Discovering Our Energy Future

New Zealand: E&P Review

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Excellence in Oil & Gas, Sydney

New Zealand Oil & Gas Ltd

From the conference flyer -

• Major opportunities and motivations to operate	• Favourable terms and clean government • Prospectivity – but skewed to high risk offshore frontiers
• Access to services and skills	• Adjunct to Australian service sector
• Major markets	• Unencumbered oil export arrangements • Gas market 150-250 BCF/year
• Sovereign risk	

Outline

- Regulatory framework for E&P in New Zealand
- History of discovery and development
- Geography of remaining prospectivity
- Recent and forecast E&P activities
  - – Onshore Taranaki fairway
  - – Offshore Taranaki fairway
  - – Frontier basins
  - – Unconventional resources
- Gas market overview
- Concluding comments

Regulatory Framework for Oil & Gas E&P in New Zealand

- Mineral rights to petroleum vested in the Crown, 1937
- Crown Minerals Act 1991
- Royalty and tax take provides for excellent returns to developer/producer *(except for marginal and mature assets)*
  - Royalty of 5% net revenue, or 20% accounting profit
  - Company tax reducing to 28% from 1 April 2011
- Administered by an agency within Ministry of Economic Development (Crown Minerals) www.crownminerals.govt.nz
- High profile since change of government in late 2008
  - Resources identified as a driver for economic growth
  - Senior Minister: Hon Gerry Brownlee (until last week)
- Continuing reforms should streamline and strengthen administration

History and scale of discovery and development

•1959: 1st commercial discovery (Kapuni)

•1969: 1st offshore discovery (Maui)

•1980: 1st commercial oil field (McKee)

•1980's: "Think Big" infrastructure developments

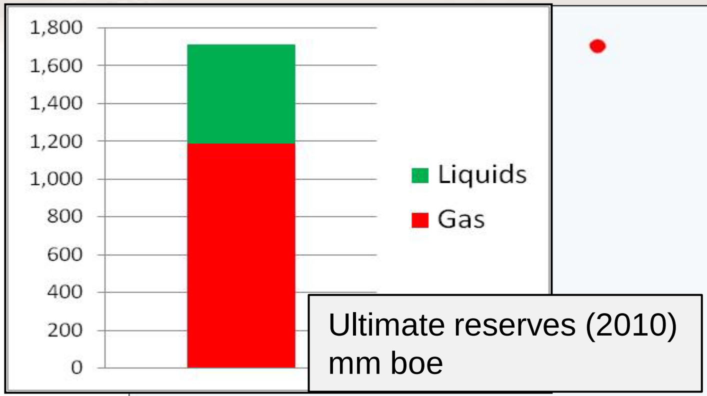
•2000: Pohokura discovery

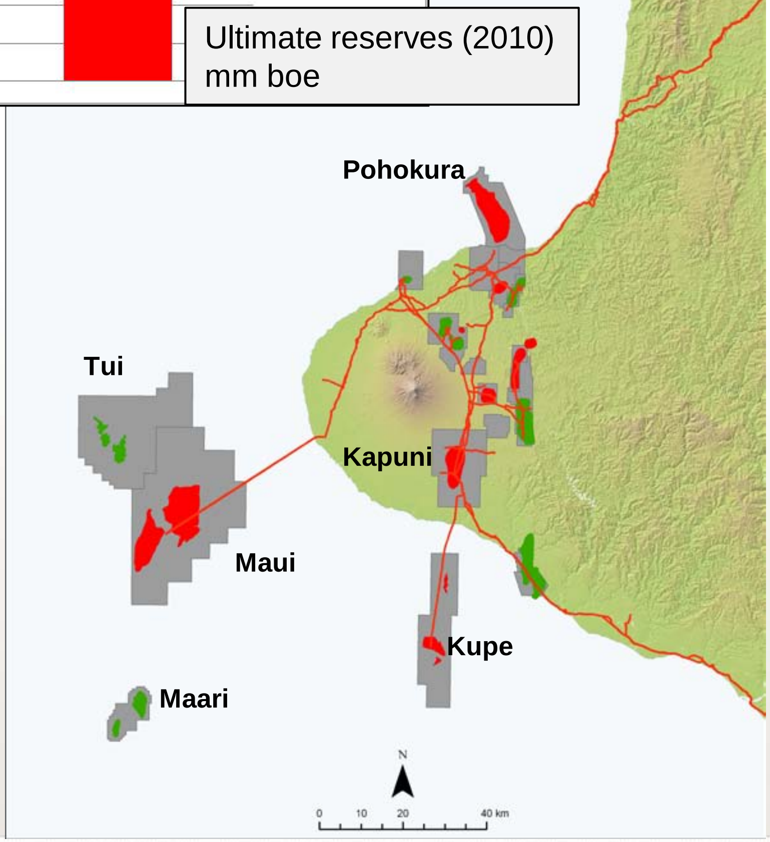
•2003: Maui gas contract redetermination

