

Trees – New Zealand's future oil wells?

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Sustainable forest management



Breeding



Wood quality



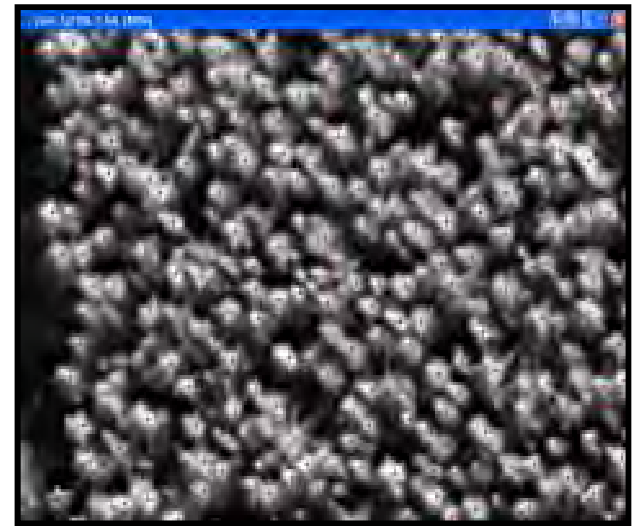
Harvesting



Alternative species



Biosecurity



Carbon and Climate

Building our biomaterials future



Solid wood processing



Fibre products



Biomaterials



Fine chemicals



Bioenergy



Waste conversion

Protecting our environment



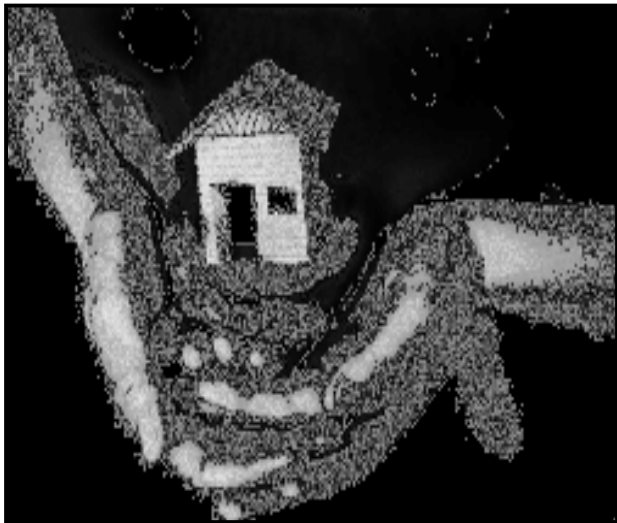
Land management



Remediation



Ecotoxicology



Social acceptance



Ecosystem services



Green design

Some numbers





New Zealand Forest Resource

Plantation forest

- 7% landmass (1.8M ha)
- Productivity 40-50x natural forests
- Harvested 18-28 years

Protected natural forest

- 24% landmass (6.5M ha)

Forestry sector contributes

- 4% NZ GDP
- 8% export earnings (\$3.2B 2008-9)

Plantation composition (%)

<i>Pinus radiata</i>	89.0
Douglas fir	6.4
Eucalyptus spp.	1.8
others	2.8

1000 tonnes

Carbon stored by a plantation forest tonne CO₂/ha

1000 tonnes



NZ GHG emissions 2008

48.482 million tonnes

\$215,211

GDP from each new forestry sector job

\$215,211



Currently

18730 employees

37% forestry

63% wood manufacturing

70%

Percentage of harvest exported as logs

70%



50%

Amount of log converted to structural timber

50%



87.1 million litres

Biofuel from Bay of Plenty wood waste

87.1 million litres



BOP uses:

