



# The Dunedin Energy Centre – Wood Conversion

Growing Commercial Wood Energy Opportunities

Stephen Jones – GM Industrial Energy Solutions

Murray Cowan – Wood Energy New Zealand

Tony Bastiaansen – Dunedin Asset Manager



# Pioneer Generation Southland Assets



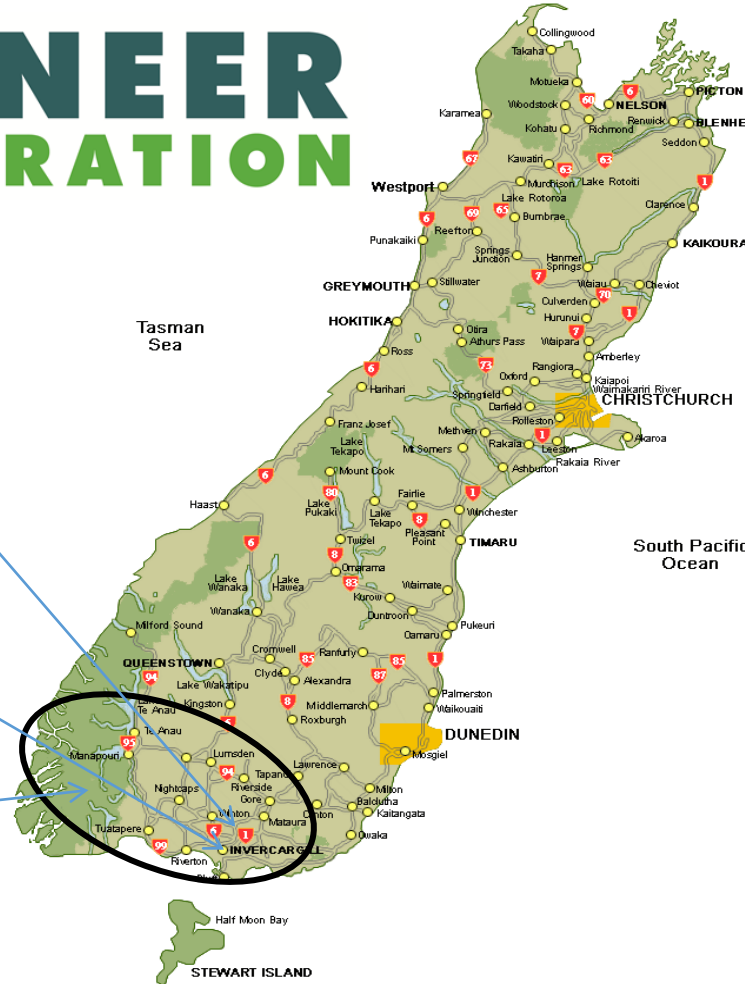
Invercargill Hospital Energy Centre



Flat Hill Wind Farm



Monowai Power Station



# Dunedin Energy Centre

## Growing Commercial Wood Energy Opportunities

- What is the Dunedin Energy Centre?
- Some wood energy fundamentals
  - Wood Energy economics in NZ
  - Carbon Benchmark – CEMARS
- Developing a Wood Supply Chain WENZ (Murray Cowan)
- Fuel Switching considerations at Dunedin Energy Centre (Tony Bastiaansen)
  - What we did – conversion
  - Lessons learned



