

Electricity Supply Scenarios for 2025

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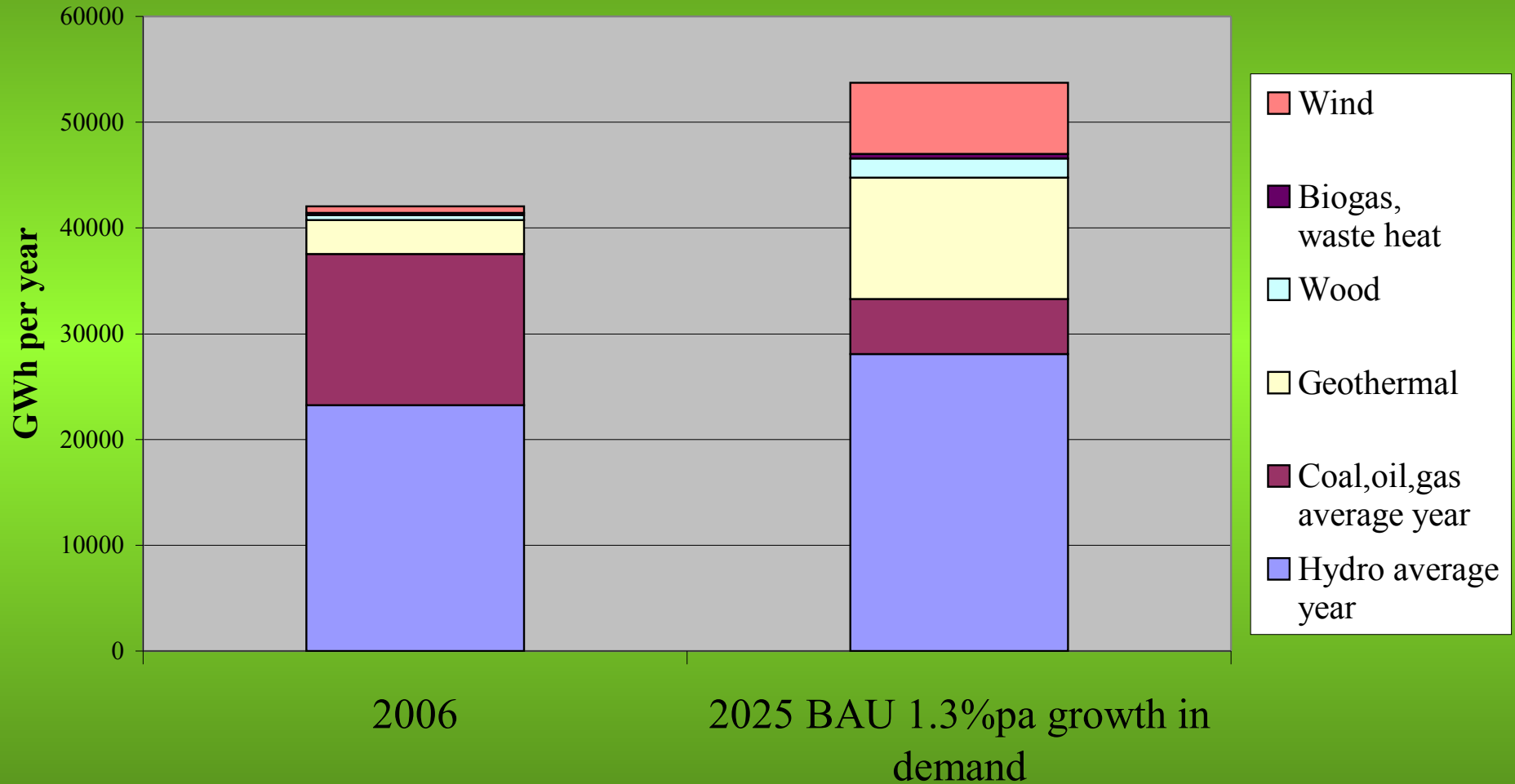
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A - 90% Renewables by 2025

Assumptions

- 1.3% p.a. growth in NZ demand including minor use for electric vehicles
- 1% p.a. growth in hydroelectric capacity
- 75 MW annual average geothermal build with 1% p.a. geothermal yield decay
- Potential wind farms listed in EDF built by 2025
- Power from biofuel grows at same rate as geothermal
- Wave and Tidal in 2025 is the same as wind in 2006
- Oil fired generation at Whirinaki remains the same
- Coal and gas generation as required to meet demand

