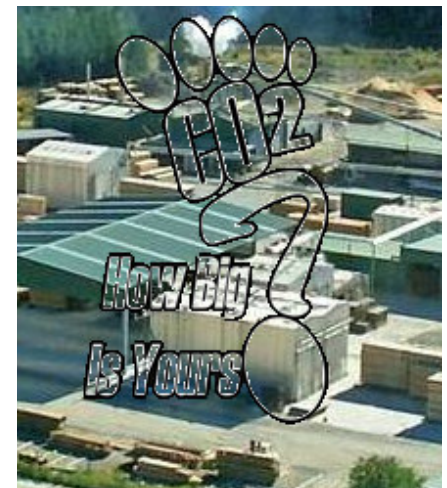


GHG Footprint

Nelson Forests Ltd





Introduction

- What?
 - MEM Project requirement
 - Technically based, but will focus on an area of management process or business
- Why?
 - Quantify climate change benefits of forestry and wood products
- Who?
 - Under taken in conjunction with MAF and Scion project “GHG Footprint for Primary Sectors – Forestry”
- When?
 - Scheduled completion February 2009
- How?
 - I will explain as I go



Forest Estate 2007

Carbon Storage and Removals

	P.rad	D.fir	TOTAL
Area (ha)	52,024	8,568	60,591
Age	16.9	26.9	24.6
CAI (m3/ha)	24.4	26.1	24.6
TAI (t)	-1,325,540	-233,305	-1,558,845
Removals (t)	1,212,504	180,045	1,392,549
Net storage (t)	-113,035	-53,260	-166,296



Nelson Forests Ltd

Carbon Balance (t CO₂)

Forest Operations

Carbon Stored	-149,666	
Forestry Operations Emissions	26,493	
		<hr/>
		-123,173

Kaituna Mill Emissions

Potential Coal Additionality Credits	-15,251	
Potential Fuel Oil Additionality Credits	-1,295	
Stored Carbon in Products	-6,674	
Kaituna Emissions	3,627	
Biomass (Carbon Neutral - 17,949 t CO ₂)	0	
		<hr/>
		-19,593

Net Storage/Emissions		-142,766
------------------------------	--	-----------------



Emissions – Forestry Operations

26,493 t CO₂ eq

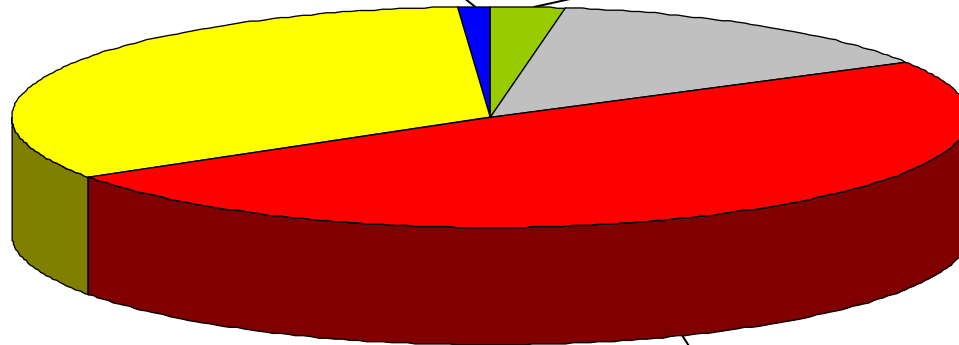
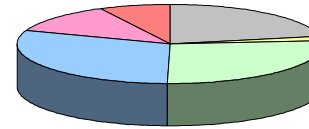
Staff Travel - 0.1 kg CO₂/m³

- 25% Air travel
- 75% Vehicle travel



Forest Operations - 0.5 kg CO₂/m³

- 22% Root Rake
- 2% Planting
- 27% Herbicide
- 30% Fertiliser
- 12% Thinning and Pruning
- 8% Inventory and mowing