31.3 ML diesel

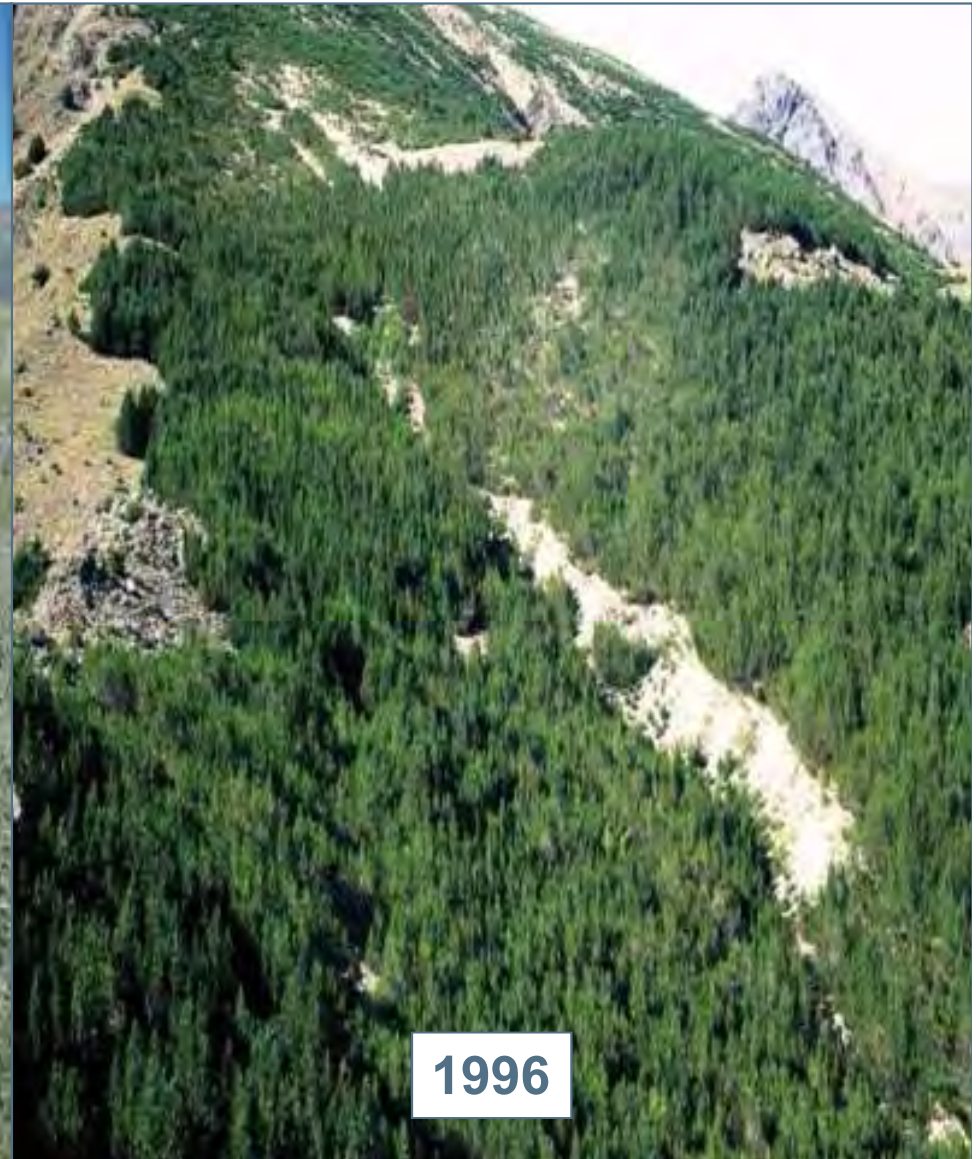
26.8 ML petrol

every year



The opportunity

Biomass potential



Location



+

Risk



=

Quality



 Opportunity

Structural systems in the built environment



Interior design opportunities



Replacing plastics and metals



Bio-composites

Smart packaging and FMCG



Replacing fossil fuels



“Bio-coal”



“Bio-oil”