Energy Sources for NZ electricity generation (based on NZ Energy Strategy - 90% renewable by 2025)

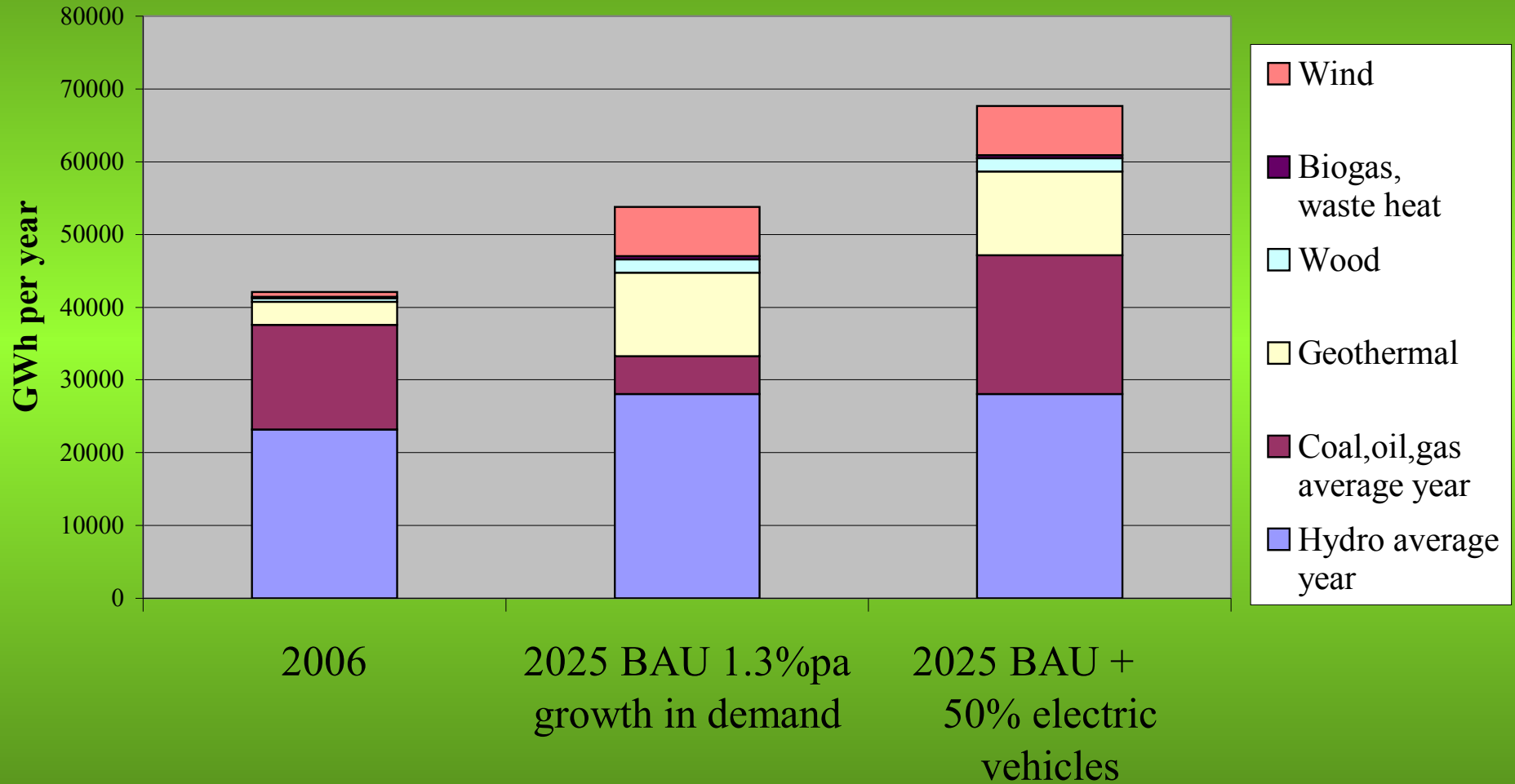


B – 50% electric transport by 2025

Assumptions

- Same electricity supply assumptions as Scenario A
- Energy efficiency of electric vehicles is double that of conventional vehicles
- No net growth in vehicle use

Energy Sources for NZ electricity generation (based on NZ Energy Strategy - 90% renewable by 2025)



A real PV farm in Southern Germany



Gloom and Doom

“Humanity is changing the Earth’s climate so fast and devouring resources so voraciously, it is poised to bequeath a ravaged planet to future generations”