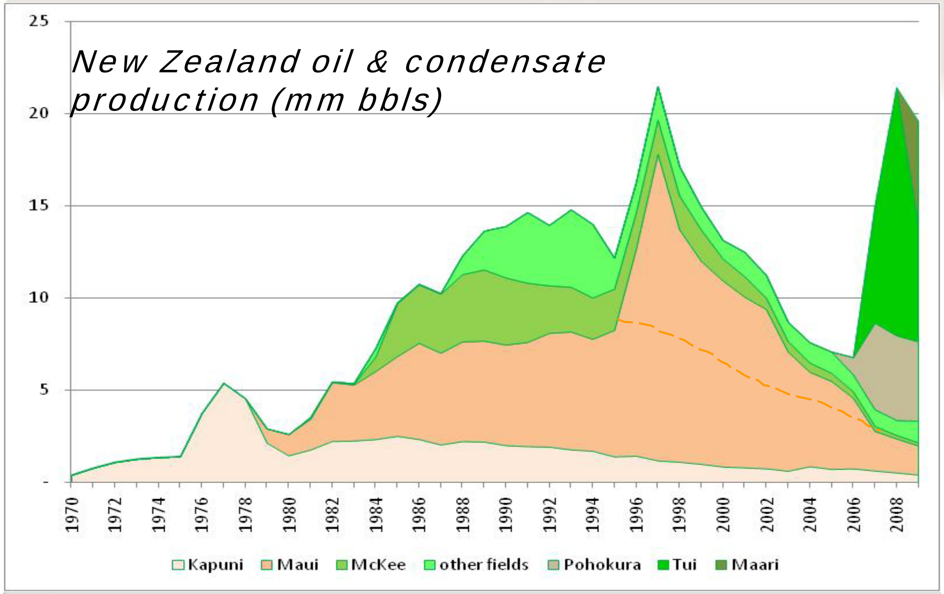
•2003-04: Tui oil discoveries

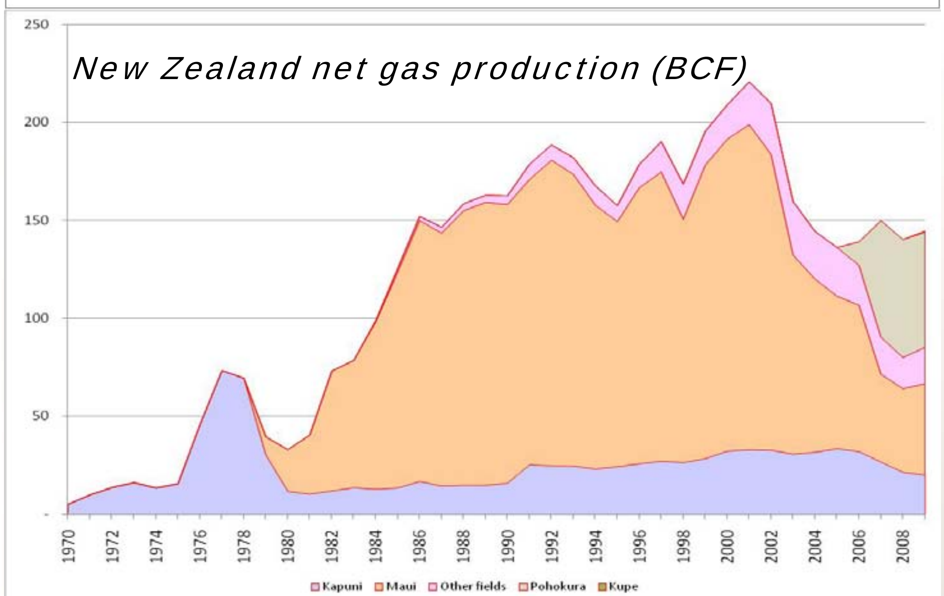
•2006-09: 4 major offshore Taranaki developments