Replacing fossil fuels

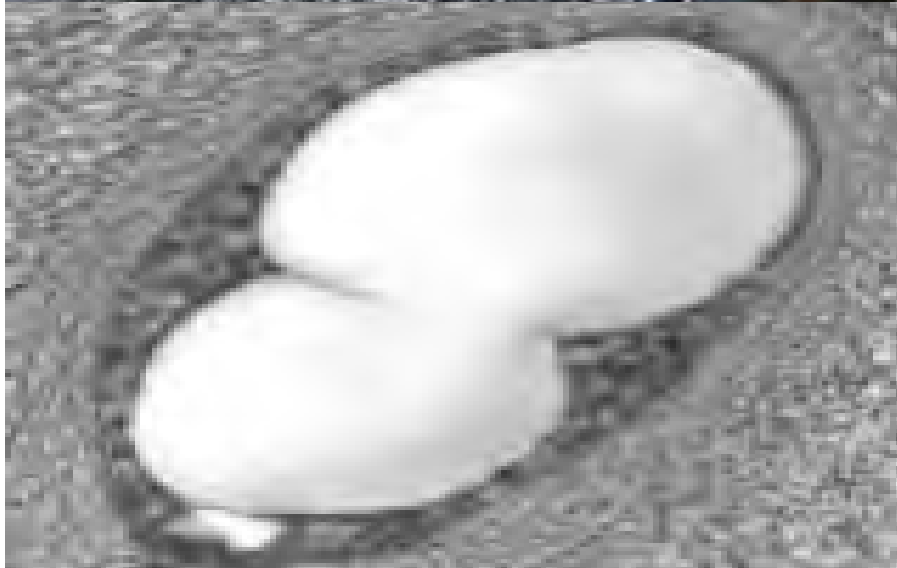


“Bio-petrol”