United Nations Environment Programme

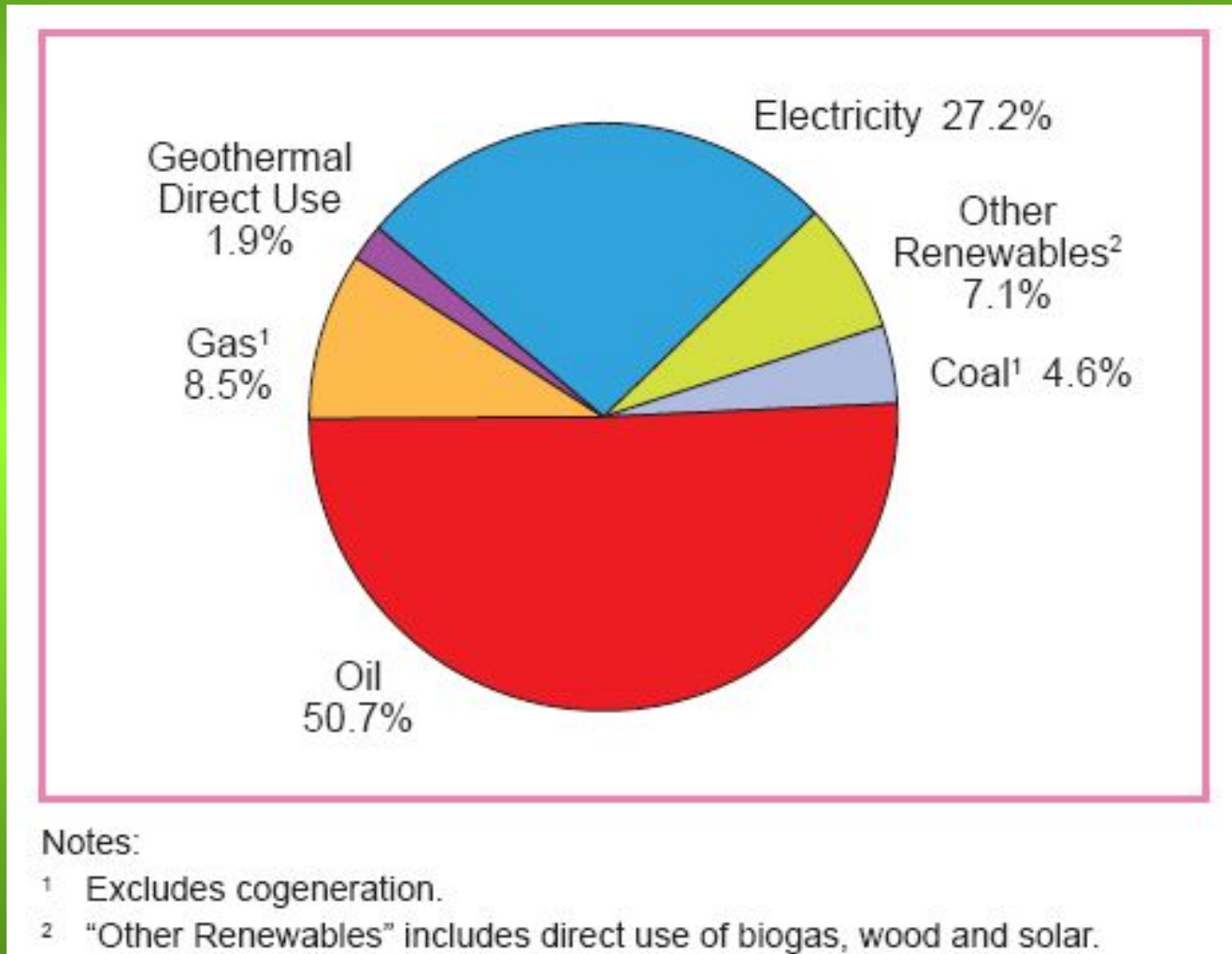
Fourth Global Environmental Outlook

The Challenge for New Zealanders

We are rapidly moving into a new world order that is carbon-constrained, oil-constrained and energy-constrained.

How can we as everyday people, reasonably modify our behaviour to accommodate this new reality?

