

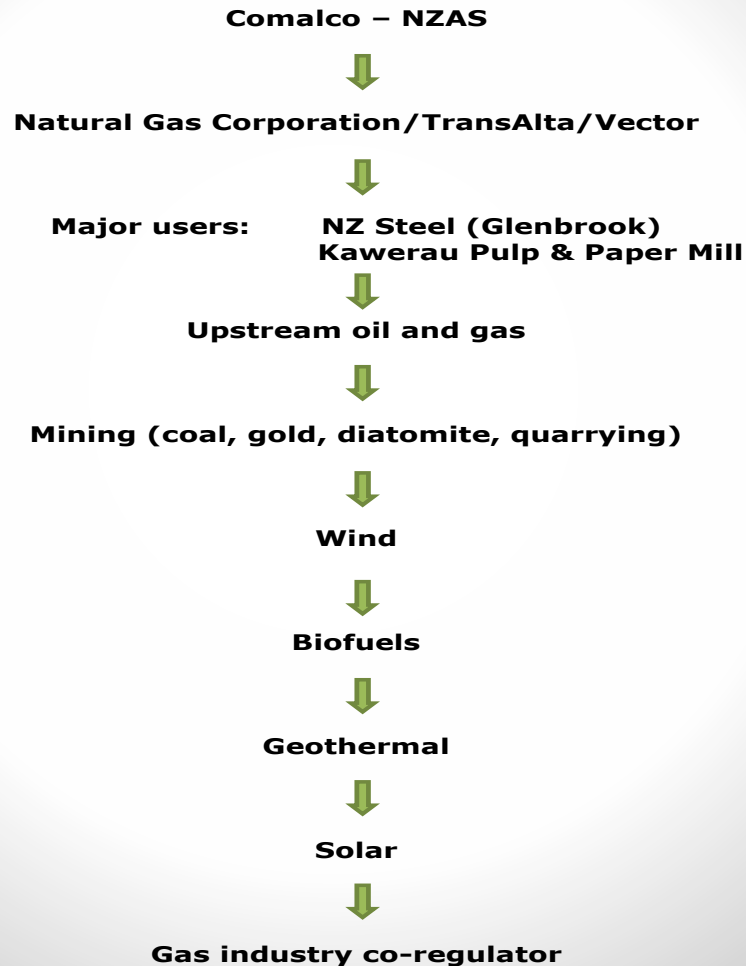


Some of the challenges for New Zealand's Energy Sector: an Industrial/Sectoral Perspective

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My Energy Background



Quick facts for 2017

1 petajoule (PJ)
is equivalent



to the energy contained in enough regular petrol to drive

30,000
cars for a year

or



the electricity to power

40,000
homes with electricity



Dubai Crude Oil averaged

\$53.13

in 2017 – a 30% increase from 2016

The Refinery to Auckland Pipeline (RAP) is capable of transmitting

325,000
litres per hour

This is enough to fill an Olympic swimming pool in around 10 hours, or one 747 in just over half an hour

94%

of all crude oil extracted in New Zealand in 2017 was exported



NEW ZEALAND'S POPULATION HAS INCREASED FROM **4.3 MILLION** IN 2010 TO **4.8 MILLION** IN 2017

TOTAL ENERGY USE HAS DECLINED FROM 126GJ PER PERSON TO 123GJ PER PERSON IN THAT TIME



In 2017

82%

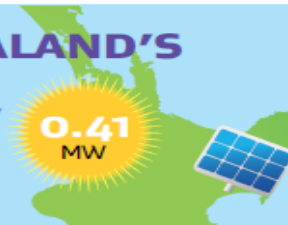
of electricity was from renewable sources

In 2017
68%
of all fuel consumed was produced at the Marsden Point refinery



NEW ZEALAND'S LARGEST SOLAR ARRAY IS RATED AT

0.41
MW



Each of the four Rankine units at Huntly are rated at

250
MW



The Mahinerangi wind farm has

12 TURBINES
each rated at

3 MW



Snapshot of energy in 2017

Energy Supply

▲ 2.6%

from 2016 levels

Indigenous Production



Coal ▲ 1.3%



Oil ▼ 9.8%

Imports



Coal ▲ 2.1%



Oil ○ 1.2%

Renewable energy was **39.6%** of energy supply in 2017

In 2017, New Zealand had the **4th highest renewable primary energy supply in the OECD**