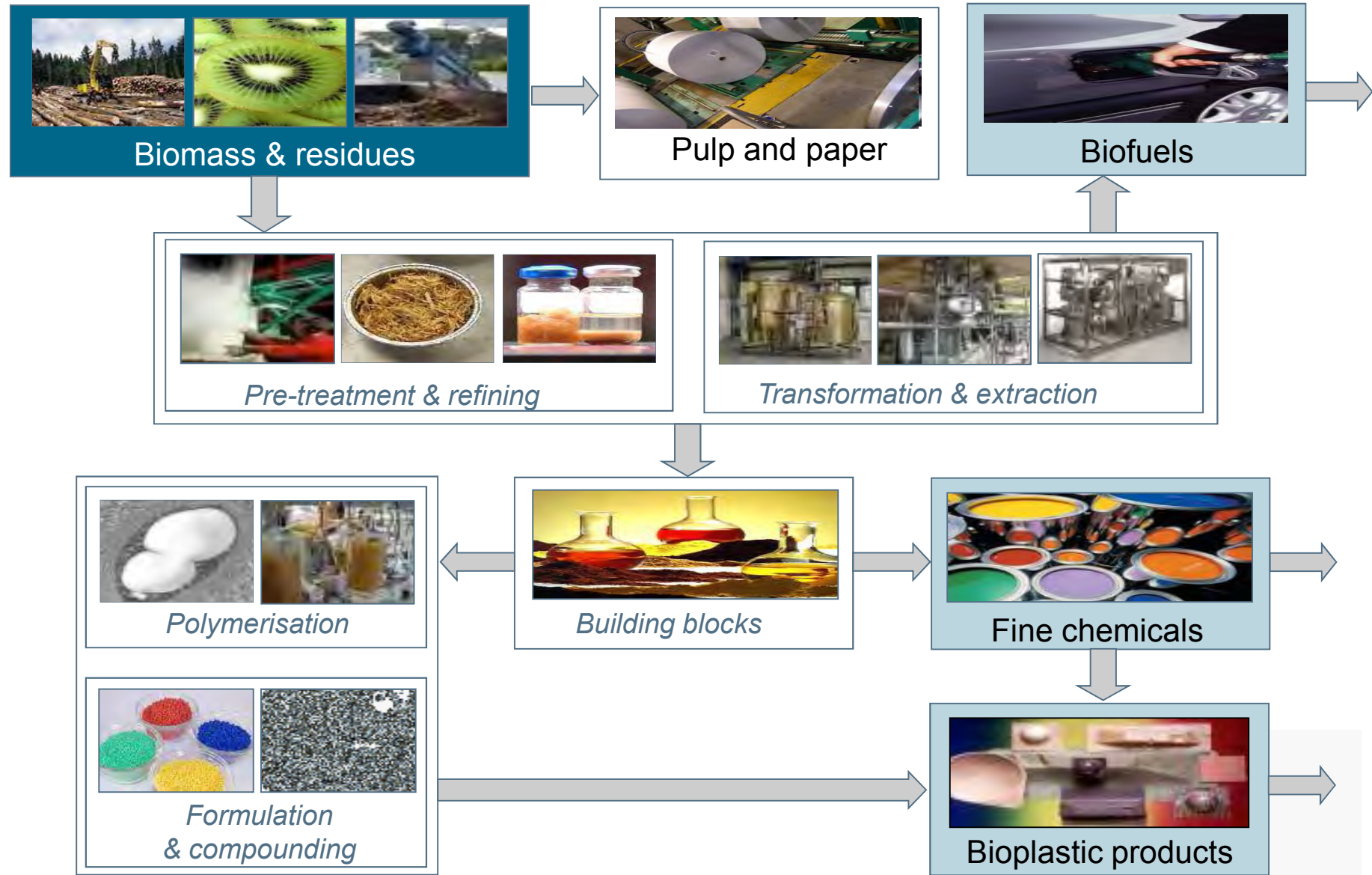
Waste to Gold



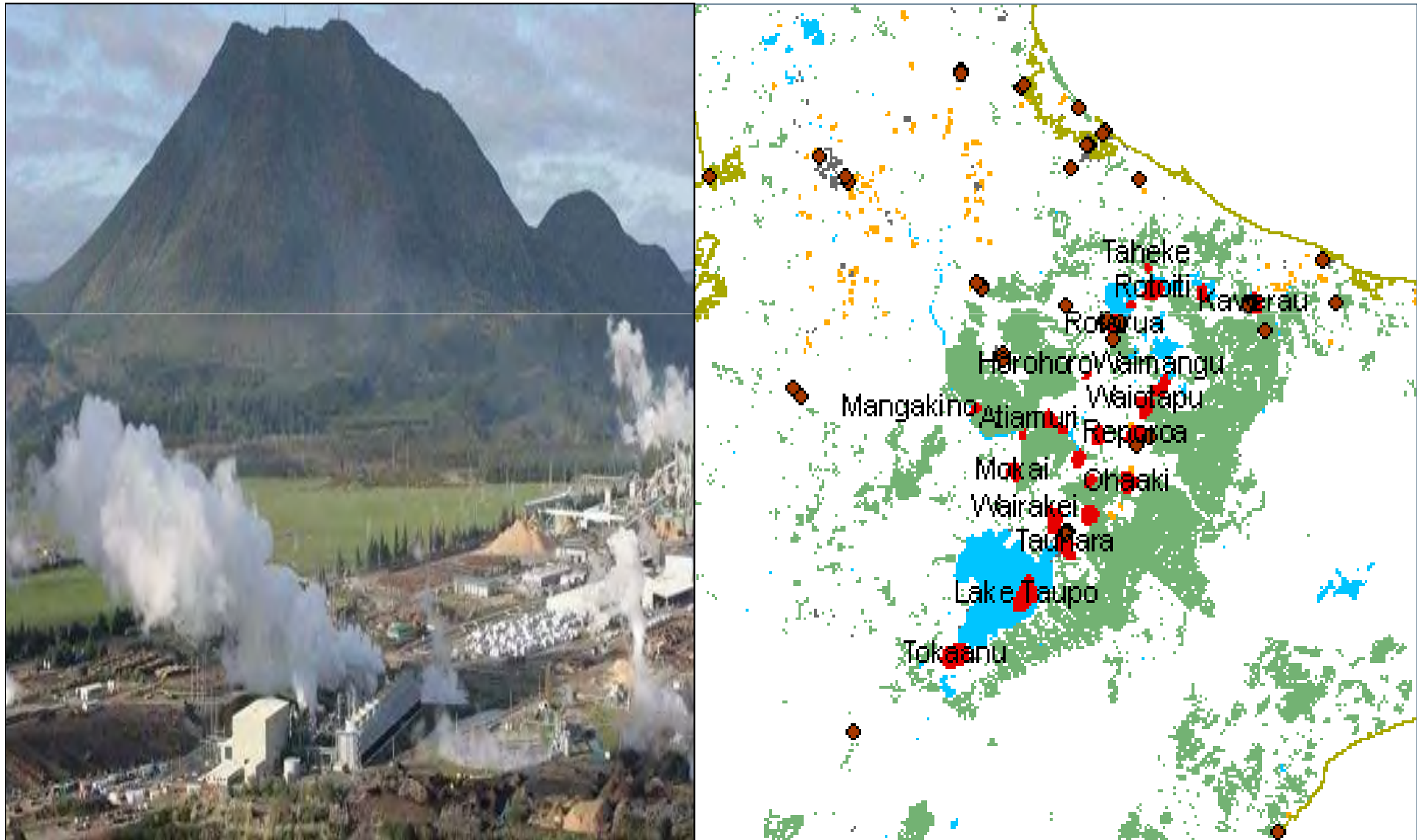
Grow your own plastics



Integrated biorefineries



Convergence of natural resources