New Zealand total consumer energy by fuel in 2006



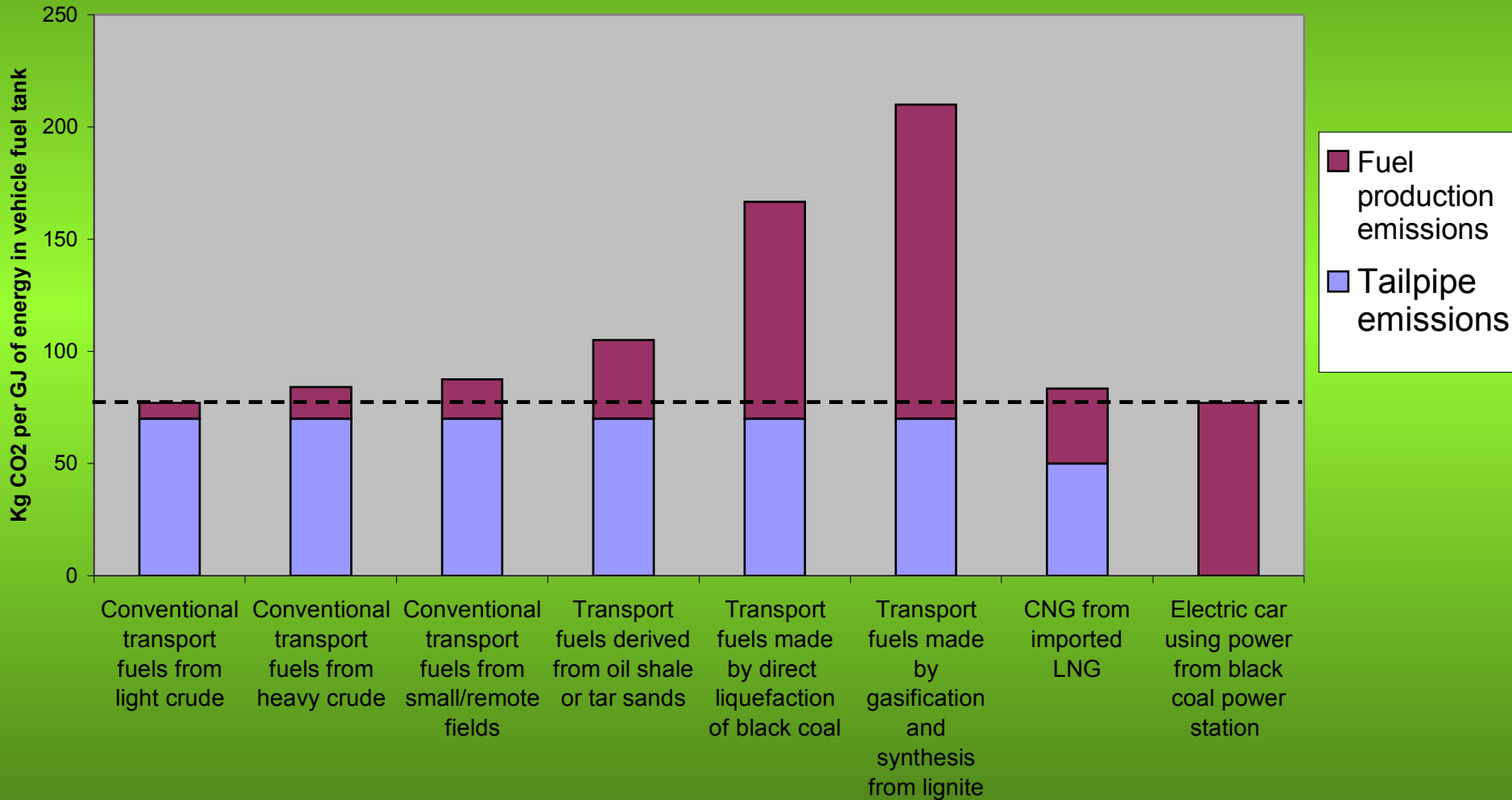
In 2006 the average New Zealander consumed, either directly or indirectly, approximately

- 1,700 litres of transport fuel
- 250 kilograms of coal
- 11 GJ of renewable energy (1/3 cubic meter of fire wood)
- 270 cubic metres of natural gas
- 9,400 units of electricity

and consequently caused to be emitted

- 8 tonnes of fossil CO₂ from energy use
 - (of which 5 tonnes was from transport fuel)