Transformation



Coal ▲ 7.5%



Oil ▲ 46.6%



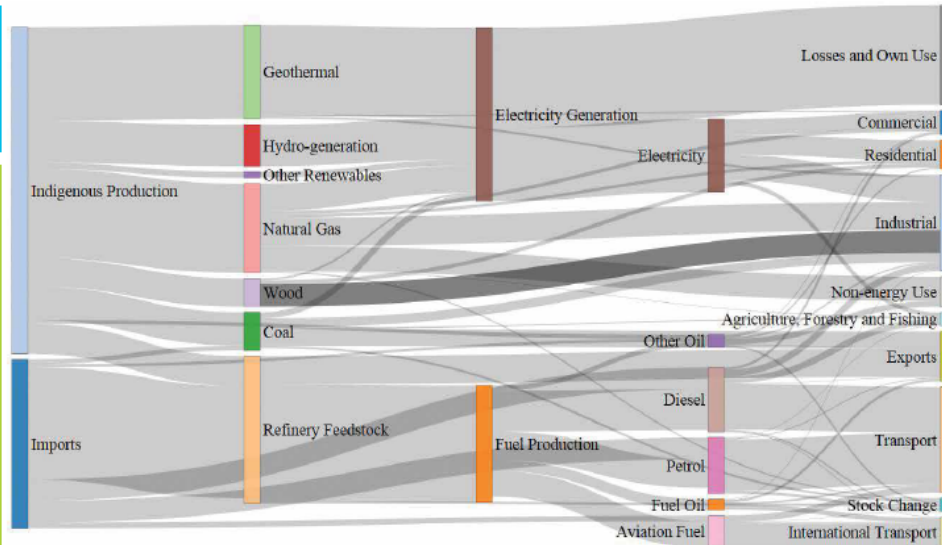
Gas ▲ 20.7%



NZ Refinery Intake was 254 PJ in 2017, up 0.7%. This produced 63 PJ of petrol, 89 PJ of diesel, 57 PJ of jet fuel, and 23 PJ of fuel oil



151 PJ of electricity was generated in 2017, up 1.3% on 2016. 80% of the electricity generated in 2017 was from renewable sources, down from 85% in 2016. 13 PJ of coal and gas were used to generate electricity



