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**Nature's Flame Ltd**

**BANZ Wood Fuel Heat Plant Seminar**  
**09/05/2014**

**The Wood Pellet Perspective**



# Today's Presentation

1. A brief pellet history
2. Nature's Flame production and distribution
3. Nature's Flame customers
4. Case studies
5. Decision process
6. The future

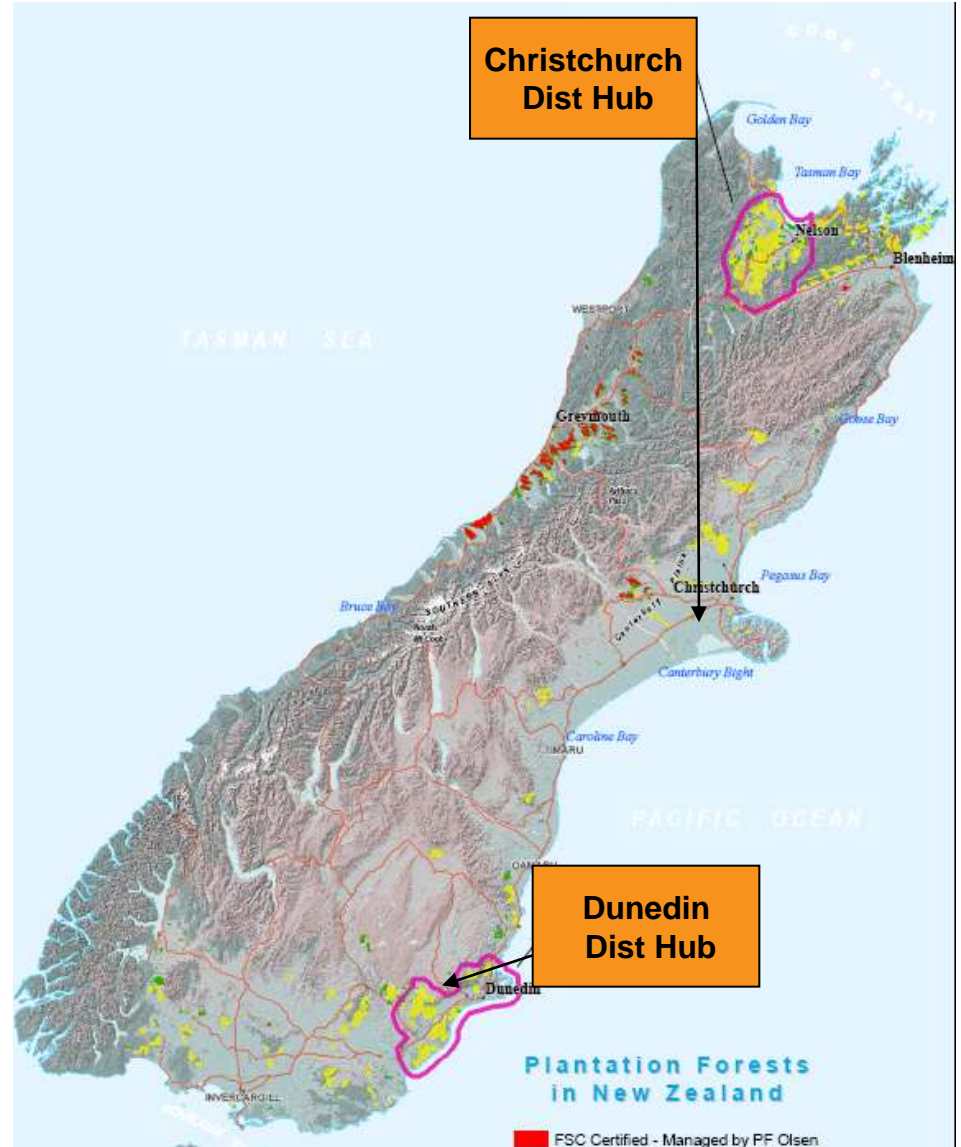
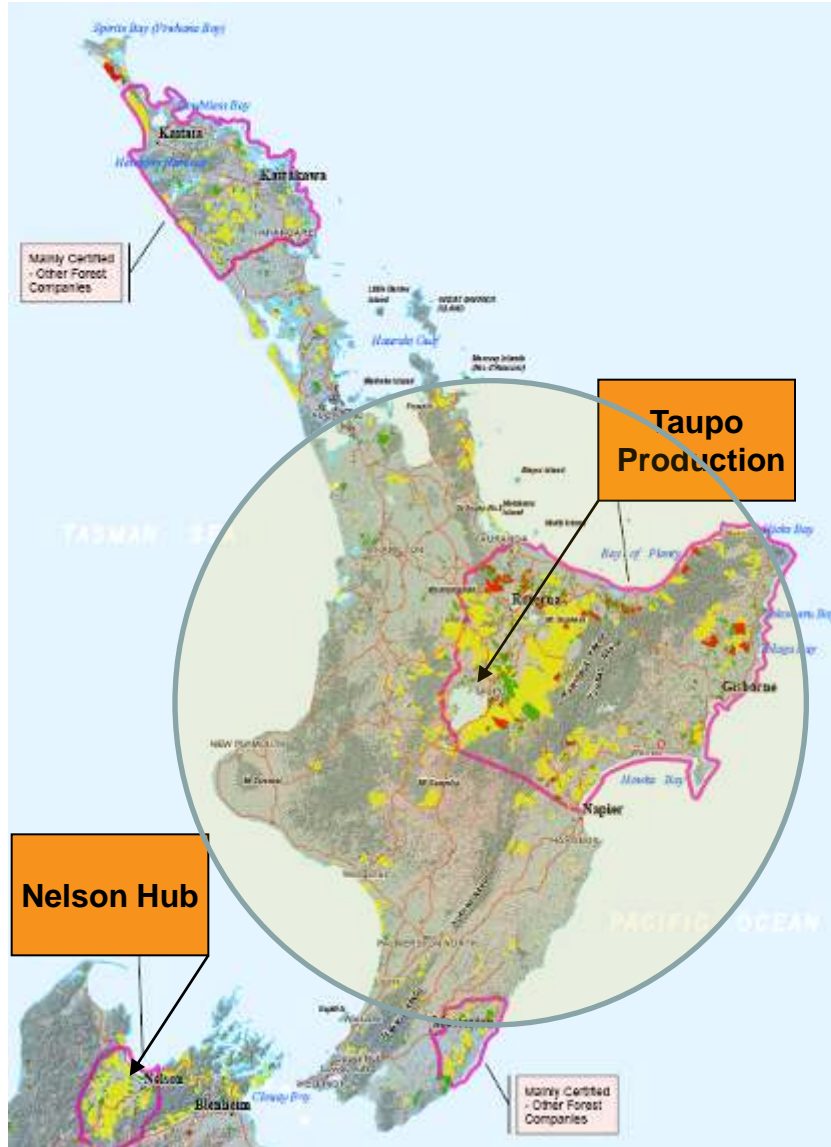


