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BIOGAS

LIQUIDBIOFUELS

WOODENERGY

"Business, Climate Change and Regional Economic Growth Through Substituting Fossil Fuels with Biomass"

By re-envisioning new products/services and supply chains through authentic business collaboration

John Gifford: Programme Leader, Wood Energy Interest Group

: Gifford Consulting

http://www.worldometers.info/world-population/#top20

Population clock : New Zealand

4,726,161

as at Monday, 24 Oct 2016 at 06:09:47 p.m.

New Zealand's population is estimated to increase by one person every 5 minutes and 2 seconds.

This is based on the estimated resident population at 30 June 2016 and the following forecasts:

- one birth every 9 minutes
- one death every 15 minutes
- a net migration gain of one New Zealand resident every 6 minutes and 29 seconds.

http://www.worldometers.info/world-population/#top20

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The Question is How Can We Learn to Adapt?

We Need to Move – More Quickly And Innovatively

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Low Carbon Heat Market

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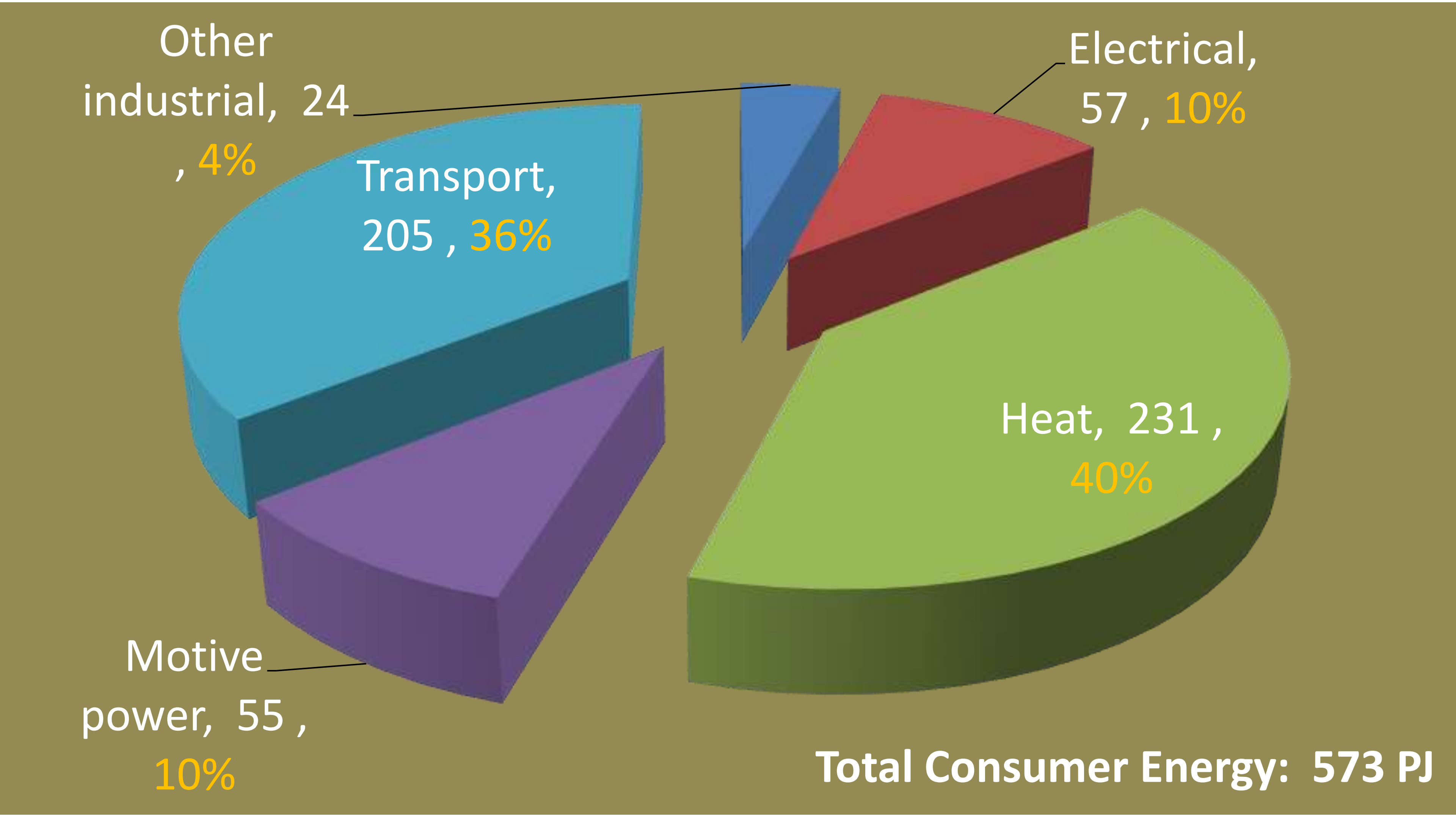
Consumer Energy:– End Use Share (PJ) - 2014



