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Perceptions are often the #1 barrier outside our sector.

Wood is seen as:
- Dirty
- Smoky
- Labour intensive
- ‘Old fashioned’
- Hard to handle
- Environmentally damaging
- A finite resource
- Unreliable

So the promise of new technology & markets diverts our attention from simpler and more immediate opportunities.

“It is widely accepted that the greatest contribution biomass can make is through heat generation. Local heat generation is in particular need of support due to the relatively smaller scale and capacity of the developing businesses, and because early replacement of boilers will be essential to generate the scale to establish effective supply chains.”

Wood Burns

Energy Use in Developed Economies

- Heat
- Electricity
- Transport

Know Your Enemy

Fossil fuels have good handling and flow characteristics.
Fossil fuels have an established national supply chain.
There is a choice of suppliers in the marketplace.
Fossil fuels have been historically cheap.
(Most) fossil fuels are clean burning.
Fossil fuels have agreed standards.
Fossil fuels are energy dense.
Fossil fuels are:

“Business As Usual”
Know Your Enemy

Fossil fuels can have handling & transport issues (coal).
Fossil fuels are polluting (oil) or dangerous (LPG / gas).
Fossil fuels fluctuate with international market prices.
Fossil fuels can cause localised air pollution (coal).
Fossil fuels release fossil CO₂ to the atmosphere.

Using fossil fuels in a business increases the carbon intensity of production and reduces international competitiveness. FACT!

Know Your Customer

Because your customer has only ever had fossil fuel, they have certain expectations…

They expect their fuel to be provided automatically;
They do not expect to de-ash their boiler (coal the obvious exception);
They expect their fuel to be smokeless (again, coal is the exception);
They expect their fuel supply to be reliable and seamless;
They expect their fuel supply to be supplied to a standard (which they do not need to comprehend!);
They do not (currently) expect to have a large fuel store on site.
A Typical Customer - NZ Case Study

An amalgamation from Living Energy’s involvement in EECA’s *Renewable Heating in Schools Programme*

6 schools (1 primary and 5 high) on North and South Islands
All coal to woodchip conversions using 2 boiler types:

- Thames High School, Thames
- Henderson Valley School, Waitakere
- Westland High School, Hokitika
- Golden Bay High School, Takaka
- Dunstan High School, Alexandra (2 systems)

The Challenge of Automation

Existing coal boiler fuel delivery/recovery/transport already automated to a greater or lesser degree.
The Challenge of Automation

Chip will interlock to bridge augers, create vertical ‘walls’ and be generally uncooperative.

- Flatten bunker floor
- Rotary arm agitator
- Open top auger
- Agitates fuel faces, eliminates bridging & gives excellent chip recovery - automation.

The Challenge of Automation

Further automation achieved with:

- Full computer control & integration with existing heating controls:
  - Automatic ignition - oil or gas for wet fuel, electricity for dry fuel;
  - Automatic burn-back protection;
  - Automatic tube cleaning;
  - Automatic de-ashing;
  - Dial-in boiler tuning;

As close to an oil or gas boiler as possible!
The Challenge of Quantity

Woodchip is considerably less energy-dense than most coal.
The Challenge of Quality

Fuel availability is an influence on both boiler and fuel handling, e.g.:

- **Dry Fuel Available?**
  - YES
  - NO

- **Full Automation Required?**
  - YES
  - NO

- **Step Grate Boiler or Pre-Dryer**

- **High Ash Fuel?**
  - YES
  - NO

- **Guaranteed Long-Term Availability?**
  - YES
  - NO

- **Underfed Hearth Boiler**

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The Challenge of Quality

Fuel quality is a huge issue.

There is only one way to get it right, and lots of way to get it wrong!

- **Too wet**
  - Poor/no firing
  - Excessive use of ignition system & fuel
  - Excessive smoking
  - Incomplete combustion
  - Mouldy fuel (farmer’s lung)
  - Excessive ash
  - Poor performance in blowers
  - Increased delivery frequency & therefore higher cost
The Challenge of Quality

Poor size control - unable to blow deliveries
  Auger jams & bridging
  Rotary valve jams (where present)
  Fuel recovery system jams

In turn, poor fuel performance leads to:
  Lack of confidence in supply chain;
  Underdeveloped supply chain;
  Retarded uptake of woodfuel as an energy source
  Additional costs of boiler plant - over-spec./R&M.

9 out of 10 woodfuel boiler problems are fuel related.
There are better places to spend the money!

What the Future Holds...
Tyne Valley Timber Flows

Existing timber flows
Main 2007/08 woodfuel flows
2008 onwards add 10-15 per year

Scotts Sawmill, Wooperton
Taylormade Timber, Sherburn Hill

NEWCASTLE
HEXHAM

What the Future Holds...

Existing timber flows
Existing woodfuel flows
2010 onwards?

Ahead Lumber, Pokeno
Thames Timber, Kopu

THAMES
In Summary

There are increasing numbers of wood-fired boilers across New Zealand; The market potential for more is considerable;
There are, and will continue to be, multiple drivers/incentives for change;
The ability of sawmills and forestry companies to respond to this new and potentially lucrative market is variable;
But every company working along the wood supply chain has an opportunity to participate and benefit;
An experienced and reliable partner will help you turn your residues into revenues.

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