- *Pohokura*
- *Tui*
- *Kupe (discovered 1986)*
- *Maari (discovered 1983)*







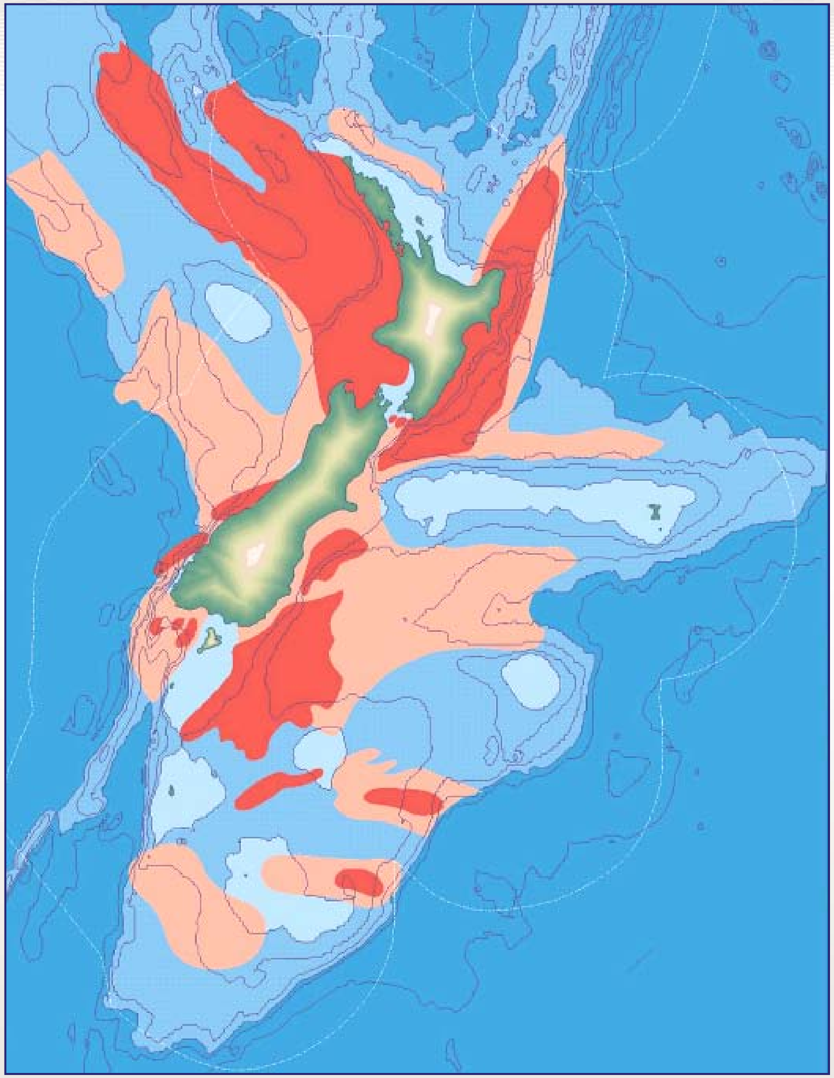


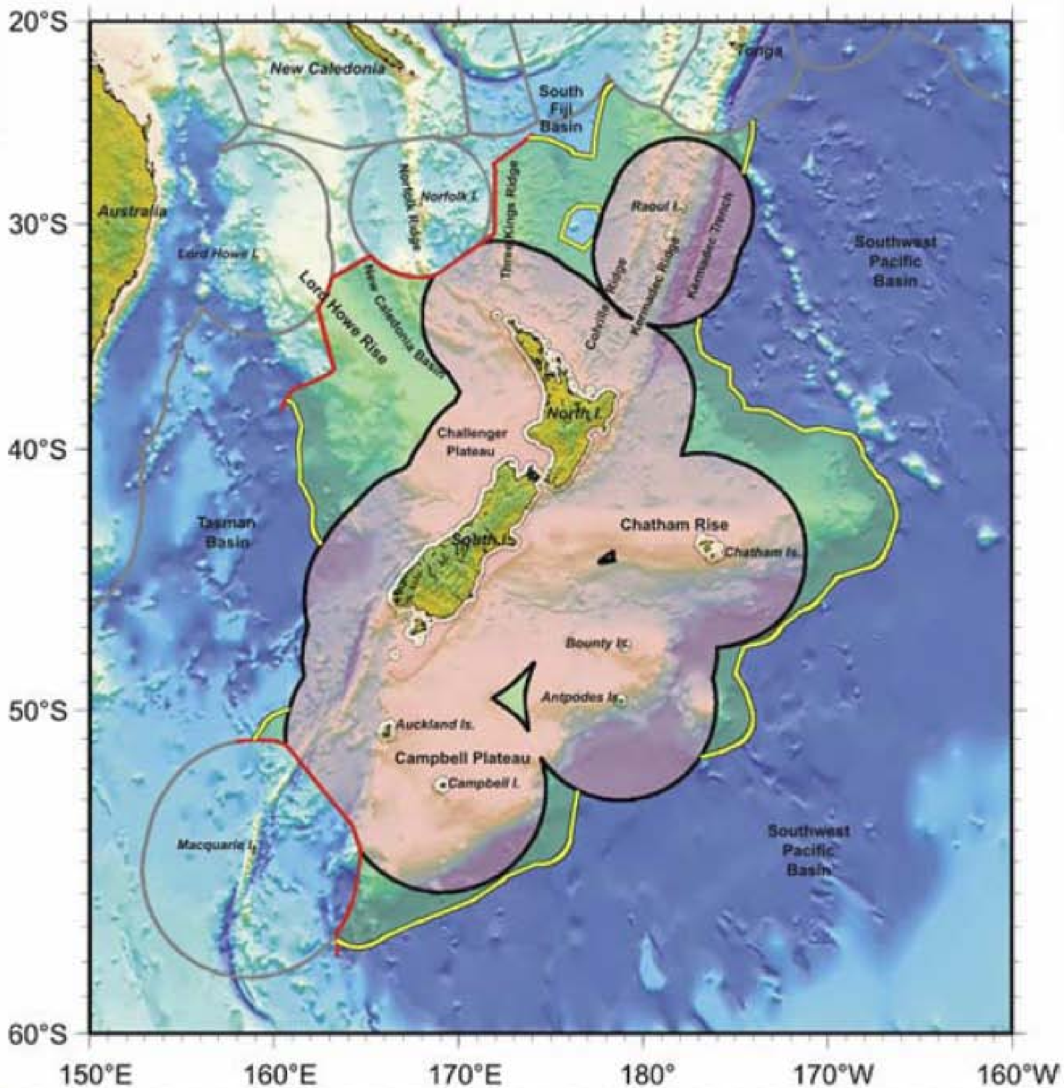
Coming to power in late 2008, the National-led government recognised the positive economic effects of the Tui and Pohokura developments, and has set a high priority on encouraging further discoveries of oil and gas

Kupe field commenced production December 2009: 2010 production = 18.8 PJ of sales gas, 1.94 mm bbls of light oil, 71 kT of LPG

Prospectivity

- Diverse
  - Large offshore area, small land area
  - Late Cretaceous/Tertiary basin system (cf SE Australia)
  - Wet gas, oil fields
- Production is limited to Taranaki Basin
  - Onshore (a small area)
  - Offshore
- Proven petroleum systems in several other basins eg offshore Canterbury and Great South Basin
- Complex geological framework
  - Subtle but significant distinctions within the basin system
- Extensive deep water frontiers
- Unconventional resources
  - *Geothermal -conventional since 1950's*
  - Coal seam gas
  - Shale reservoirs
  - Gas hydrate

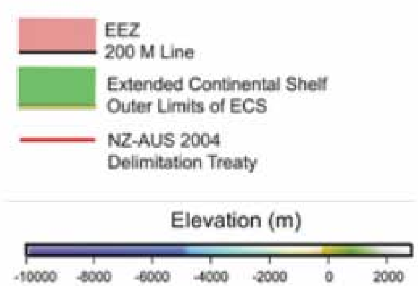




At 3.8m km², New Zealand's EEZ is the world's fourth-largest

ECS ratified by the UN in 2009 adds a further 1.7m km², taking EEZ + ECS to 5.5m km²

• North Sea	750,000 km²
• GOM	1.6m km²
• Australia	7.6m km²
• USA	9.8m km²
• Canada	10.0m km²
• Russia	17.0m km²