Source: EECA - 2016

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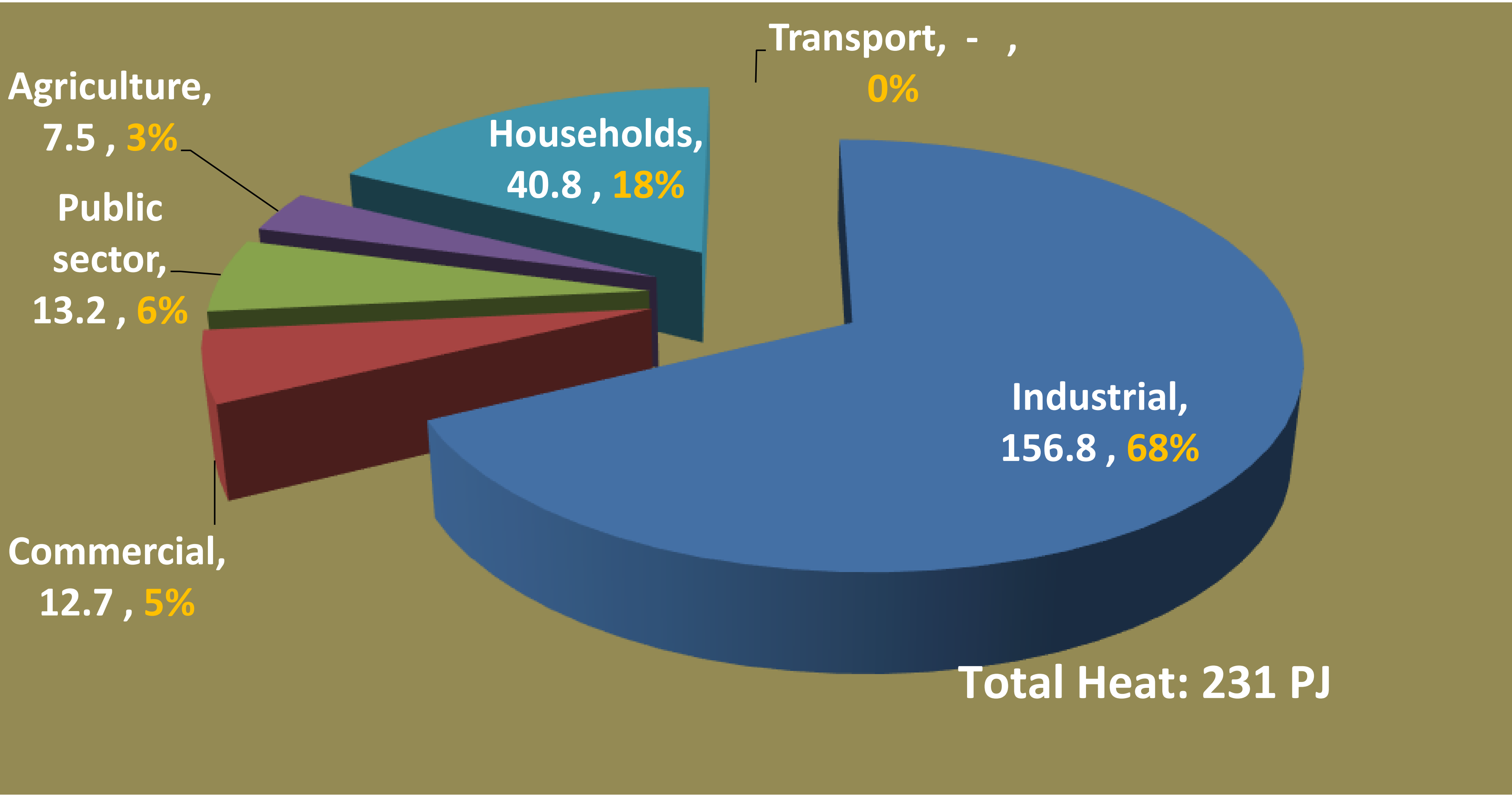
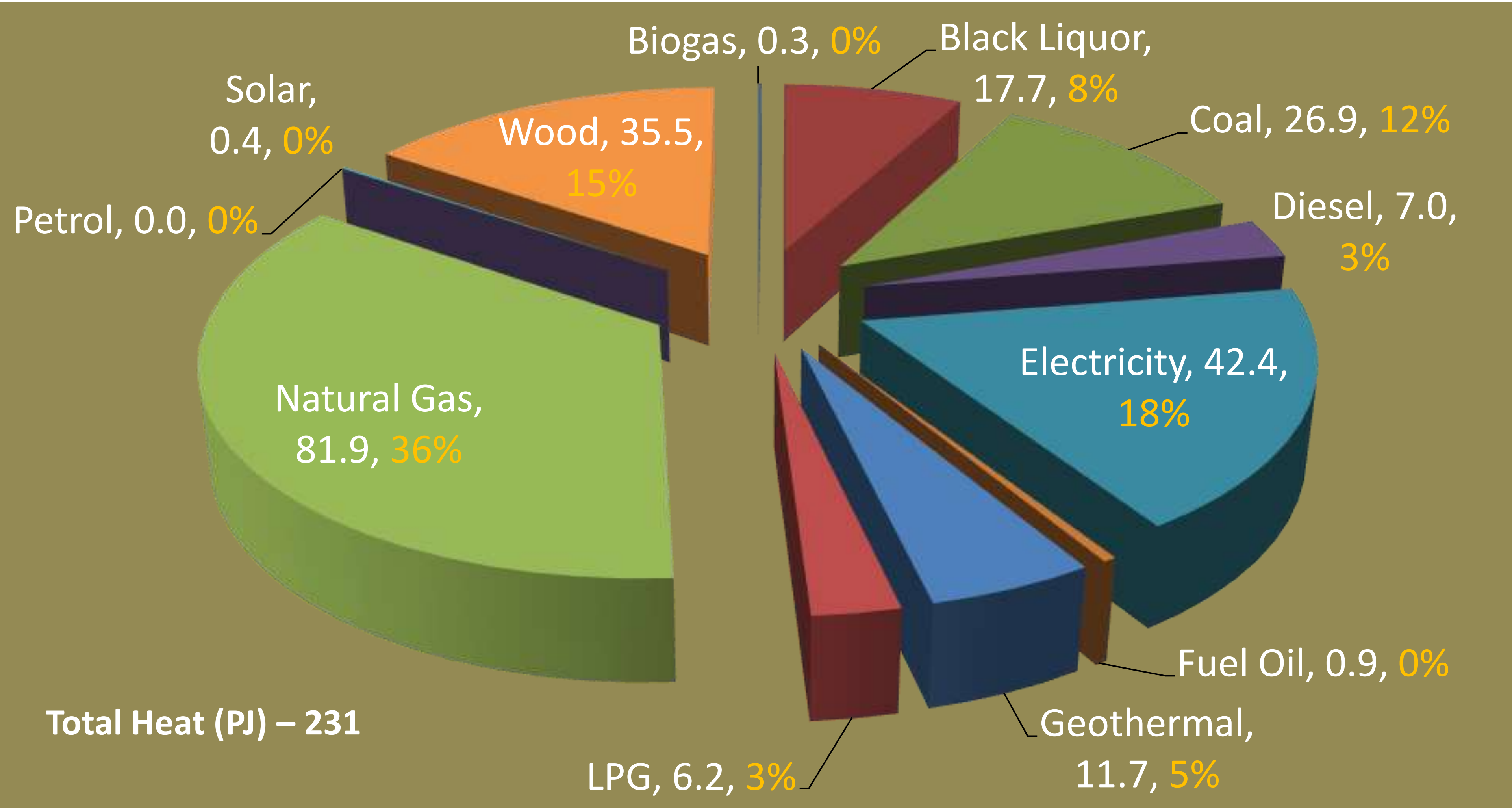
Consumer Energy: Heat – End Use Share (PJ) - 2014