Energy Demand

▲ 2.8%

from 2016 levels



Transport ○ 6.2%



Commercial ○ 2.8%



Residential ○ 1.0%



Industrial ○ 0.7%



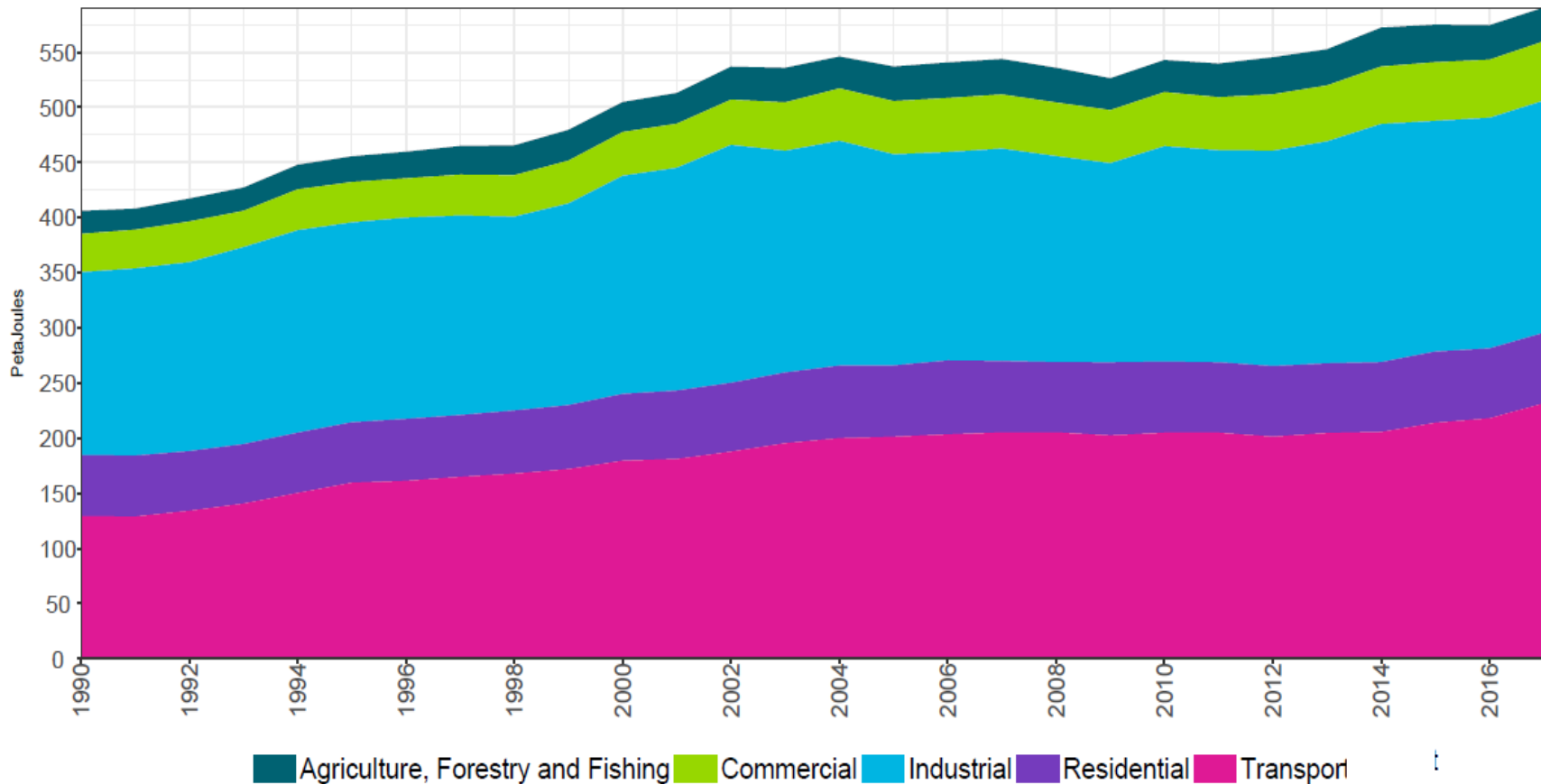