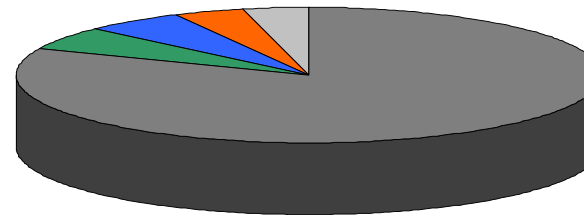


Total Emissions - 19.0 kg CO₂/m³

- 2% Forest Operations
- 14% Roding
- 49% Harvesting
- 33% Log Transport
- 1% Staff Travel

Harvesting Operations – 9.4 kg CO₂/m³

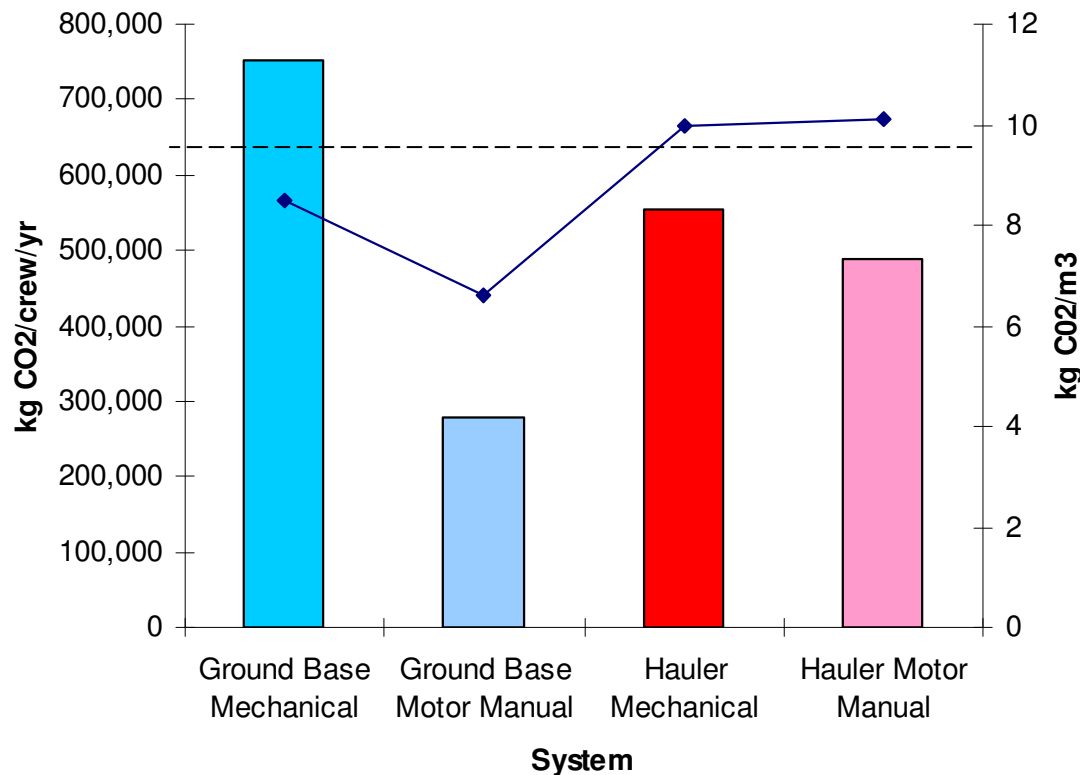
- 78% Diesel
- 5% Oil and Lube
- 6% Crew Transport
- 4% Chainsaws
- 3% Steel





Forestry Operations Reduction Opportunities

Carbon emissions and efficiency



- Maximising crew productivity will reduce the carbon intensity of the entire supply chain
 - Increasing production
 - Reduce number of crews
- If GVM increased from 44t to 62t
 - Transport emissions could decrease by 40%
 - Reducing total emissions by 10%
- If loaded km increased from 56.4% to 70%
 - Transport emissions could decrease by 14%
 - Reducing total emissions by 5%