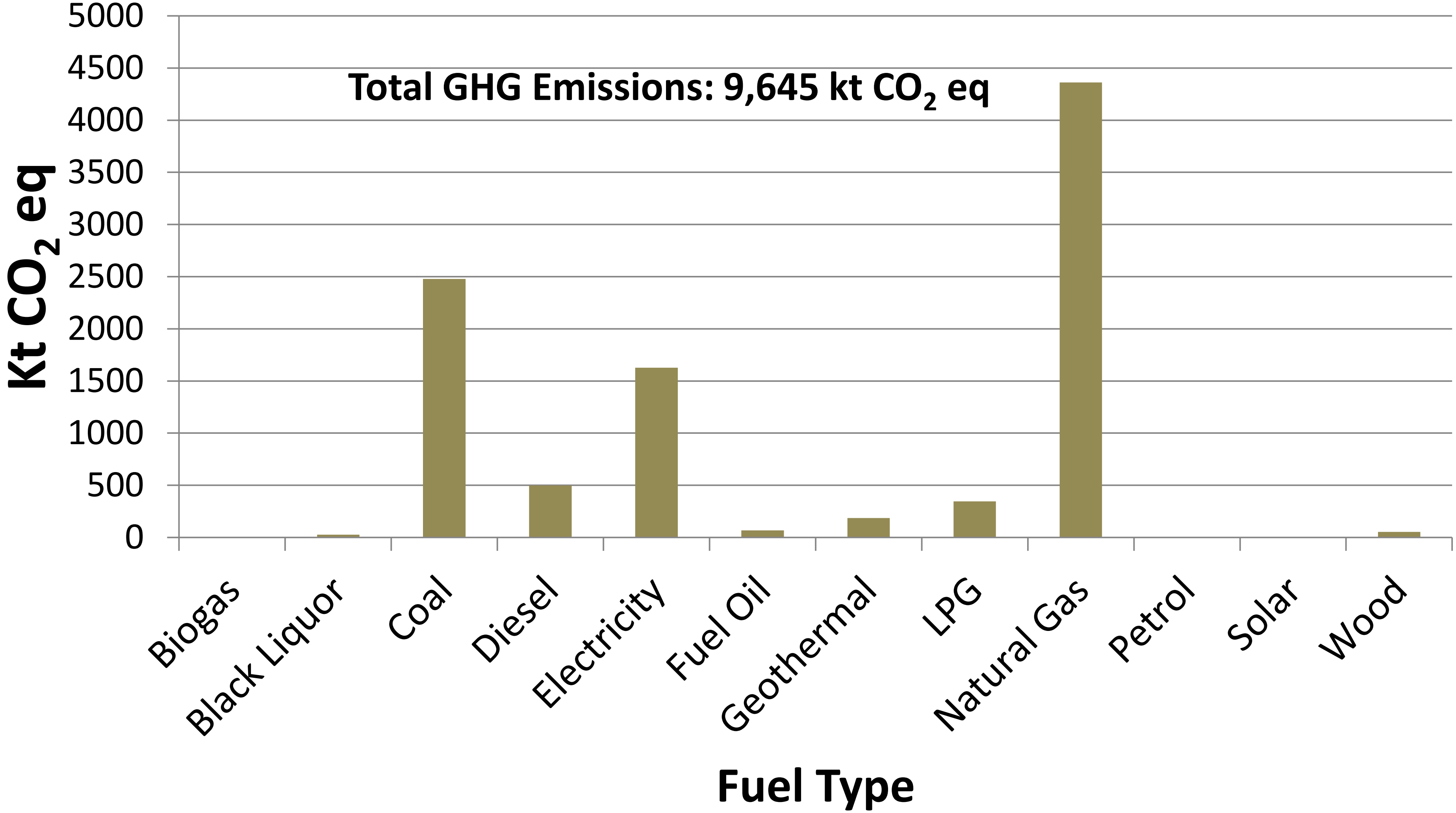
Source: EECA - 2016

Consumer Energy: Heat – Fuel Type Share (PJ) - 2014



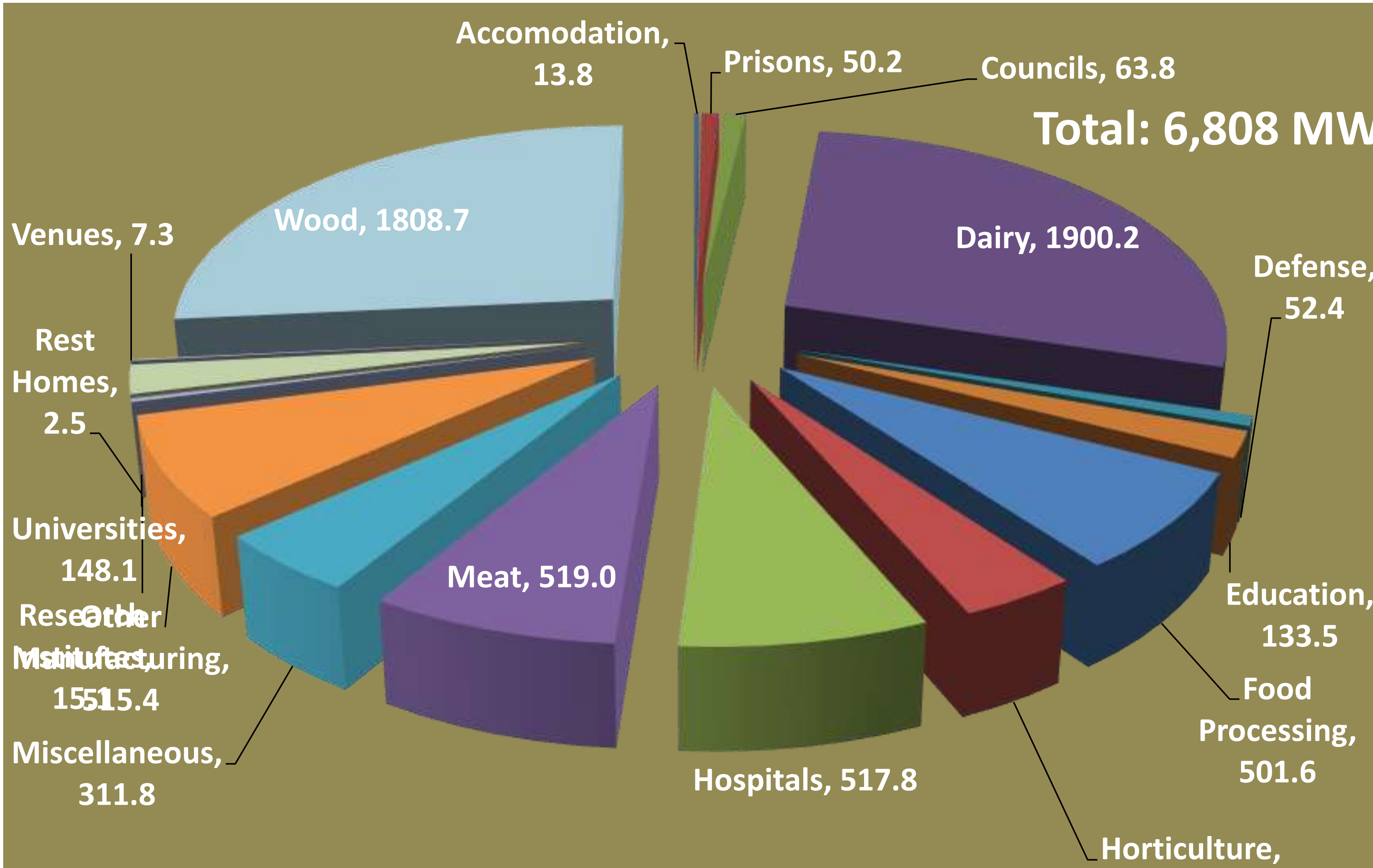
Source: EECA - 2016

GHG Emissions (Kt CO_2 eq)– Fuel Type Share – 2014 – Heat



Source: EECA - 2016

Heat Plant Capacity (MW) By Sector - Heat Plant Data Base (2014)