Full fuel cycle CO₂ emissions from transport fuel fossil alternatives



Reducing transport fuel use

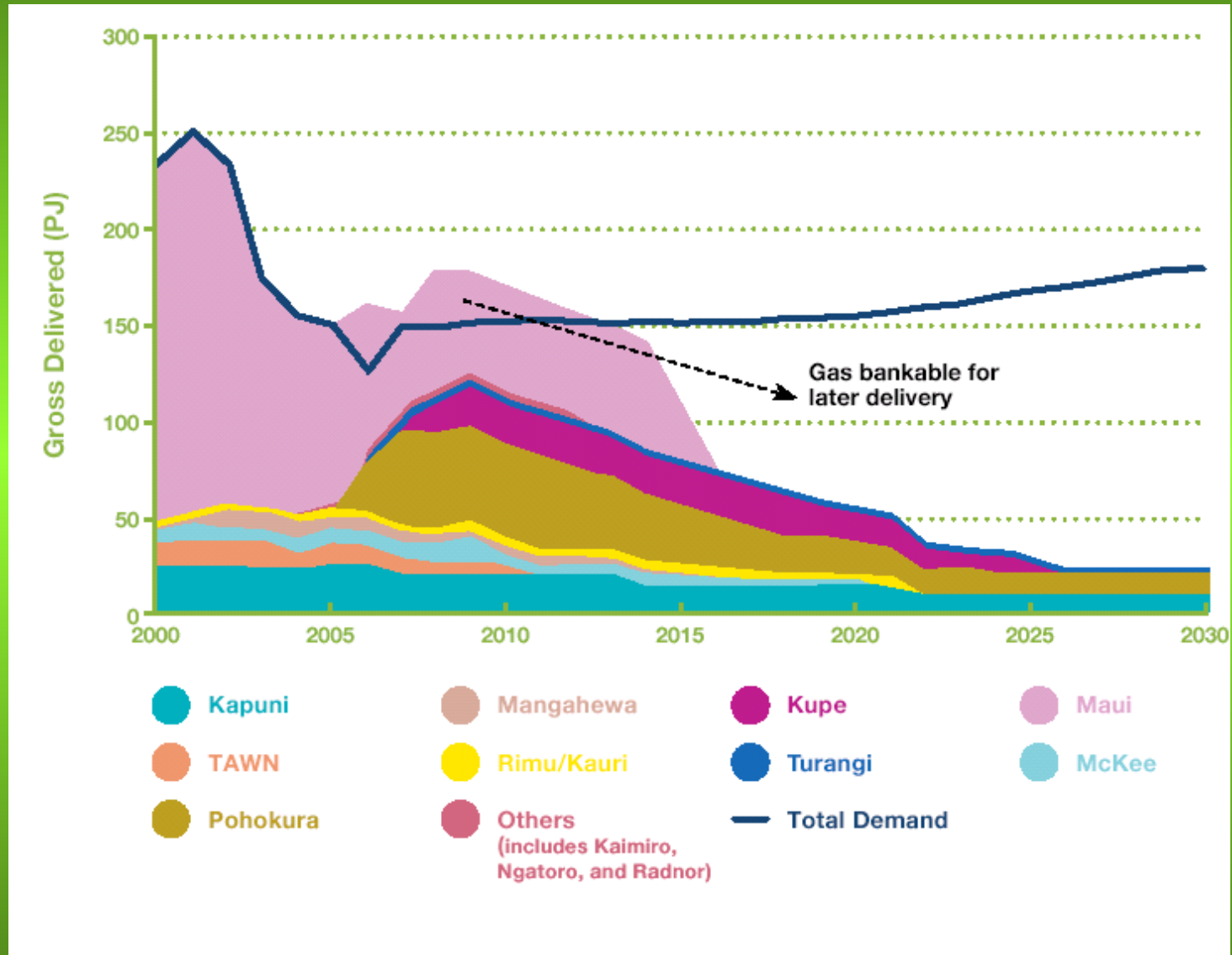
For essential journeys

- Drive economically and improve vehicle efficiency
- Use an appropriate size of vehicle
- Share transport by car-pooling and using buses

Avoid non-essential journeys

- Walk or cycle for short trips
- Walk the children to school
- Use conference calls for meetings
- Live in a self-sufficient community
- Work partly from home
- Holiday closer to home
- Break our addiction to the use of cars as status symbols

New Zealand's natural gas resources



Reducing Electricity Use

- Use compact fluorescent lights and LEDs
- Switch things off when not in use
- Don't fill the jug
- Consider solar water heating
- Wash in cold water
- Adjust thermostats
- Insulate your home
- Use low-energy appliances and equipment
- Use distributed renewable generation and storage in remote locations
- Transmit and distribute electricity efficiently

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How can we as everyday people, reasonably modify our behaviour to accommodate this new reality?

By recognising that the consequences of our everyday decisions on use of energy affect more than just the dollar in our pocket.

Think Globally – Act locally