# A Pellet History

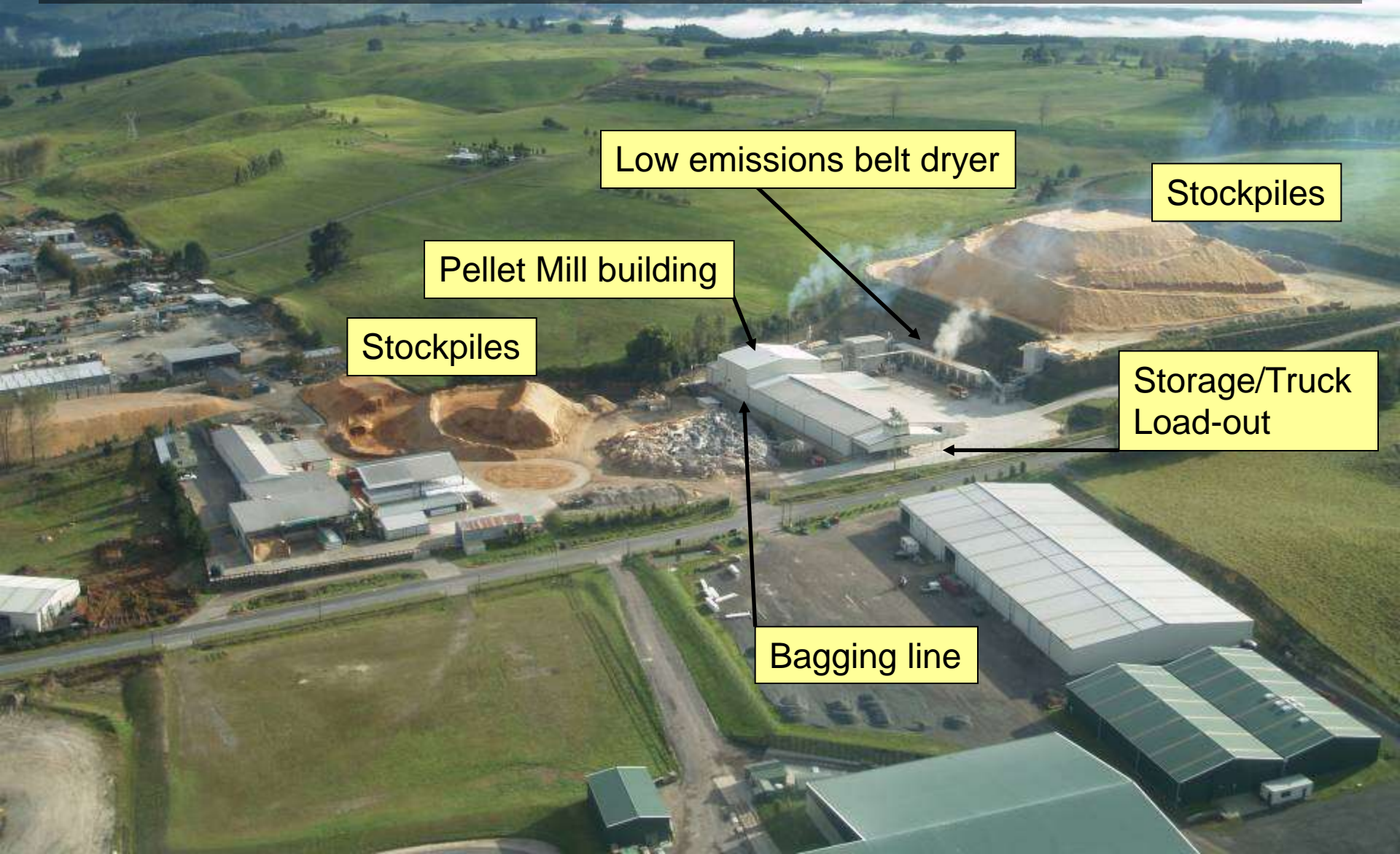
- **Boeing** – Densified wood for gas fuel, unsuccessful.
- **Canadians** – Use the pellets to develop pellet fires. Efficiency, Safety and automation.
- **Europe** – Developed the fires and boilers to incorporate bells and whistles.
- **Europe** – Designed wood pellet combustion technology around a pre determined pellet specification. – Standards
- **New Zealand** – 2003 Solid Energy entered the pellet sector.
- **NZ Today** – There are two main pellet producers and a few small scale producers. There are around nine types of pellet fuelled fires and boilers manufactured in mainly New Zealand, Canada, Austria, Germany and Italy.



# Nature's Flame infrastructure



# Typical Production Facility



Low emissions belt dryer

Stockpiles

Pellet Mill building

Stockpiles

Storage/Truck Load-out

Bagging line



# Fuel Specification

Specification	Measurement
Diameter	6mm
Length	<5 x d
Ash	
Additives	
Moisture	
Bulk Density	
Energy	
Particle Size	
Fines	
Chlorine	
Sulphur	