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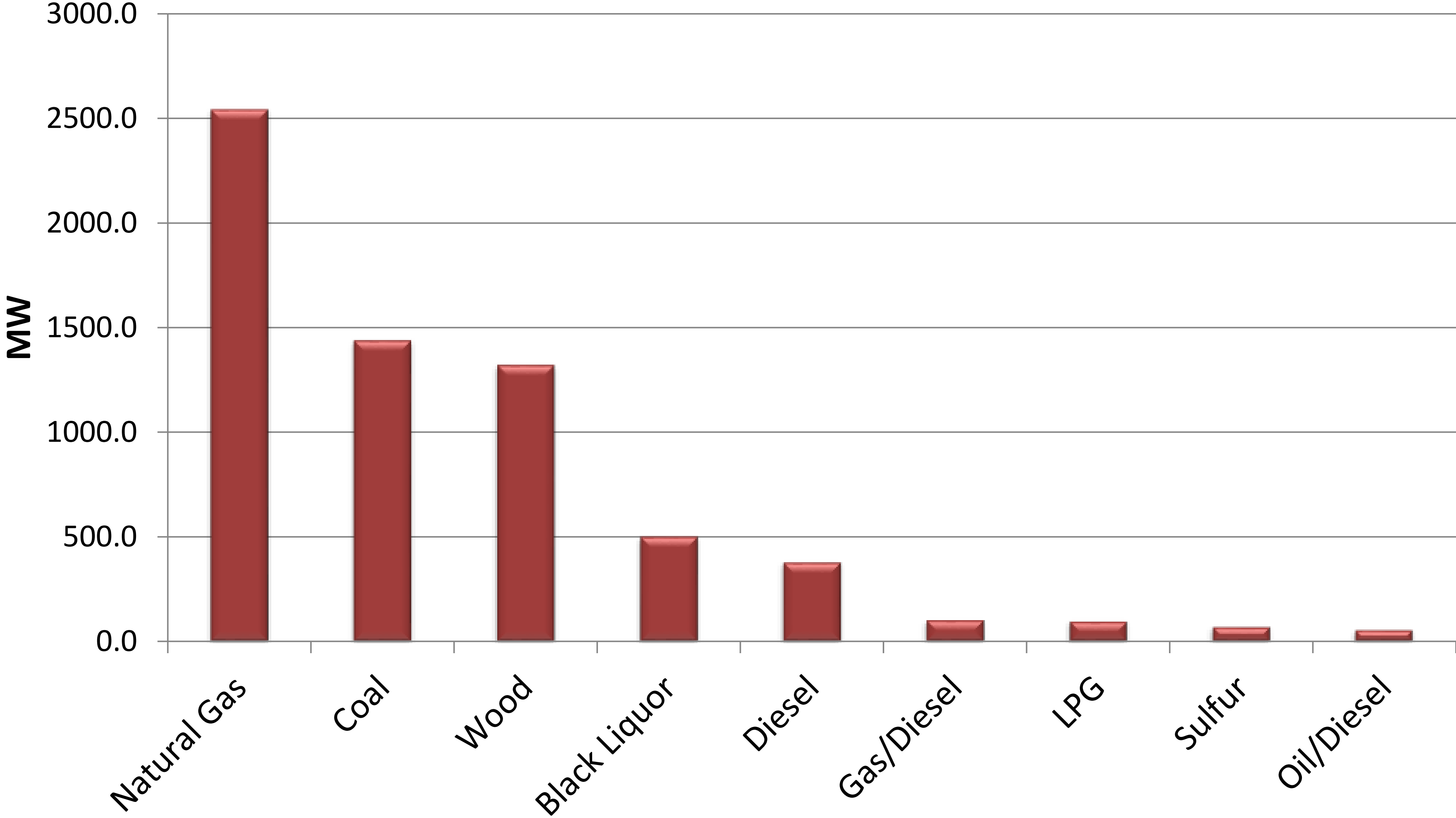
Heat Plant Capacity by Fuel Type (MW) – Heat Plant Database 2014



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Heat Plant Database

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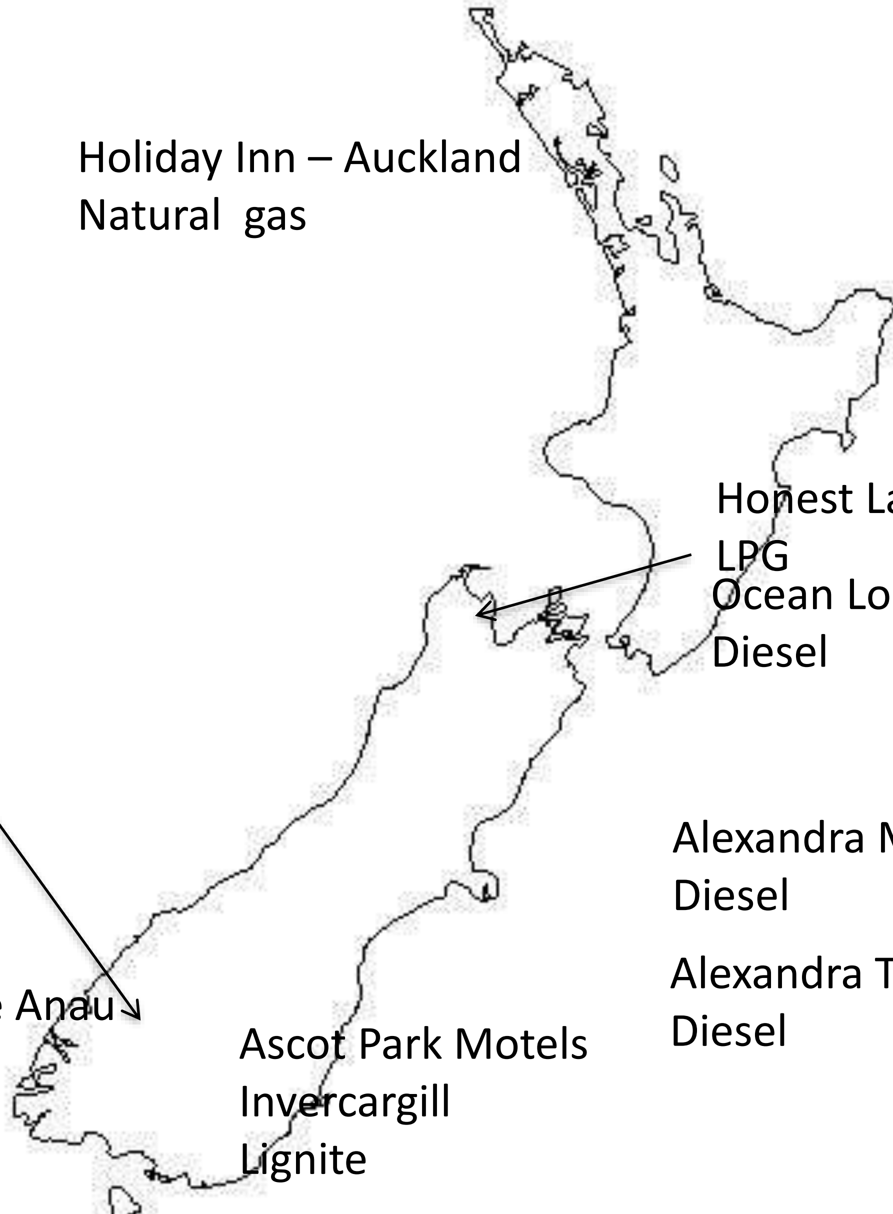
Location of Plants – Accommodation Sector