# Dunedin Energy Centre - Overview

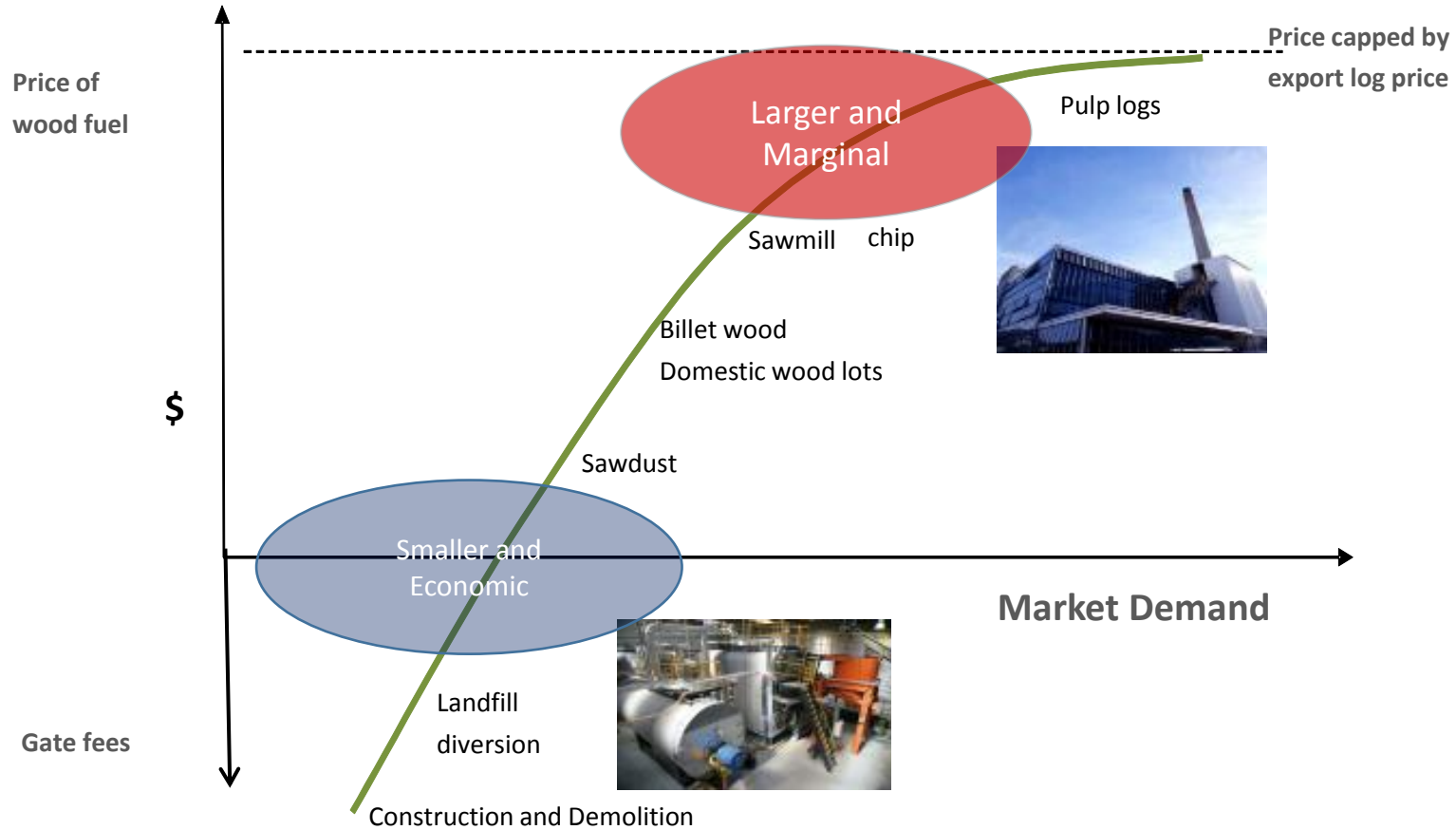




# Our Customers



# Wood Energy Economics in NZ



# Carbon Benchmarks



Accredited framework for companies to measure and manage their greenhouse gas emissions.



Accredited framework for companies to leverage their natural competitive advantage



# Developing a supply chain for a large scale wood fuelled boiler

- Raw Material

- Pulp logs
- Billet wood
- Forest Residues





# Developing a supply chain for a large scale wood fuelled boiler

- Site
  - Site needed to be reasonably close to the customer
  - Room to store up to 10,000 tonnes to allow for air seasoning over the summer
  - Covered storage with a concrete floor to prevent contamination



# Developing a supply chain for a large scale wood fuelled boiler - cont

- Logistics
  - Billet wood delivered in tip truck
  - Contractor stacks this in order to maximise space utilisation
  - Chip when down to required moisture content (one summer)
  - Weighed and moisture content recorded
  - Delivery to the customer



# Developing a supply chain for a large scale wood fuelled boiler - cont

- Quality/Specification Issues
  - Size
  - Moisture content





# Converting the Boiler – Issues and Solutions

- Initially not a lot involved in converting the DEC boiler to fire on wood chip.
- Staff buy-in and training



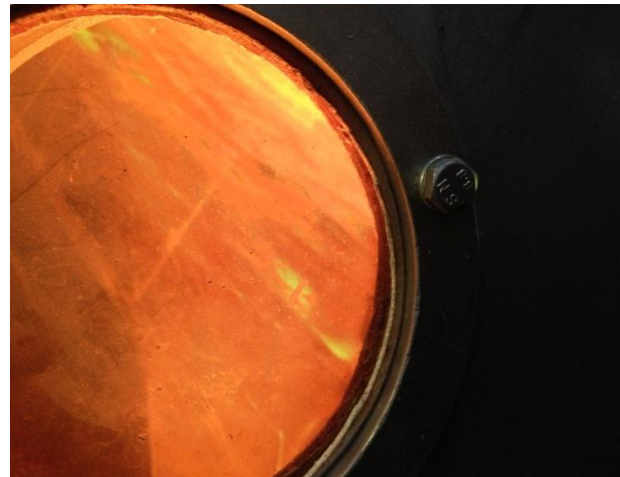
- Boiler rated capacity limited by the fuel feed rate from the spreader stoker type feeders
- Lower than expected wood fuel consumption.
- Minor operational issues associated with the use of wood fuel in equipment designed to operate on coal





# EFI install pneumatic type feeders (air swept spouts)

- Removing the capacity limitations
- Fixing the operational issues



# Outcomes



- Achieve the target wood fuel usage
- Exceeded capacity limitations
- Chip quality
- Minimal change out time from wood to coal
- Staff buy-in