Agriculture ▼ 2.0%



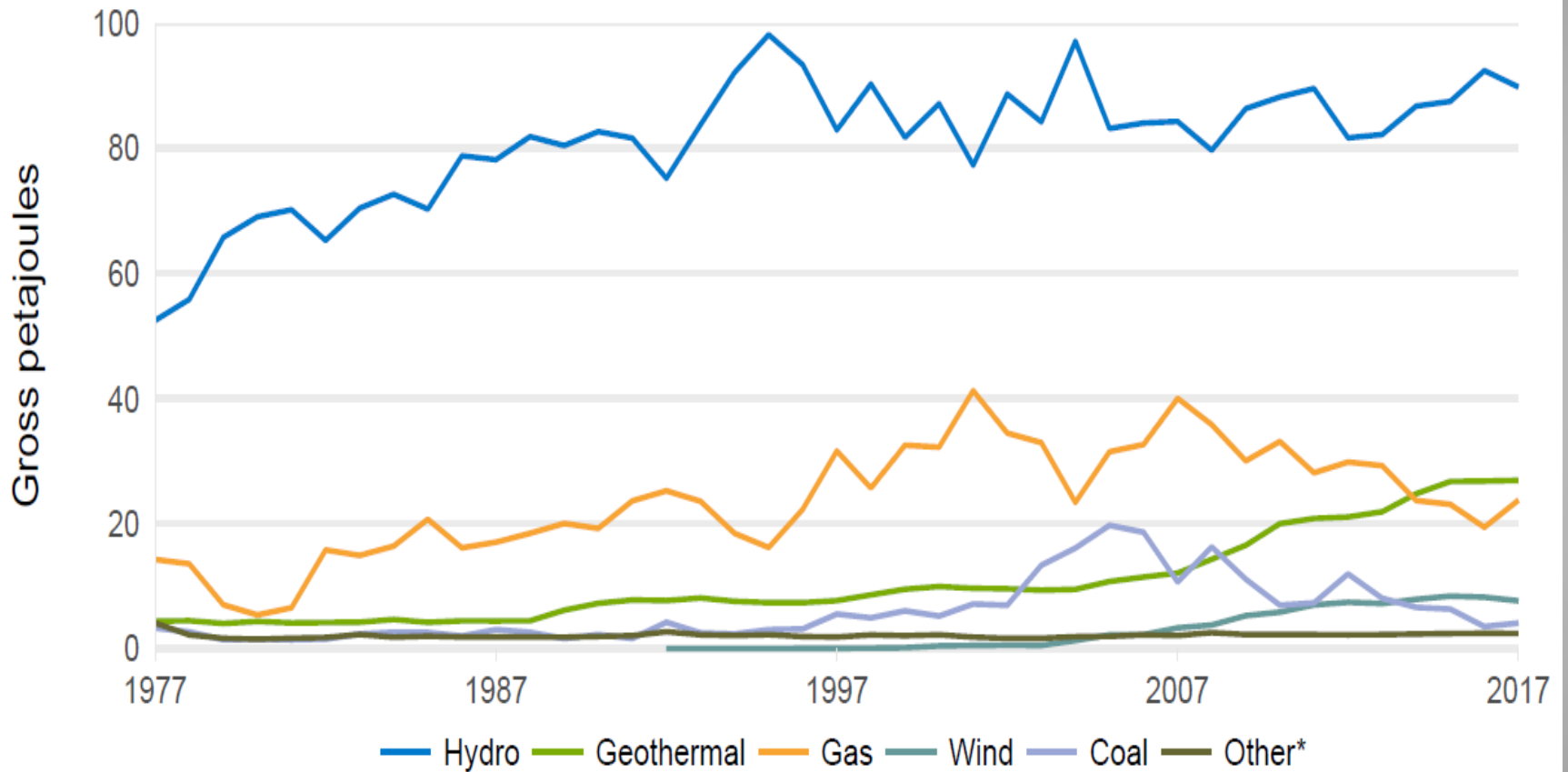
The industrial sector consumed 54 PJ of renewable energy, up 6.7% on 2016