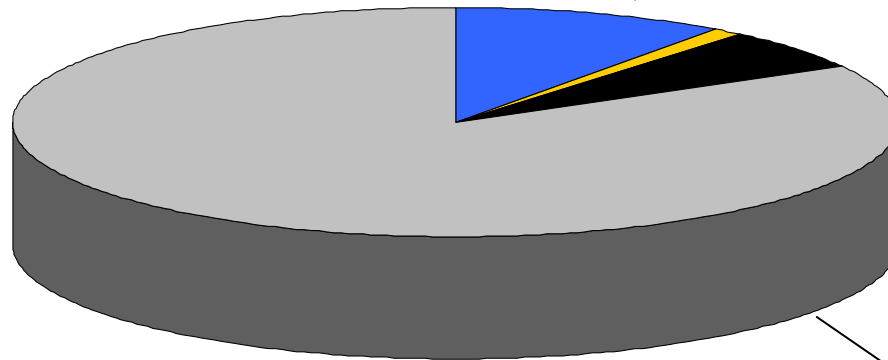
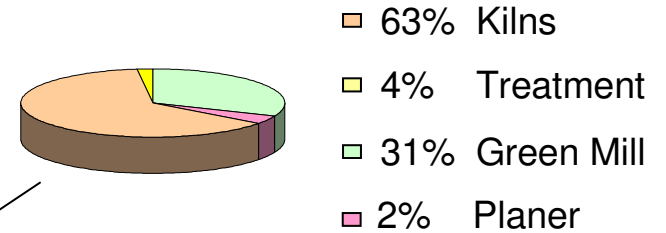


Kaituna Emissions

Total Emissions - 21,577 t CO₂ eq

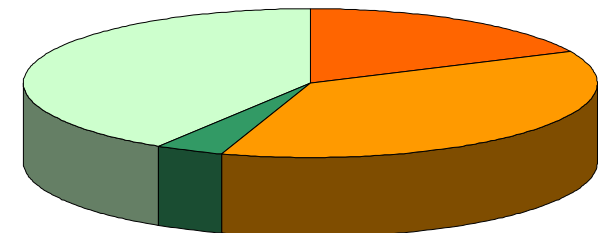
- 83% Biomass
- 10% Electricity
- 1% Diesel
- 6% Fuel Oil

Electricity Emissions - 2,144 t CO₂ eq



Biomass Emissions - 17,949 t CO₂ eq

- 18% In House Shavings
- 41% Imported Shavings
- 37% In House Saw Dust
- 4% Imported Saw Dust