As an Example



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The Wood Energy Sector is Responding Well

- Equipment suppliers (Polytechnic, Living Energy, Spark Energy, Pioneer)
- ECCA is contributing – Wood Energy South Projects
- BANZ is effectively advocating and facilitating development of the sector

The Wood Energy Sector is Responding Well

- Some sectors are responding and putting in new biomass plant (Horticulture, Health,)
- Fuel suppliers are becoming more established consistent, and quality focused
- The sector is no longer a ‘cottage’ industry at least in many areas

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But Still is This Enough!

Scenarios – Increase in Wood Plant and GHG Emissions Reductions

Scenario		2016 - 2020	2021 - 2030	2031 - 2040
Business as Usual	No. of plants	28	100	130
	% GHG change	-3	4	3
Encouraged Growth: Scenario 2	No. of plants	141	342	174
	% GHG change	18	27	11
Accelerated Growth: Scenario 3	No. of plants	281	366	176
	% GHG change	22	34	23

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Number Of Heat Plant By Sector & Fuel Types – Heat Plant Database 2020: Encouraged Growth

	Coal	Natural Gas	Wood	Total
Accommodation	2	1	7	20
Prisons	0	182	20	342
Councils	10	50	28	113
Dairy	25	103	6	145
Defence	2	6	2	11
Education	200	160	93	487
Food Processing	17	83	15	138
Horticulture	47	47	11	91
Hospitals	38	116	14	195
Meat	54	88	11	179
Miscellaneous	5	40	12	84
Other Manufacturing	11	18	8	41
Research Institutes	0	20	4	24
Rest Homes	2	11	7	24
Universities	9	100	6	119
Venues	0	11	1	12
Wood	24	40	121	188
Total	446	1059	366	2213