The Residential sector consumed 9 PJ of renewable energy, up 1.2% on 2017

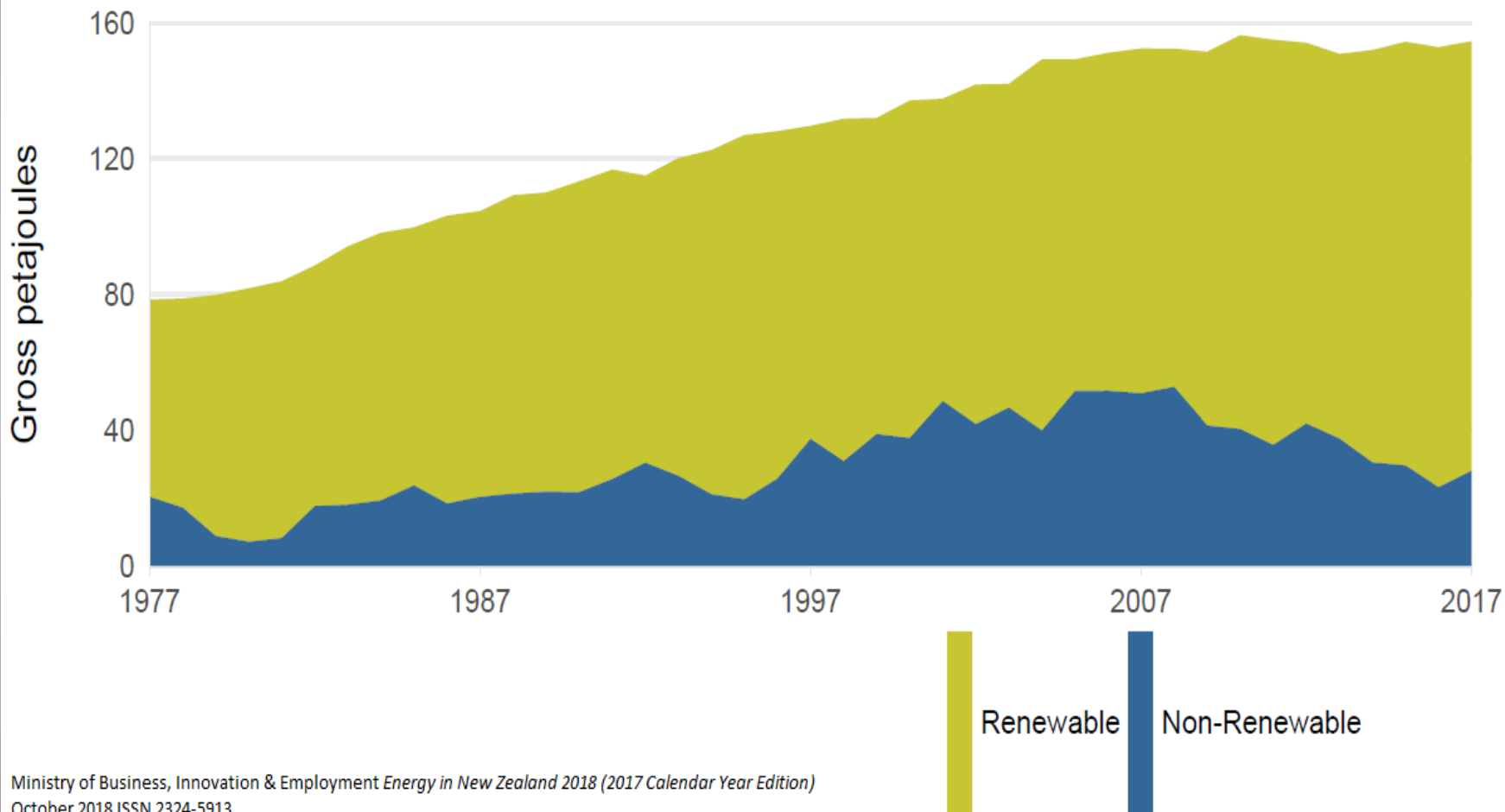
Energy Demand



Generation by Fuel Type



Total Generation by Renewables and Non-Renewables



Industry's Biggest Needs

- Availability
- Certainty
- Security of supply
- Reliability of supply
- Cost-effectiveness
- Ability to manage other variables

The Sector's Biggest Needs

- Certainty of government policy and regulatory settings
- Regulatory settings that drive efficiency
- Investment capital
- Customers
- Government support

The Oil and Gas Ban

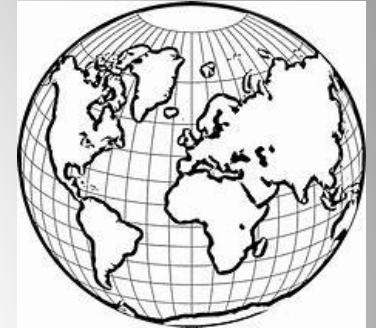
- No new exploration other than on-shore Taranaki
- The regulatory process followed
- Industry and investor reaction
- Effect on energy projects in NZ

Link to the Electricity Industry

- Role of Huntly Power Station
- Pohokura outage
- Recent electricity industry events



The future of Oil and Gas in a Low Carbon Economy



- Energy use is on the rise globally
- Oil and gas will still have a place
- Non-combustible uses essential in a modern society
- Enable displacement of coal
- Role of electric vehicles and lower emitting fuels

Thank you . . .

. . . Questions ?