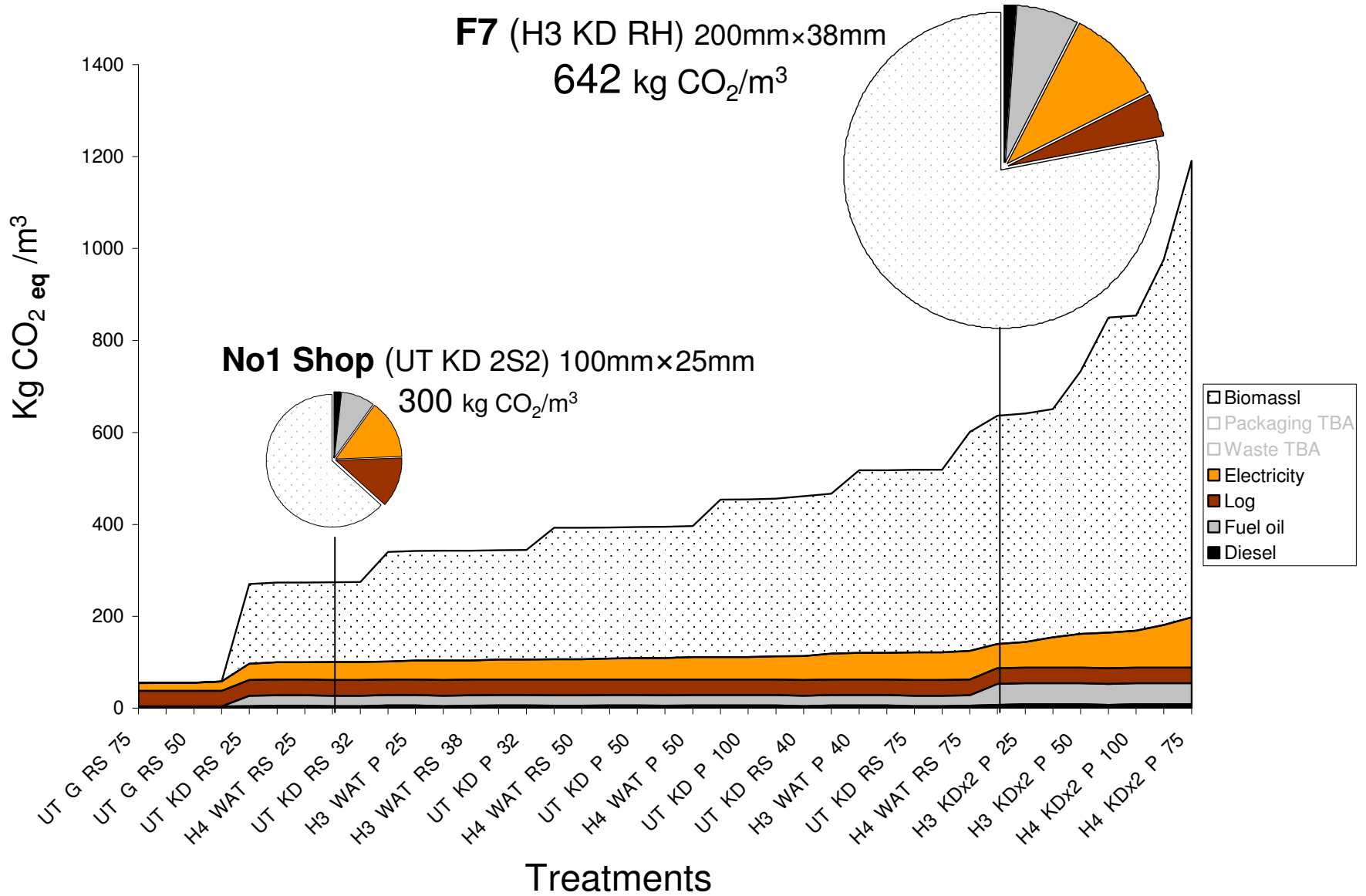


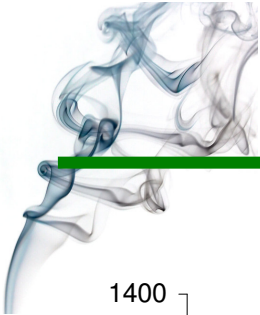
To Be Included

- Land Fill Waste
- Packaging Materials
- CCA Treatment

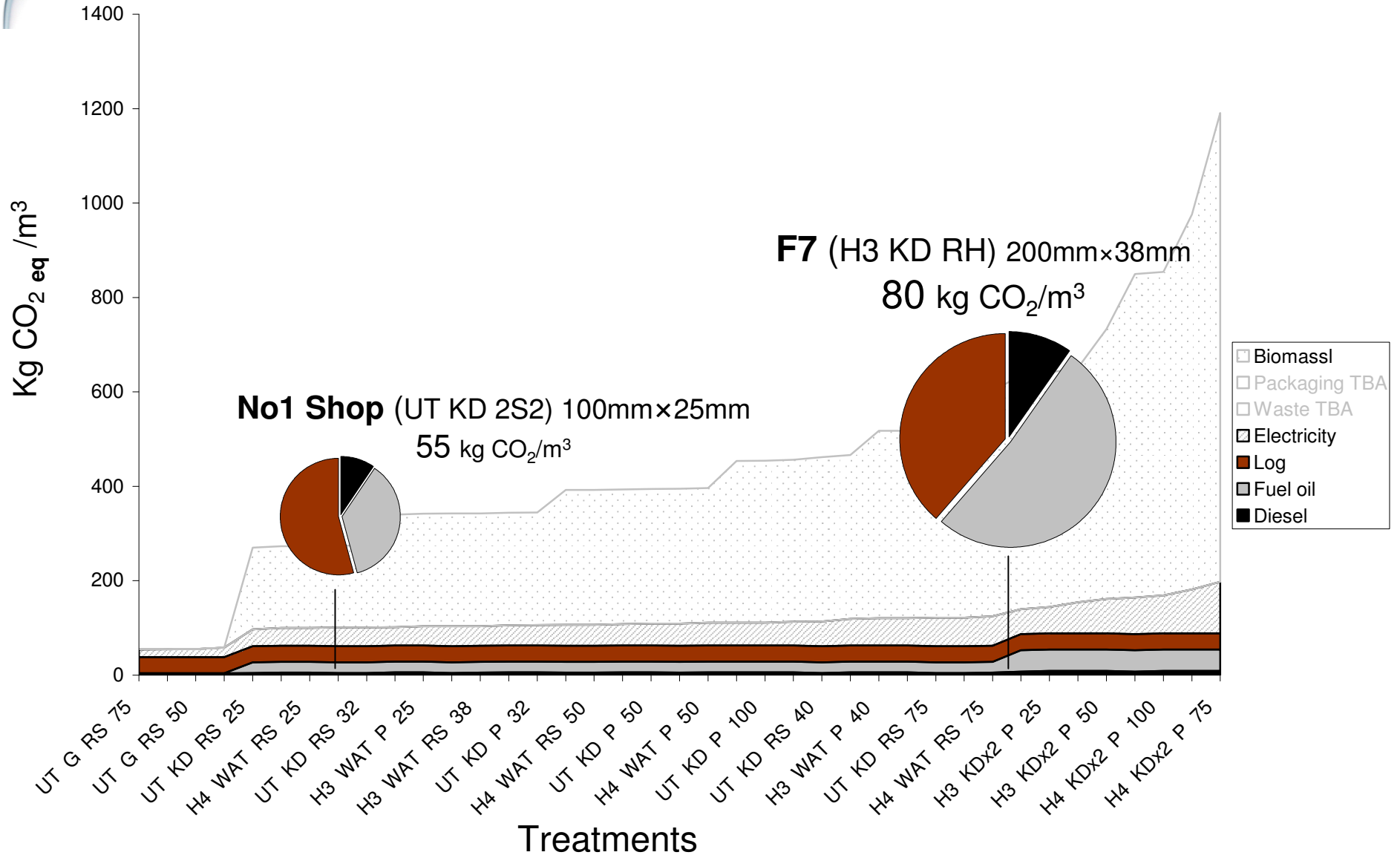


Product Emissions





Biomass and Electricity are Carbon Neutral !





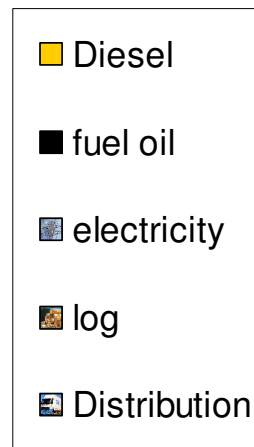
Distribution

- Depending on accounting method, product and destination, distribution can account for up to 70% of carbon emissions.
- International ocean freight can be more carbon efficient than domestic transport? This could be used to argue against “wood miles”!