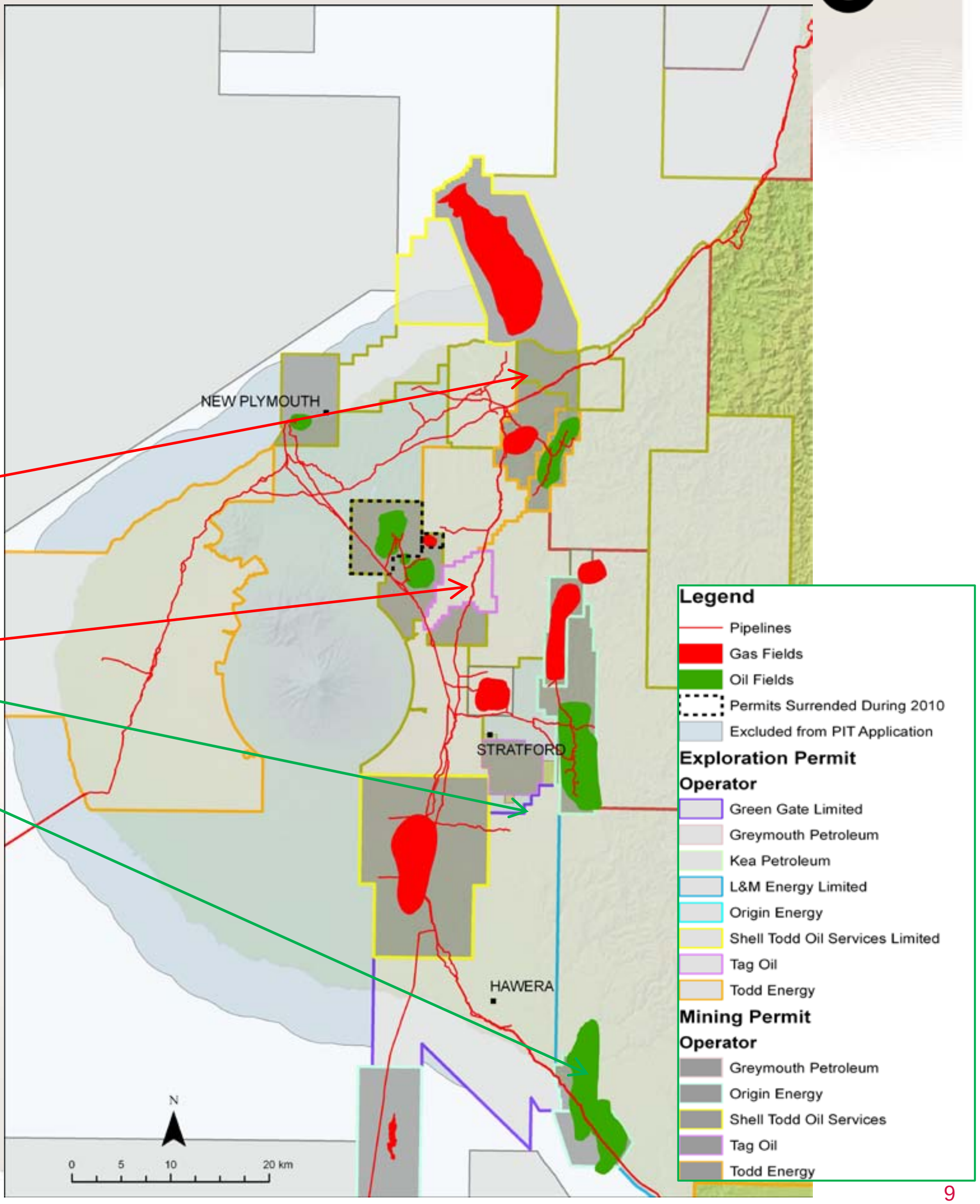


Source: GNS

Recent and Forecast Activity

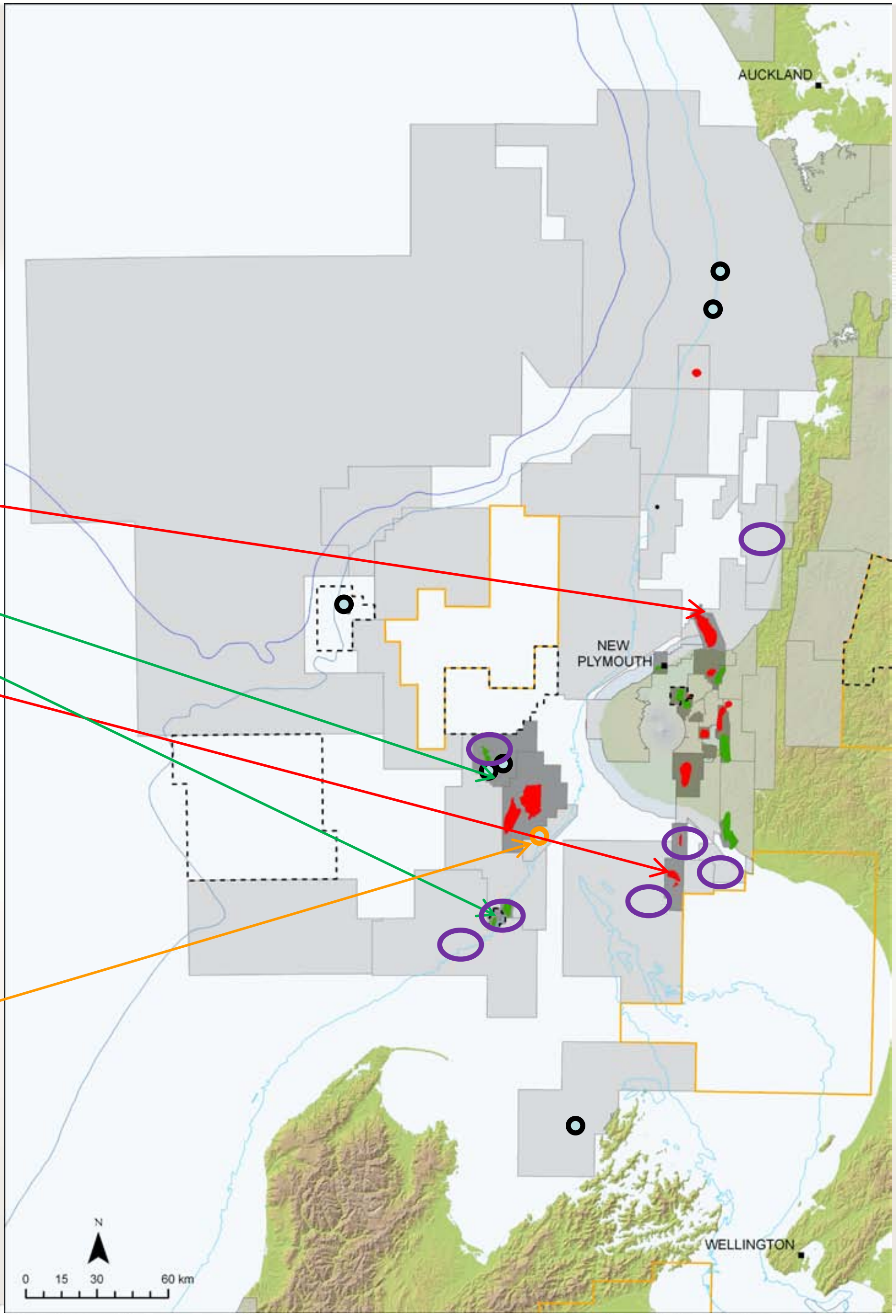
Onshore Taranaki

- Deep Kapuni sand gas/ condensate:
  - STOS: Kapuni;
  - Todd, Greymouth: greater Mangahewa area
- Miocene oil and gas:
  - TAG Oil: Cheal, Sidewinder;
  - Origin, L&M: Manutahi, Talon
- Eastern margin thrust system
  - Kea Petroleum
- Gas storage: Origin/Contact

