RESIDUES TO REVENUES 2009
Operational Issues and Solutions for Pollution Control, Fuel Handling and Changing Fuel Sources

FOGARTY INDUSTRIES

Sean Fogarty

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FOGARTY INDUSTRIES

- We have a manufacturing workshop in Invercargill, New Zealand
- We have been in business since 1964 (44 years)
- Family run business
- Began as a plumbing and heating firm
- Building coal fired boilers since 1970
- Building timber drying kilns since 1985
Best Known For Our Timber Drying Kilns

We Originally Built Coal/Lignite Fired Boiler/Air Heater
Why Boilers and Heat Plants?

- Oil Crisis in the 70’s
- Cost of energy increased
- Problems with security of energy supply

Graph of oil prices from 1961–2007, showing a sharp increase in 1973, and again during the 1979 energy crisis. The orange line is adjusted for inflation.
Why Boilers and Heat Plants?

Why Fogarty Industries Presenting

- In a very unique position in that we actually manufacture woodwaste boilers
- Many other companies import from overseas
- Advantages of local manufacturing – Equipment made for local woodwaste, local conditions, less expensive equipment and local jobs
- Issues we overcame could help others who want to enter the industry
New Zealand Designed Woodwaste Boiler

- Looked at what was currently made or imported into NZ and Australia
- Looked to Europe

Three Main Issues
- Emissions/Pollution
- Ability to Burn all Fuel Types
- Cost of Equipment

Emissions – Keep Fuel on the Grate
Forced Draft vs Induced Draft

Fuel to Air
Make it Difficult for Particulate Matter to Exit to Atmosphere

Emission Tests

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Emission Tests

Another Aim Was to Burn All Types of Woodwaste
Burning Different Fuels – Reciprocating Grate

Burning Dry Fuels - Wood Chips and Wood Pellets
Specialised Castings for Chip and Wood Pellet Boilers

Fuel Handling

- Its one of the most critical parts of the project
- One of the least thought about parts of a project
- Needs to be as automated and as easy for the operator as possible
Fuel Handling

Wood Pellet Fuel Feed System
Fuel Feed Systems for Larger Sites

Containerised Walking Floor
Fuel into Boiler

Using Locally Manufactured Equipment

- Always more expensive to bring in overseas equipment vs local manufacture, as you need to:
  - Pay a reseller fee (10-20%)
  - High shipment costs from Europe to NZ/AUS (also can take up to 8 months for delivery)
  - High European labour costs
  - Also, pressure regulations
  - How well does it work on local fuels?
  - Do the resellers actually know all about the equipment they are selling?
  - Like buying an expensive European car. Works well but very expensive when it breaks down or needs a service
Pressure Regulations - NZ

- Inspector makes un-announced inspections during manufacture
- Every part of the manufacturing process is visually inspected
- Welds are visually inspected and x-rayed
- Inspections during manufacture to ensure that the ticketed welders are actually doing the welding!!!

Thermal Fluid Boilers vs Steam or Hot Water

- Comparable costs as you do not need a pressure system, or pressure inspections etc
- This boiler runs at 240°C
- Safe to run (to get above temperature with steam very high pressures needed)
- Oil actually oils pump, valves
- Can generate steam if required
Control Software

Compared to a few years ago, control software is now very sophisticated.

Customers are demanding very strict control and continuous monitoring:

• $14,200 for every 0.1% under guarantee of efficiency
• $3,900 for every kW demand in excess of guarantee

Local councils will also require very strict monitoring and compliance.
Residues to Revenues 2009

Visual Representation

Changing Fuel Types
Fogarty Industries would like to explore the possibility of a joint venture or partnership to sell woodwaste equipment and kilns into Australia.

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