IND (UT G RS) 200mm×75mm

Kaituna to Invercargill - 90 kg CO₂/m³

Kaituna to Melbourne – 54 kg CO₂/m³

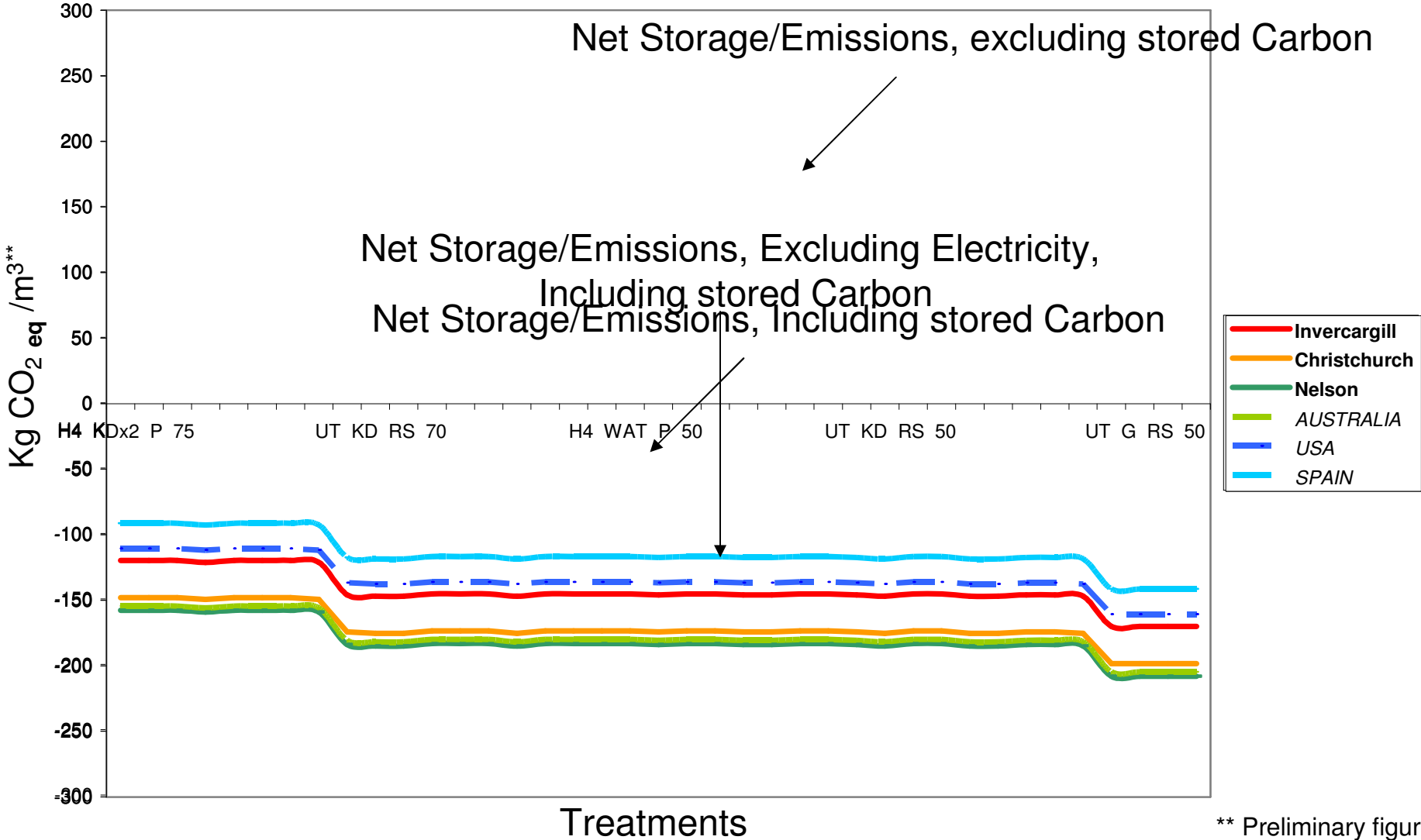




Stored Carbon in HWP

- The most often quoted benefit of wood as a building material, and possibly one of the least understood by the public is the pool of carbon in wood products.
 - Timber embodies approx. 900 kg CO₂/m³
 - 27% of this embodied CO₂ is still in service after 30yrs in long life building materials
 - 243 kg CO₂/m³ could be claimed as “stored” carbon