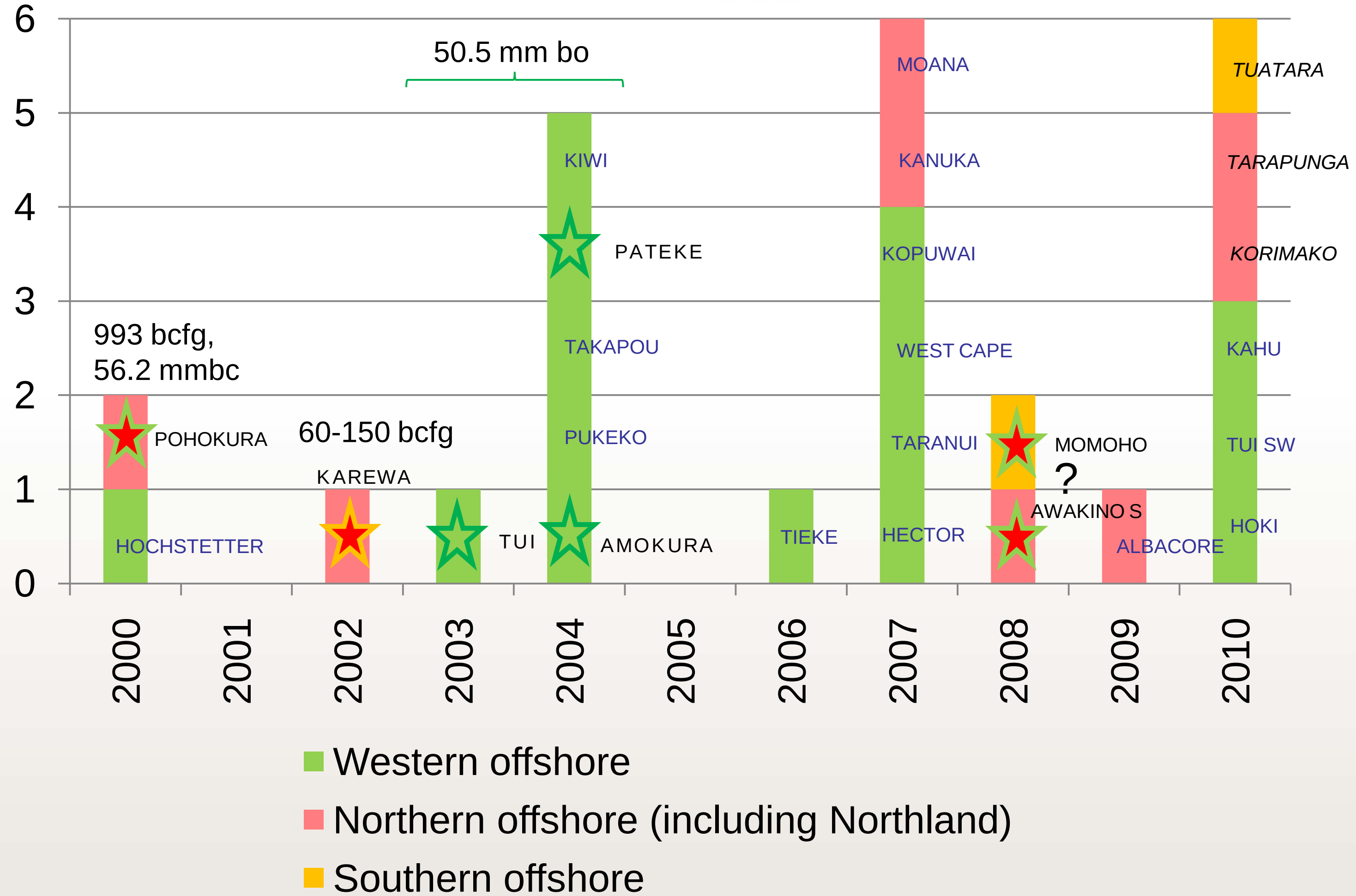


Offshore Taranaki

- Four successful development projects since 2006
  - •Pohokura (Shell)
  - •Tui oil fields (AWE)
  - •Maari oil field (OMV)
  - •Kupe gas & oil field (Origin)
- Disappointing exploration campaign with the Kan Tan IV (AWE, Origin), 2010
- Maui JV drilling Ruru-1 (down-thrown block)
- Gearing up for 2012 drilling