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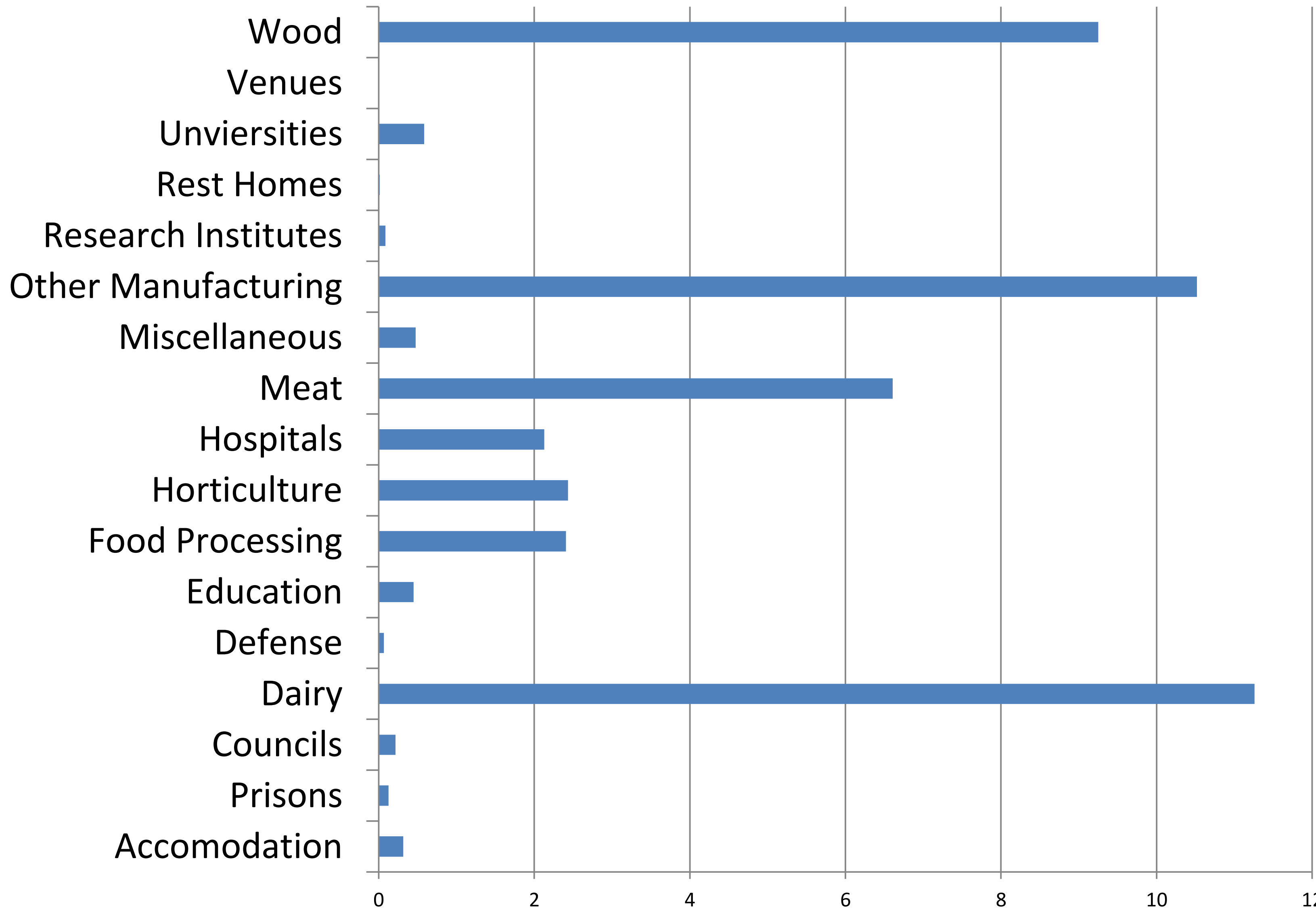
Encouraged Growth Scenario – Proposed Targets for Additional Wood Fuel (PJ) by Sector to 2040



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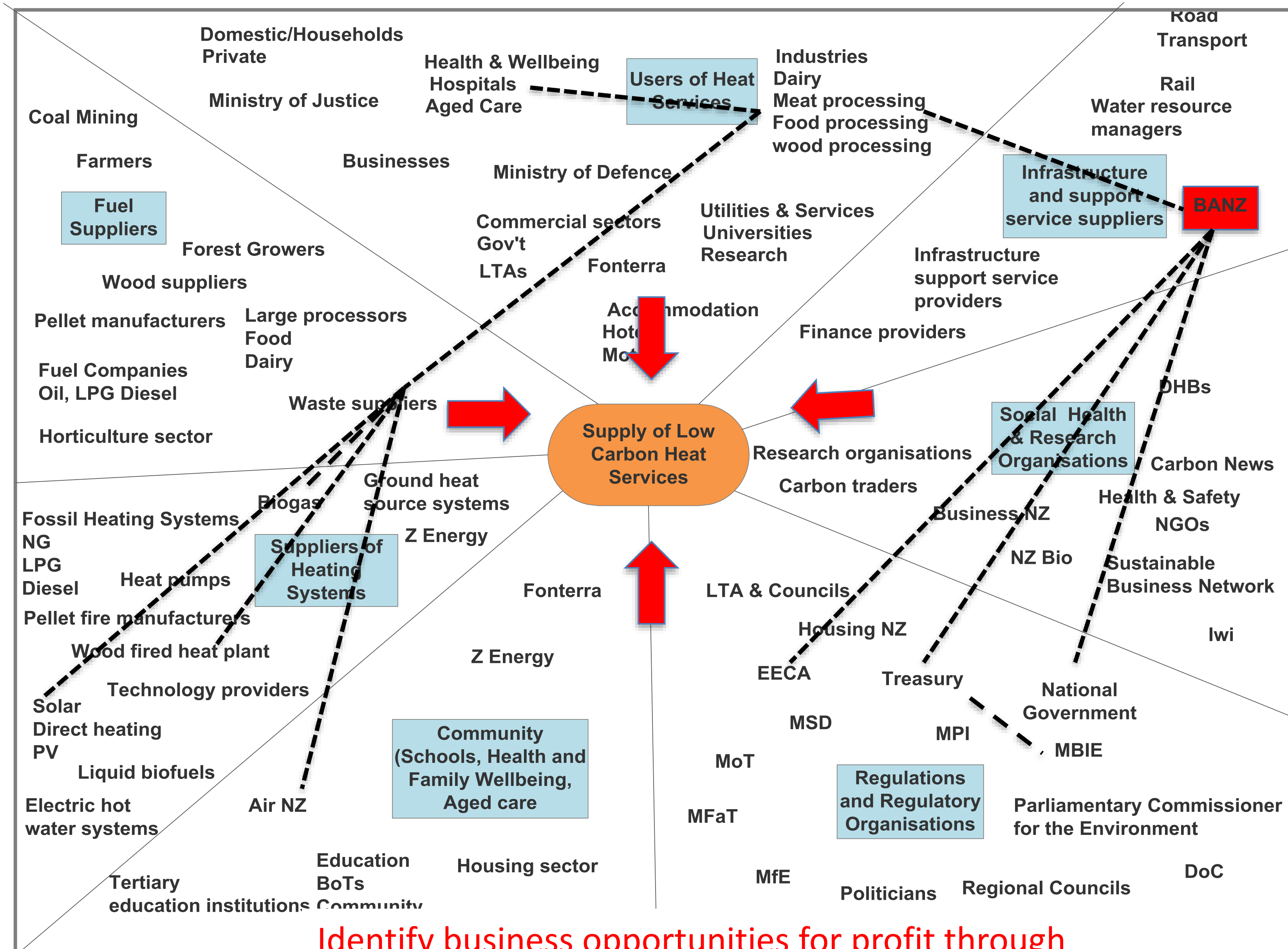
We must take a systemic view!

