

# Gas NZ Industry Forum

The future of gas in NZ's energy mix

November 2018

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# **Agenda**

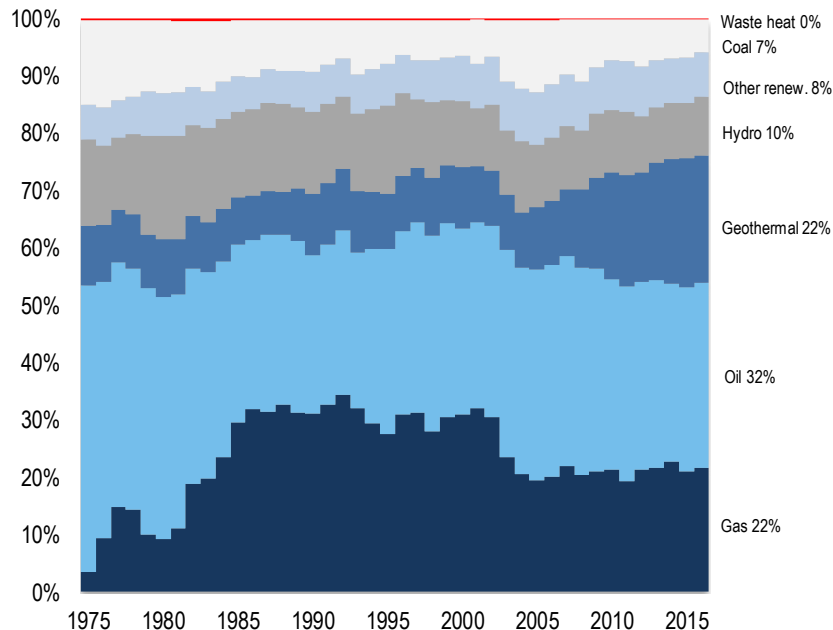
## **The future of gas in NZ's energy mix**

- Where have we come from?
- Where are we now?
- Where are we going?