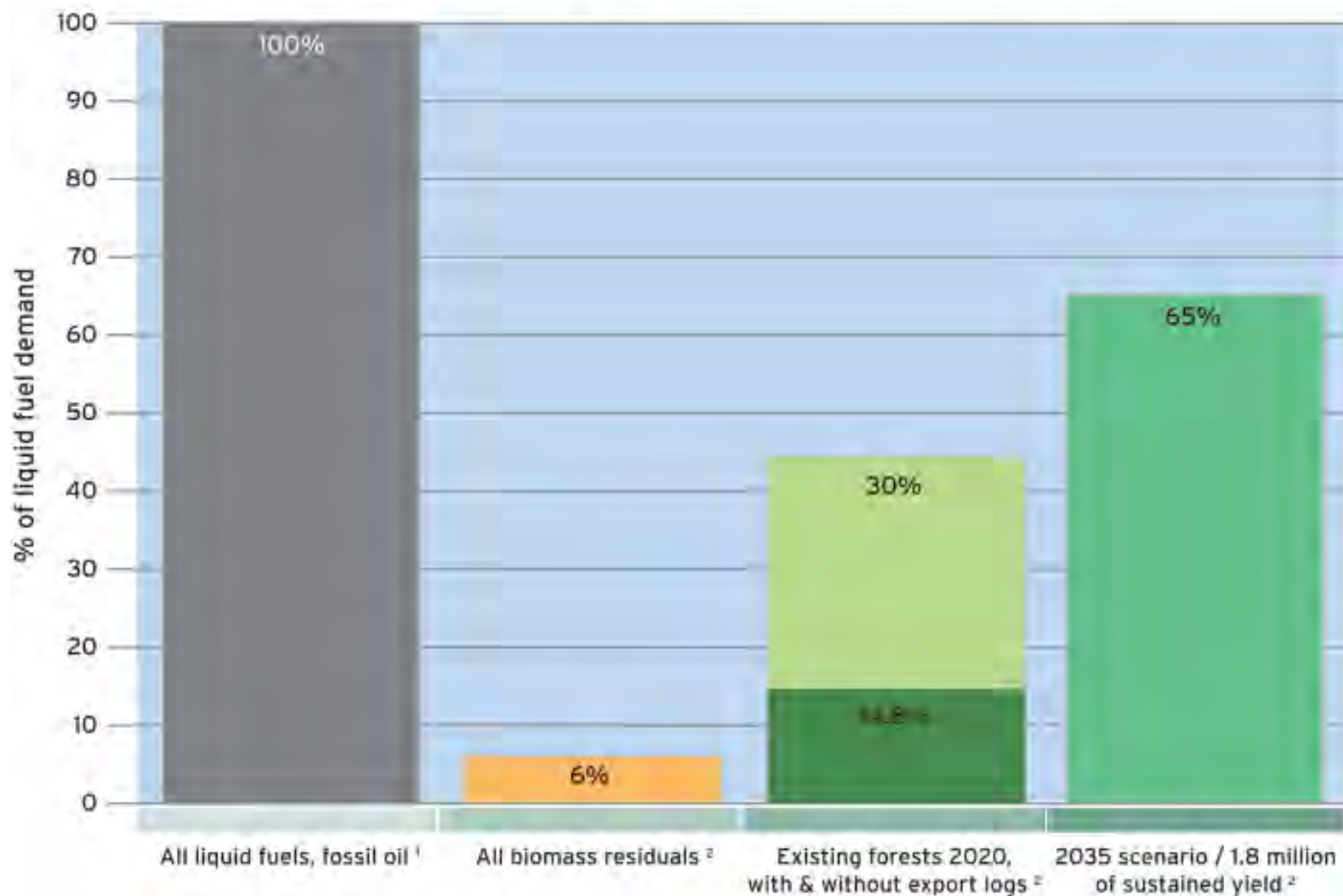
The benefits

Large-Scale Bioenergy Scenario



- Utilise marginal land
- 74,000 ha/y new forest
- 1.8 M ha of new forest by 2035