Low Carbon Heat: Actor Map



Identify business opportunities for profit through developing new products, services or supply chains – Shared Value

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So Bringing This Back to BANZ & What Needs to Be Done To Build the Wood Market!

- Key Actions
  - Proposed complementary measures
    - Agree targets
    - Government procurement policies
    - EECA extends repayment for crown loads for biomass energy facilities
    - Govt uses total life cycle value cp least capital cost for assessments
    - Govt appraisal models use a higher cost of carbon to signal its longer term view
  - Collect wood fuel use data and other relevant statistics
  - Analysis of job creation opportunities by wood energy

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So Bringing This Back to BANZ & What Needs to Be Done To Build the Wood Market!

- Support and use BANZ wood fuel accreditation schemes
- Support BANZ training programmes
- Agencies Working with BANZ to develop more regional hubs
- Support more planting of plantation forests for domestic wood processing – get more biomass in the ground

So Bringing This Back to BANZ & What Needs to Be Done To Build the Wood Market!

- Other agencies collaborate with BANZ to develop frameworks to value externalities/intangibles
- Encourage the development of small to medium sized heat plant to support a developing wood fuel market
- Agree on coal conversions as a transition strategy
- WEIG members take the action plan and look at how they can contribute to each of the short and medium term outcomes
- Consider new products, services and supply chain options (probably for large corporates)

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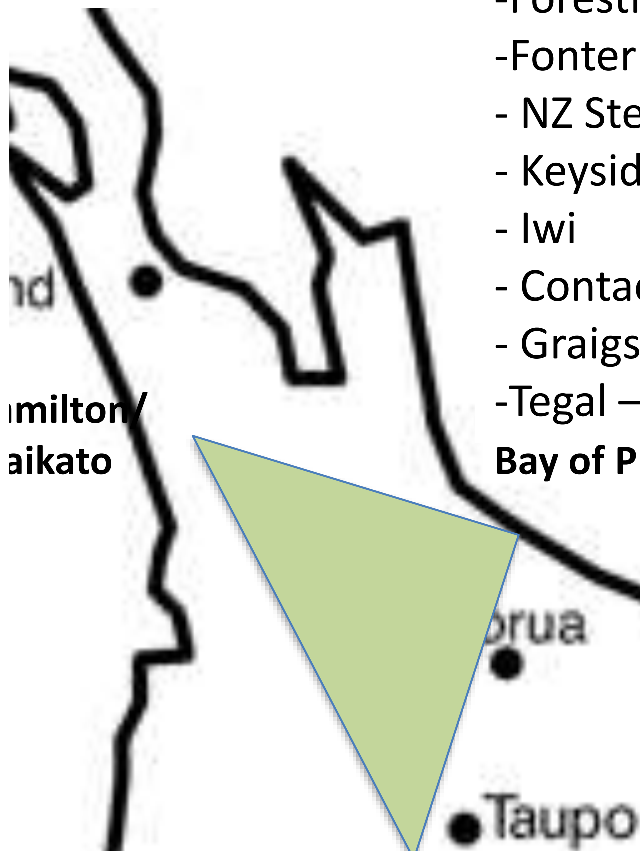
Green Triangle (North)
Collective Impact/Shared Value

Drivers
- Waikato River
- Largest plantation forests
- Largest off highway transport network
- Dairying
- Horticulture
- Port logistics
- Tourism
- Rail
- Lakes rivers, forests, harbours
- Linked to half NZs population
- Access to Auckland
- Toi Te Waonui

Social issues:
- Unemployment
- Maori development
- Dysfunctional families
- Health



Corporate Players
- Forestry companies
- Fonterra
- NZ Steel
- Keyside Holdings
- Iwi
- Contact, Mercury
- Graigs Investments
- Tegal – chicken farms

Bay of Plenty

Environmental issues:
- Water quality
- Air emissions
- Atmospheric warming
- Waste management
- Transport

BANZ facilitate new business opportunities through new products, services and supply chains that deliver social and environmental outcomes – Shared value! – create scale and value <u>not cost</u>

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Conclusions

- Not telling you how to suck eggs – with 7.5 billion people – business models need to adapt
- Heat market – is great target
- BANZ is performing well & doing what it needs to do
- But we need to consider new business models to move beyond BAU and get the transition to wood fuels
- Business models that create financial wealth by developing new products, services and supply chains to address social and environmental issues.

Conclusions

- Developing these new business models
  - Identify corporate leadership
  - Link up with strategic partners through authentic collaboration (across sectors)
  - Develop a new innovative shared goal – can only be delivered by multiple partners
  - Use the collective impact approach – to make our collaborative work
  - Focus on sharing value between corporates and society
  - For example “Green Triangle”