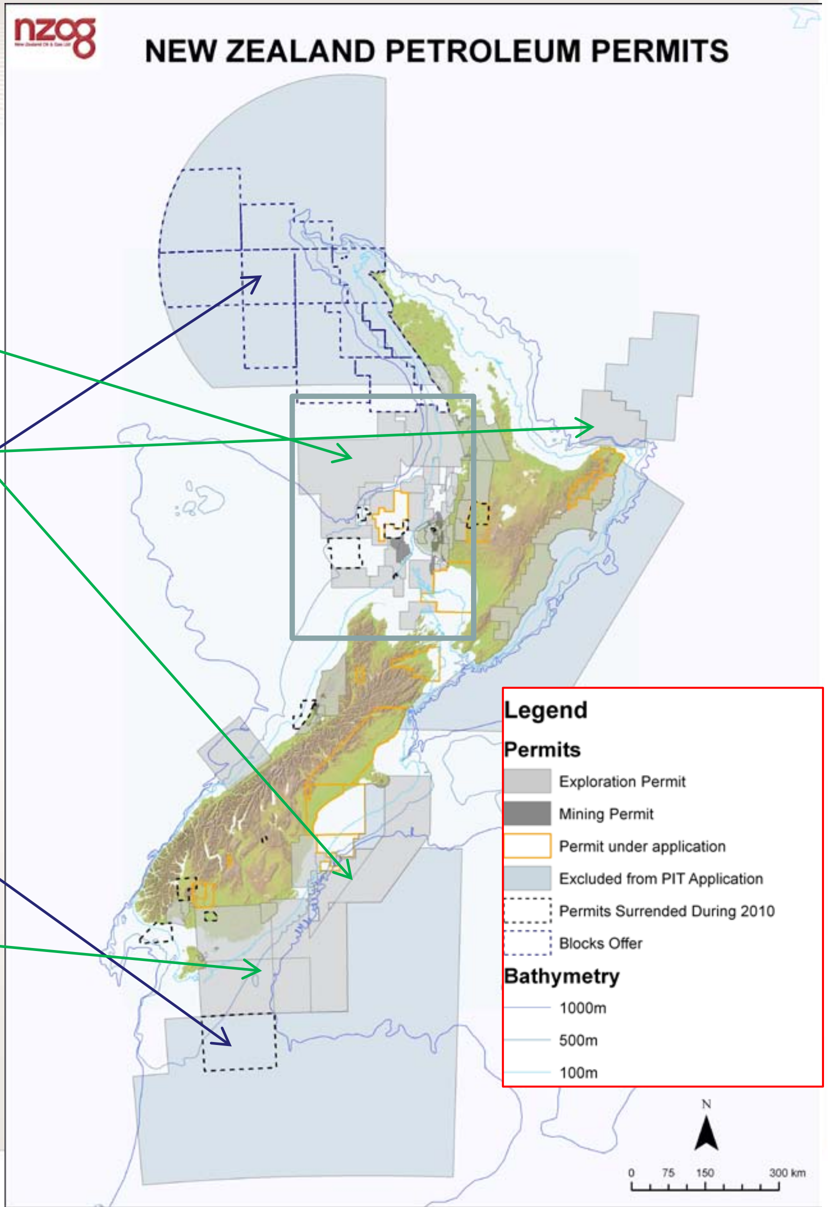


21st Century exploration wells, offshore Taranaki & Northland basins

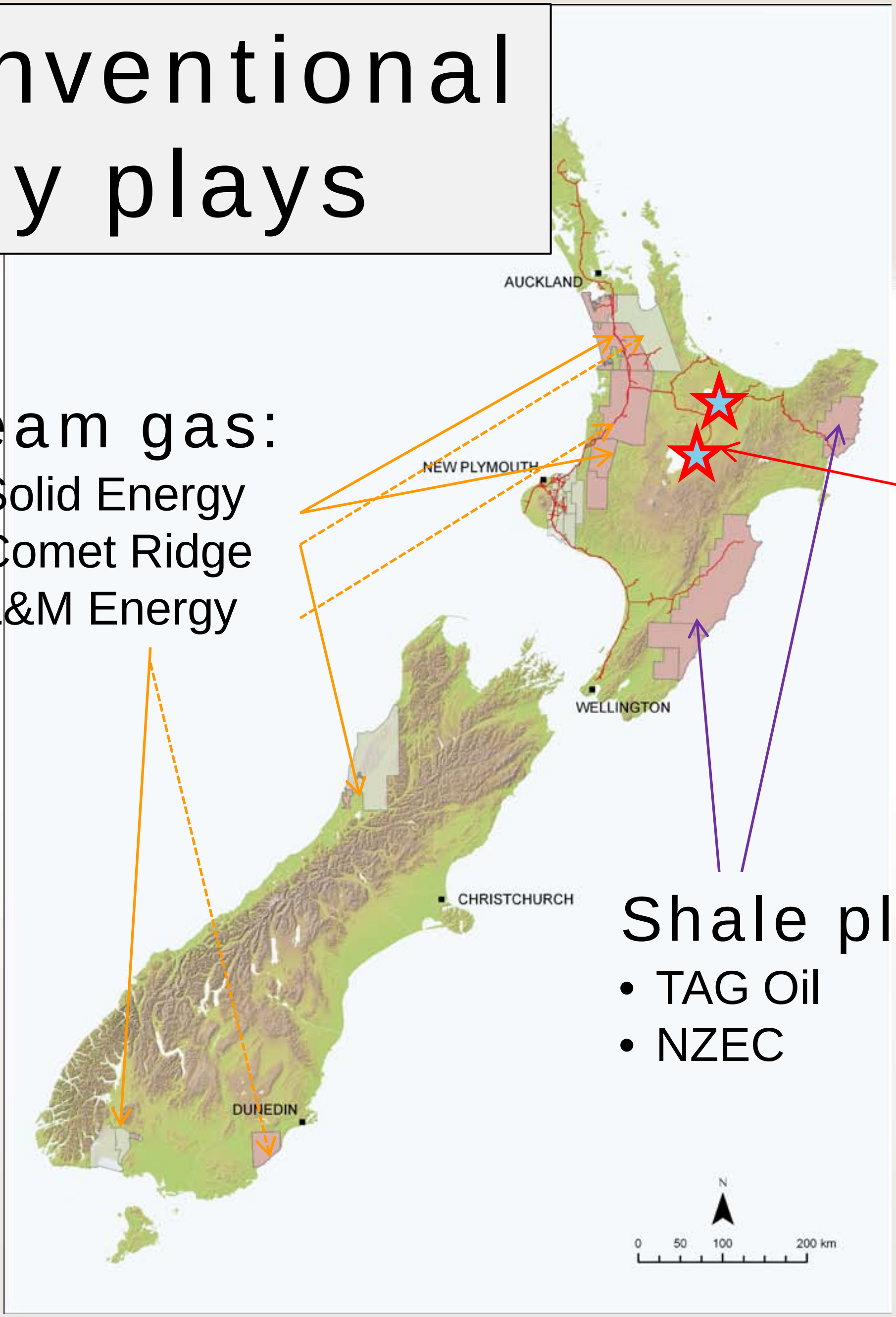


Offshore New Zealand frontiers

- Anadarko farm in to deep water projects
  - •Taranaki
  - •Canterbury
- Petrobras granted Raukumara Basin
- No announcements re Northland/ Reinga Blocks Offer
- ExxonMobil surrender of Great South Basin block
- OMV group GSB decision by July