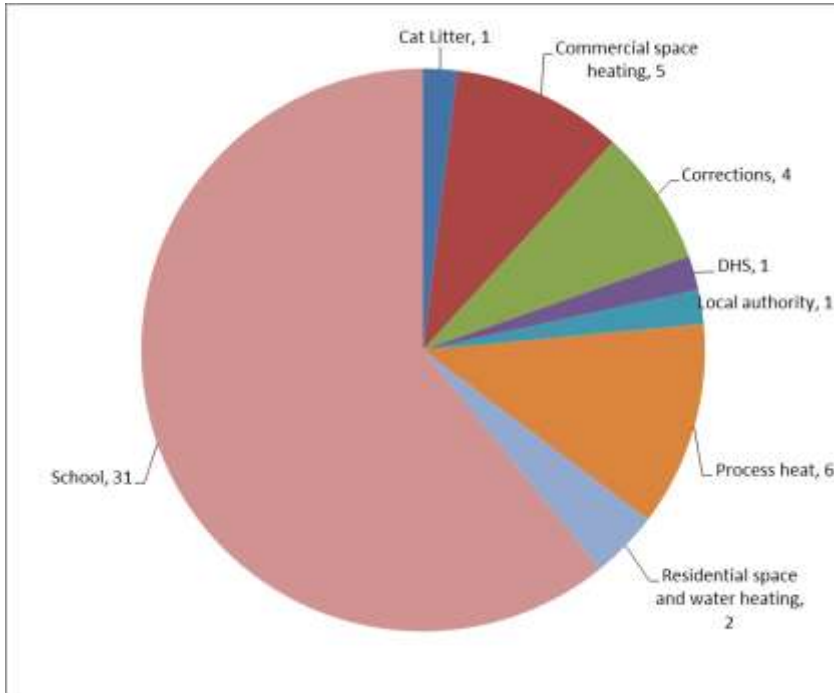
Don't worry about it.  
Just ask for "Din Plus" wood pellets



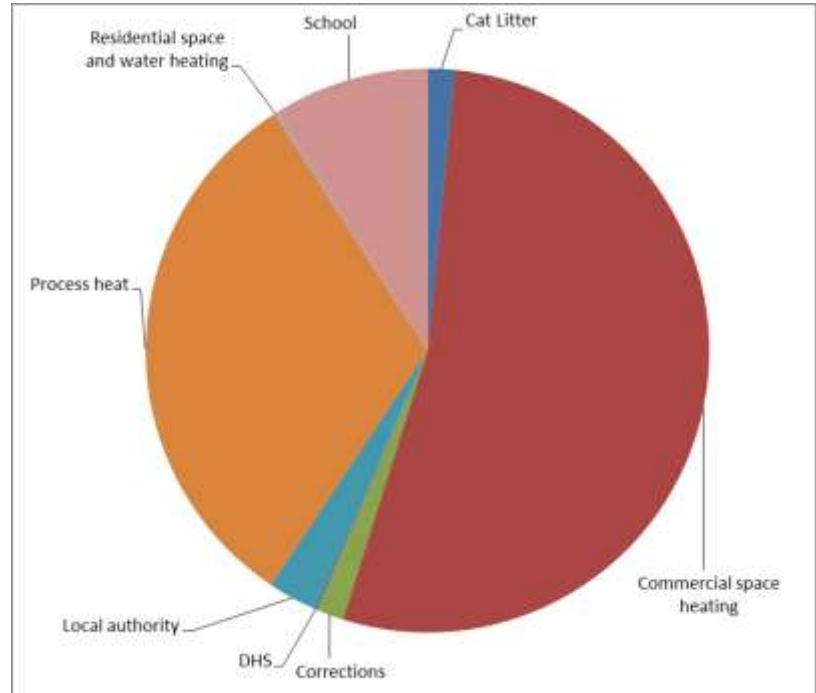


# Customer base

## Customer types by number



## Volume by customer type





# Case Study – Waiouru 8,000kW HPHW coal boiler conversion



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# BRANZ – 130/150kW ETA (chip/pellet)





# Nature's Flame – 6MW Co-firing





# WPI – RCR Co-firing





# J & E Paul – Glass houses





# Corrections Rangipo

- Birch – 1 x 150kW HDG
- North – 2 x 95kW ETA (Spark Energy)
- Hautu – 1 x 540kW KÖB (Spark Energy)
- Expansion to make better use of the KÖB





# KCDC Water Treatment Plant





# Natural Solutions – Process heat for Manuka oil extraction.





# The decision process:

- Decide what your drivers are, what's important to you? Capital, emissions, Gear replacement, automation, fuel availability.
  1. Start with the fuel; if there's no fuel contract, there's no point. Contract should allow for fuel spec, volume, continuity of supply and price over term.
  2. Technology that can use the fuel available; EU, NZ or conversion. Go multi fuel.
  3. Capital available.
  4. Warranties.
  5. Delivered heat solutions.
- Avail of the free initial feasibility service from Nature's Flame.





# The Future

- Sale of Nature's Flame
- Potential increase in production capacity
- New projects coming on line:
  - Swimming pools
  - Health centres
  - Process heat applications
  - New schools
  - Gasification technology to convert oil/gas boilers
  - DHS



# Questions

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