Beavertown, PA 17813
570 658-7491

www.bio-fueltechnologies.com



Installations

Back up slides