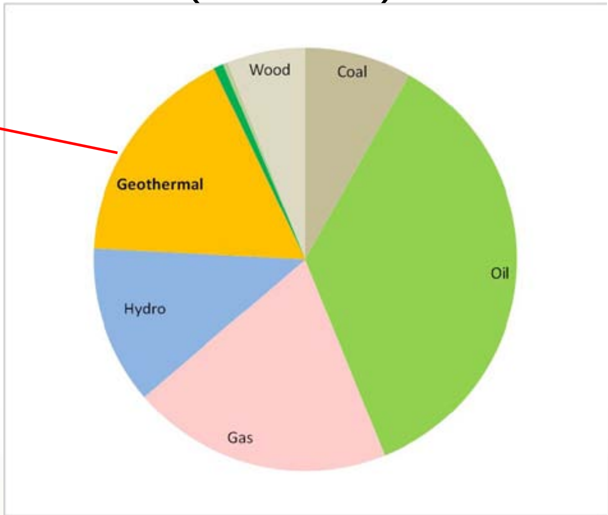
Unconventional energy plays



Coal seam gas:
- Solid Energy
- Comet Ridge
- L&M Energy

Shale plays
- TAG Oil
- NZEC

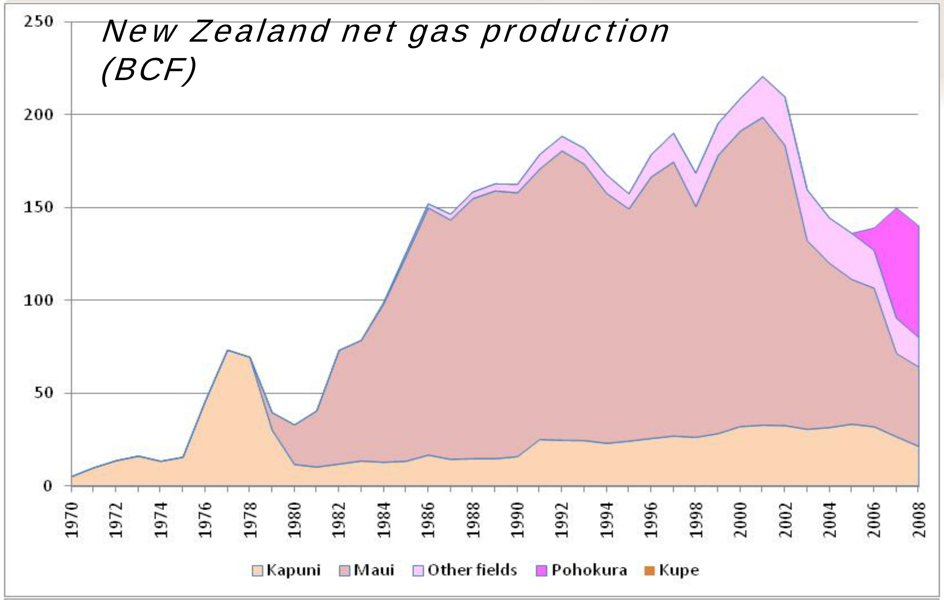
Primary energy in New Zealand, 2010 (722 PJ)



Lignite
Gas hydrate?
– long term

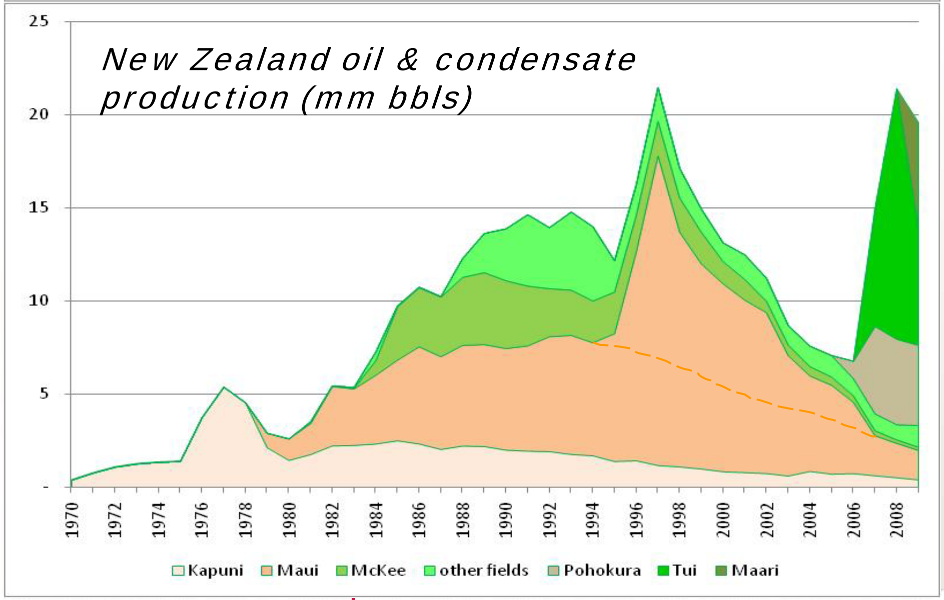
Energy Markets in New Zealand

- Oil (including condensate)
  - For export, mainly to E Australia
- Gas
  - Power
  - Petrochemicals
  - Pipeline network
  - LPG
- Electricity
  - Thermal
  - “Renewable”



Gas

- Market development stimulated by the giant Maui discovery
  - Pipeline network throughout North Island
  - Power generation
  - Petrochemicals (mainly methanol)
- Maui redetermination reduced market scale in 2003
- Scope to resume growth on 200+ BCF base