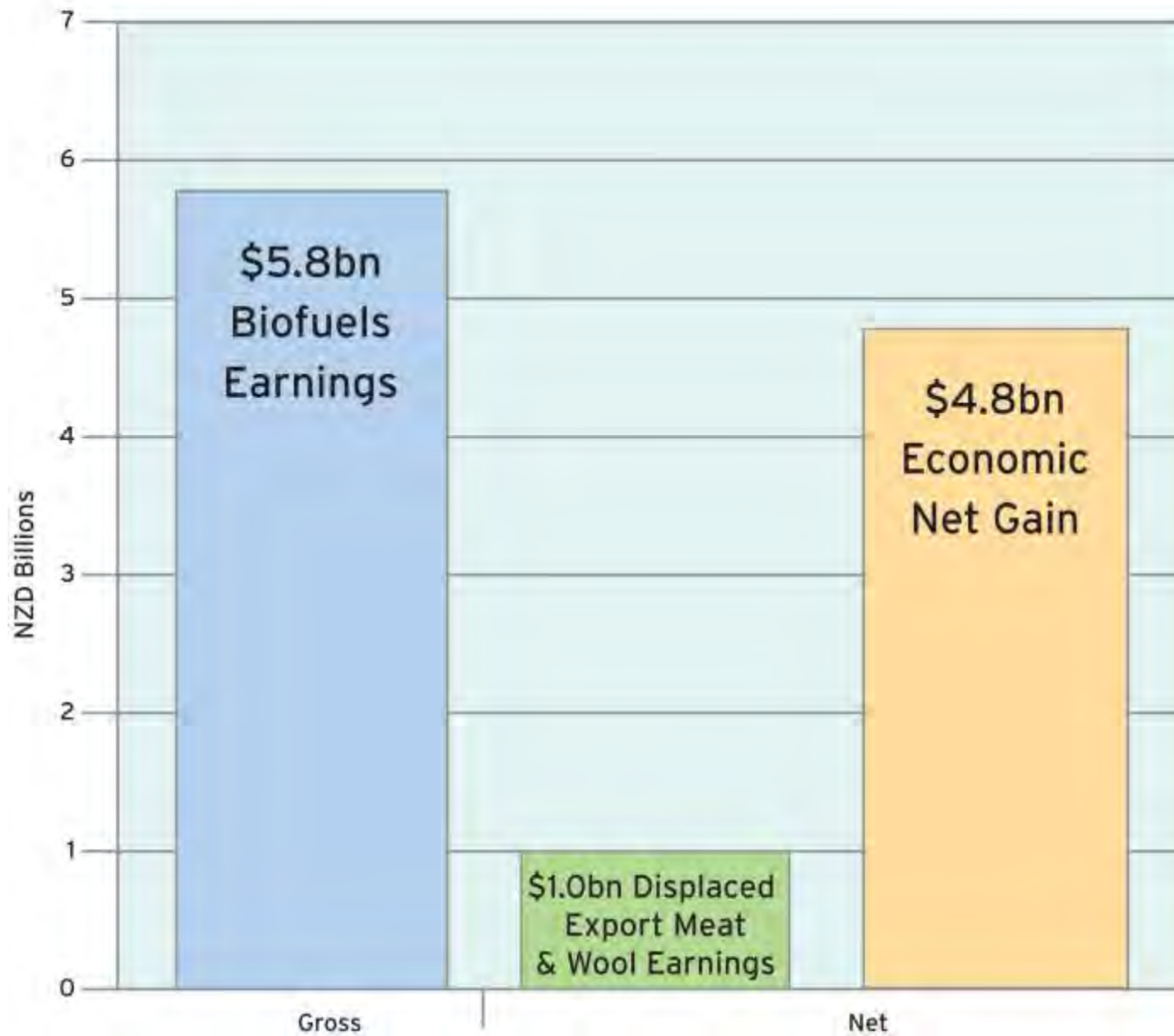
Liquid fuel demand versus potential biomass supplies