Product Carbon Storage



** Preliminary figures

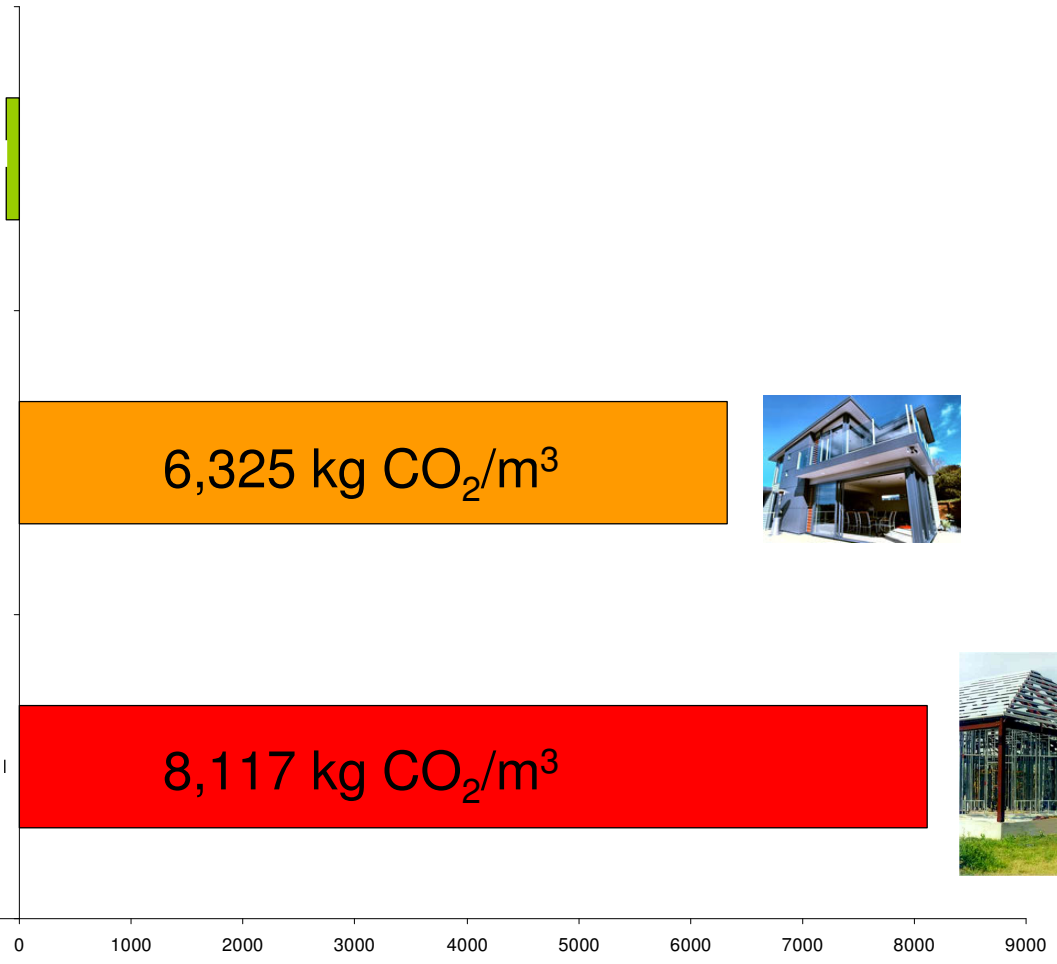


Comparisons with Other Materials

Average inc. electricity
-105 kg CO₂/m³



Timber



Aluminium

6,325 kg CO₂/m³



Steel

8,117 kg CO₂/m³





Where to From Here?

- Capitalising on the benefits and creating competitive advantage for wood and NFL?
 - Additionality?
 - Brochure?
 - Carbon Label?
 - Carbon Credits?
- Identify target areas where significant reductions can be made
- Quarterly, yearly reporting to track progress
- Audit