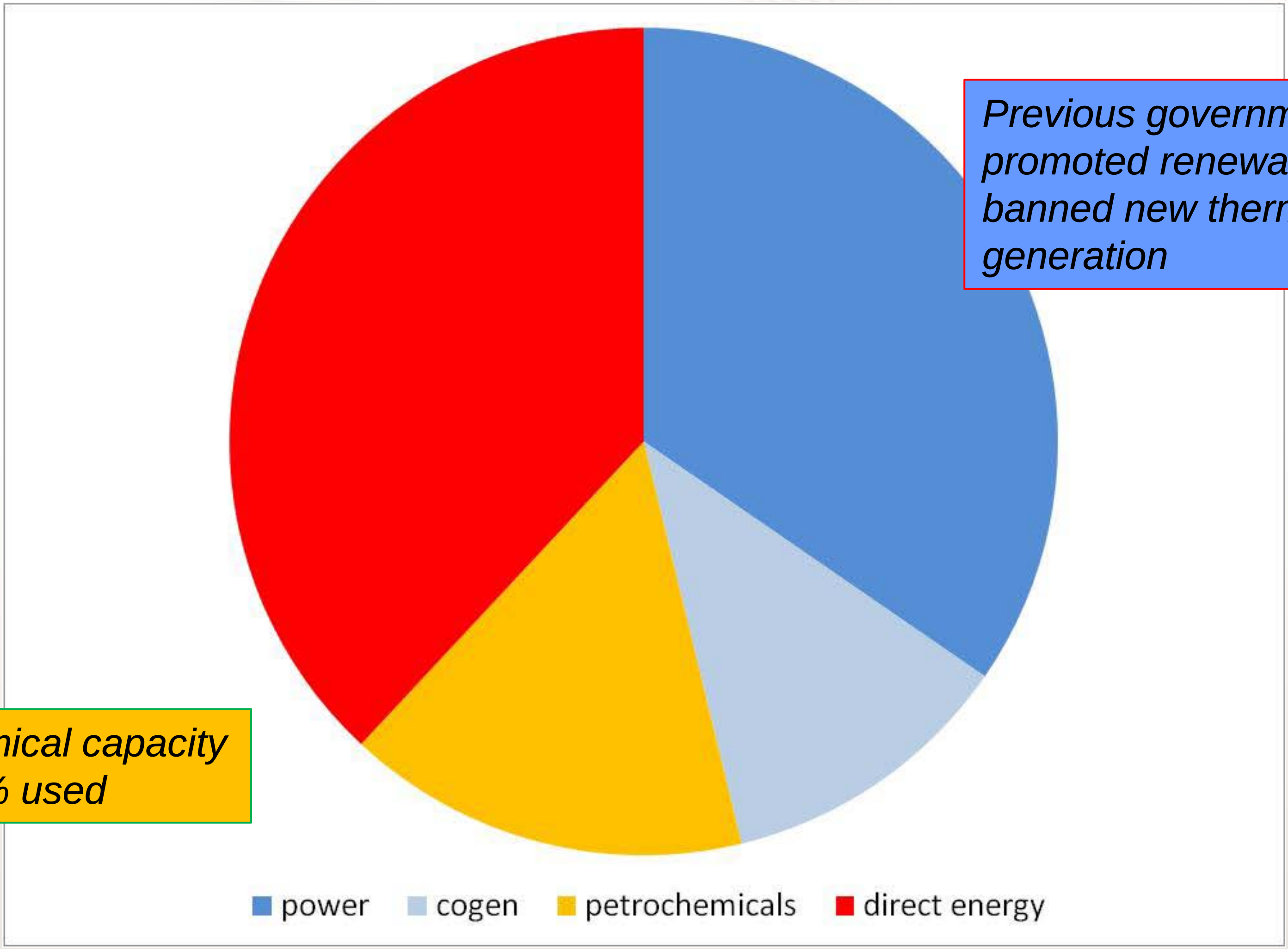
Oil

- Condensate from large gas fields
- Onshore oil fields since early 1980’s
  - McKee
  - Waihapa
  - Mt Messenger sands
  - Rimu/Kauri/Manutahi
- Maui F Sands FPSO development, 1996-2006
- Tui, Maari offshore developments

High quality crudes readily sold in the region

New Zealand gas market 2009

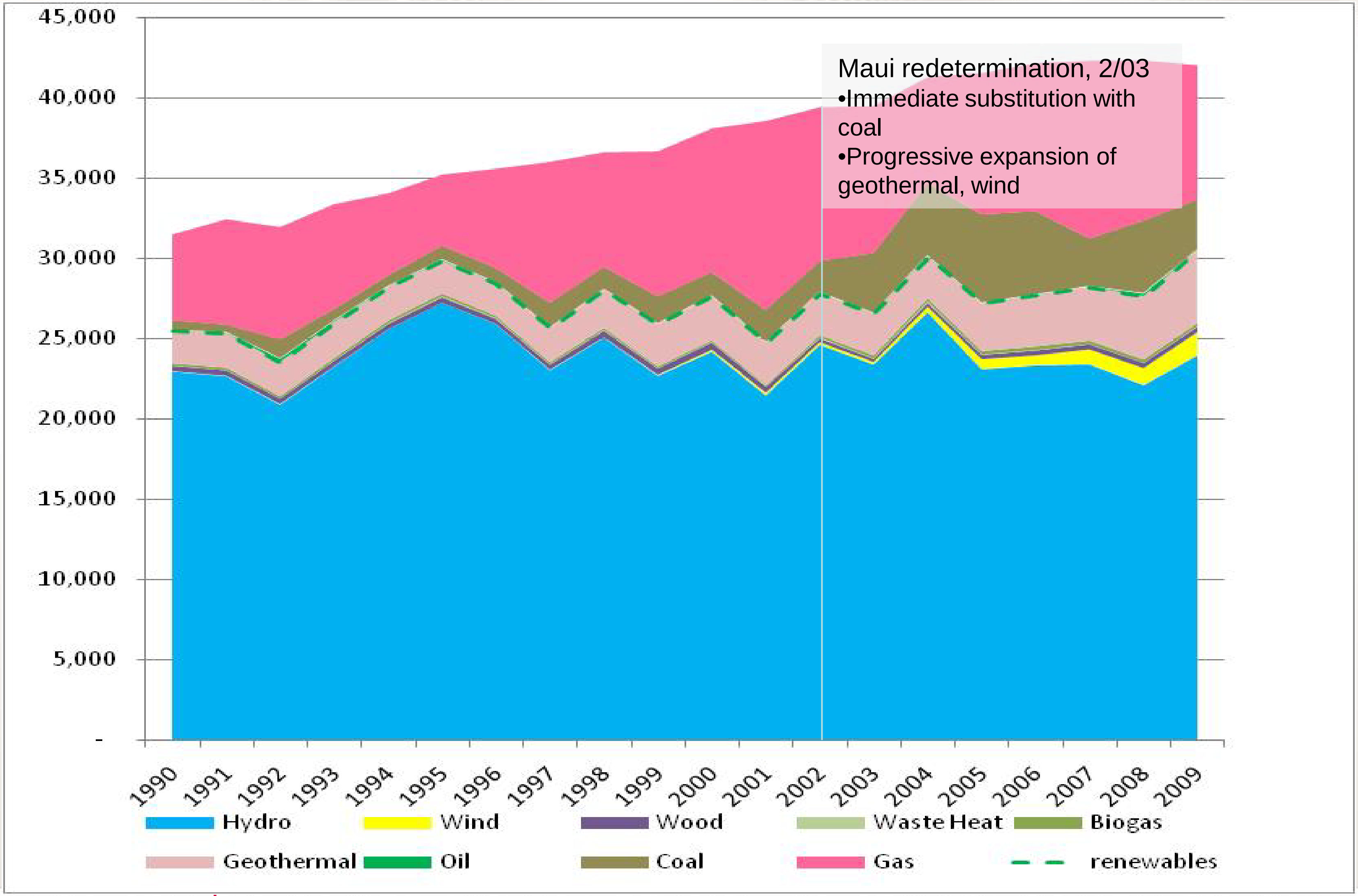
total = 165 PJ, cf 248 PJ in 2001



Previous government promoted renewables, banned new thermal generation

Petrochemical capacity about 25% used

Electricity generation in New Zealand by fuel (GWh)



Conclusions

- New Zealand regime and current policies for oil and gas are relatively favourable
  - *"Action 1: Explicitly positioning Government as proactive and pro-development of petroleum resources"*
- Prospectivity is recognised, subject to
  - appetite for the risks associated with geological complexity
  - Differentiated from the onshore Taranaki fairway through to -
  - Wider fairway over Taranaki shelf
  - Extensive offshore frontiers, mainly deep water
- An apparently closed gas market but with significant excess demand capacity; and scope for FLNG etc
- E&P sector remains short of critical mass for realisation of full potential – easy entry

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