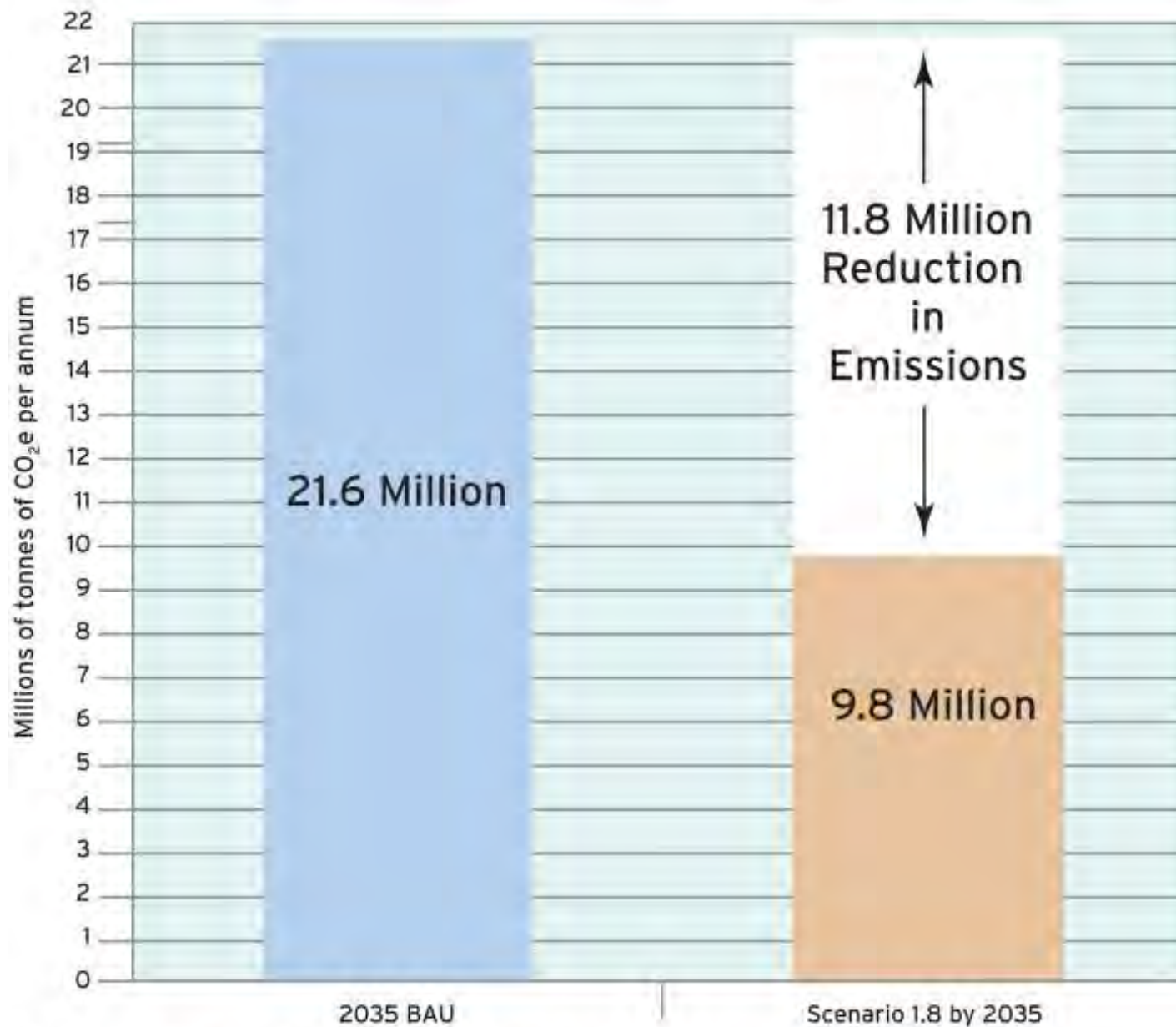
Reference - ¹ Ministry of Economic Development, New Zealand's Energy Outlook 2009

² Scion Bioenergy Options Studies

Biofuel production improves terms of trade



Transport GHG Emissions Profile



Reference - Ministry of Economic Development, New Zealand's Energy Outlook 2009.

Current forest products sector

INPUTS

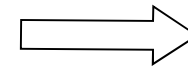
Land
People
Values
Plants
Energy
Sunshine
Soil
Water

FOREST



OUTPUTS

Timber
Pulp & Paper



\$5 billion/yr

Future forest products sector

INPUTS

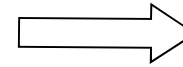
Land
People
Values
Plants
Energy
Sunshine
Soil
Water

FOREST



OUTPUTS

Timber



\$5 billion/yr

Pulp & Paper

Smart packaging

Biofuels & bioenergy

Ecosystem services

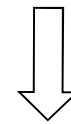
New biomaterials

Fine chemicals

Pharmaceuticals

Fertilisers

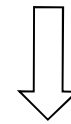
Waste recovery



New
Products

New
Markets

New
Revenue



5 x multiplier



SCION 

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