# NZ's energy supply mix

## Gas still a cornerstone

### NZ Primary Energy Supply Mix



Source: MBIE, Woodward Partners

### Base Peak

#### 1. Energy conversion

- Petrochemicals
- Electricity generation



#### 2. Direct

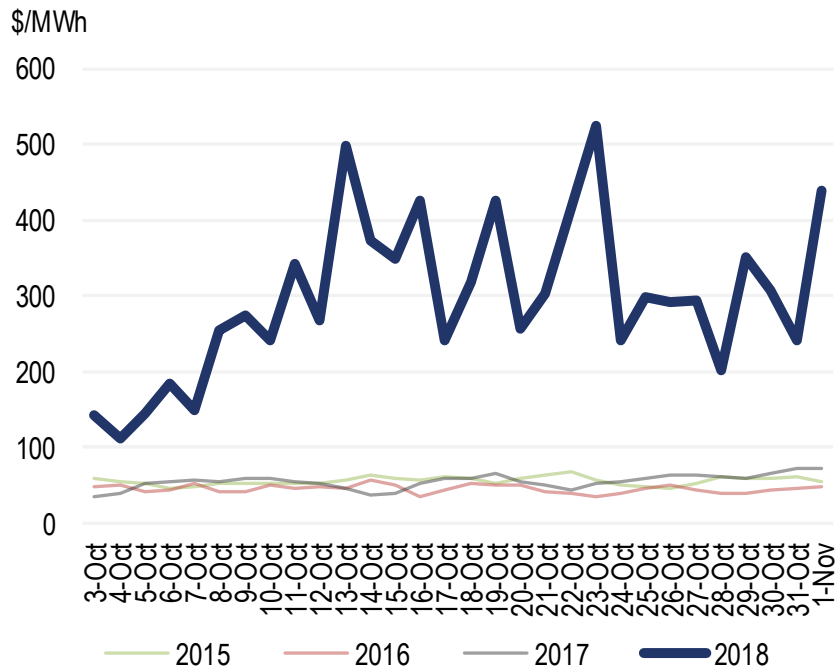
- Reticulation



# What does security of supply look like?

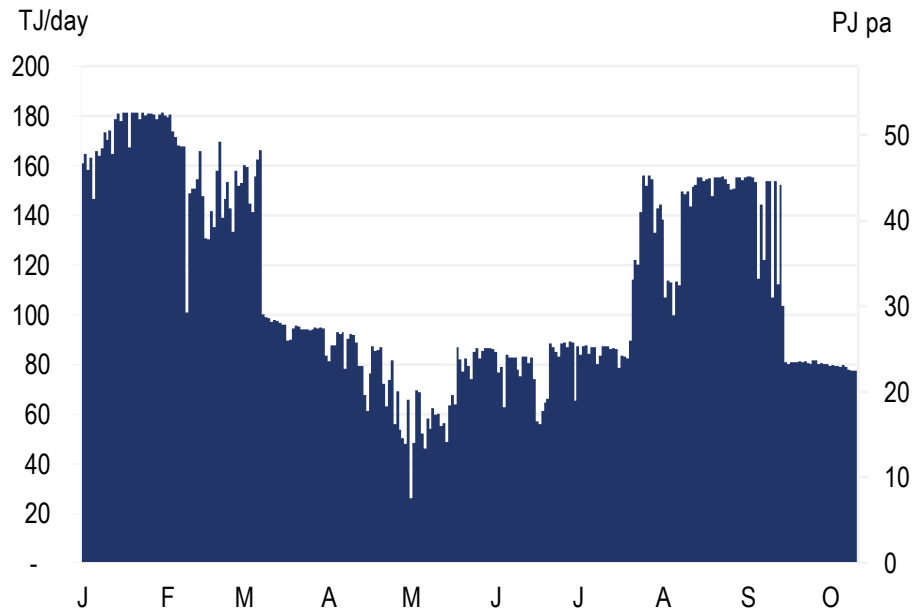
## Two lenses

### BEN wholesale electricity price



Source: Woodward Partners

### Pohokura Maui PPL gas deliveries



Source: OATIS, Woodward Partners

# 2017-18 M&A-led sector recast

~US\$1 bln of NZ E&P M&A inked in 2017-18

## Upstream producing asset deals 2017-18

Date	Asset	Stake	Vendor	Acquiror	Value	Status
Nov-2016	RKM	100.0%	Origin	Westside	~NZ\$10m	Completed
Jan-2017	Tui	57.5%	AWE	Tamarind	-NZ\$9m <sup>1</sup>	Completed
Jan-2017	Tui	27.5%	NZOG	Tamarind	-NZ\$5m <sup>1</sup>	Completed
Jan-2017	Tui	15.0%	Pan Pacific	Tamarind	-NZ\$5m <sup>1</sup>	Completed
Jan-2017	Kupe	15.0%	NZOG	Genesis	NZ\$168m	Completed
2Q 2017	Kapuni	50.0%	Shell	Todd	n.a.	Completed
2Q 2017	Kupe	4.0%	Mitsui	NZOG	\$35m	Completed
4Q 2017	Kupe	50.0%	Origin	Beach	A\$1.6bln <sup>2</sup>	Completed
4Q 2017	Maari	16.0%	Todd	Horizon	US\$18m	Completed
4Q 2017	Ahuroa	100.0%	Contact	First Gas	\$200m	Conditional <sup>3</sup>
1Q 2018	Maui	83.75%	Shell	OMV	US\$578m	Conditional <sup>3</sup>
	Pohokura	48.0%				

### Notes:

1. Negative as after accounting for inventory, the structure of the deals under which Tamarind acquired the Tui interests of AWE, NZOG and PPP resulted in the vendors paying the equivalent of \$20m to Tamarind.

2. Origin Energy's Kupe stake formed part of a broader asset portfolio held by Lattice Energy, sold by Origin to Beach in October 2017. The value shown is for the full portfolio.

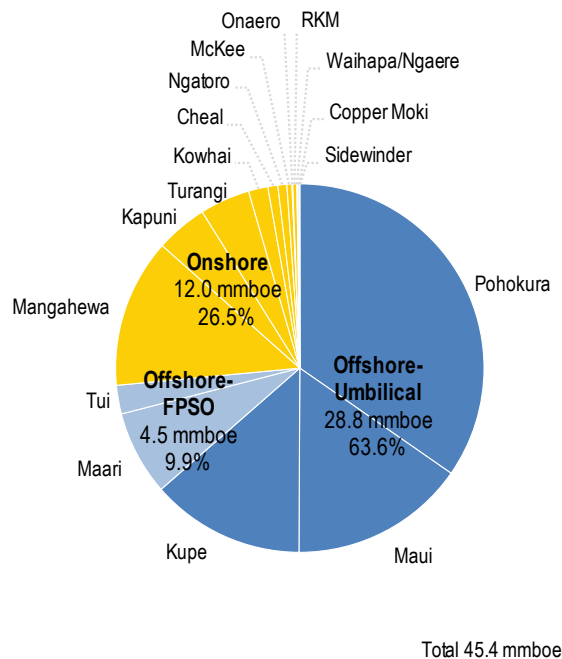
3. Conditional on one or more of NZP&M, OIO and Commerce Commission approvals.

- Asset change of control:
  - 4 of NZ's 5 offshore producing fields
  - NZ's oldest producing field
  - 65% of 2018(f) production
  - 60% of remaining 2P reserves
- Corporate M&A additional
- Only two of 11 buy-siders local

# 2017-18 M&A-led sector recast

## Commercial control of three largest producing assets changing hands

### Oils+LPG+gas field production 2017



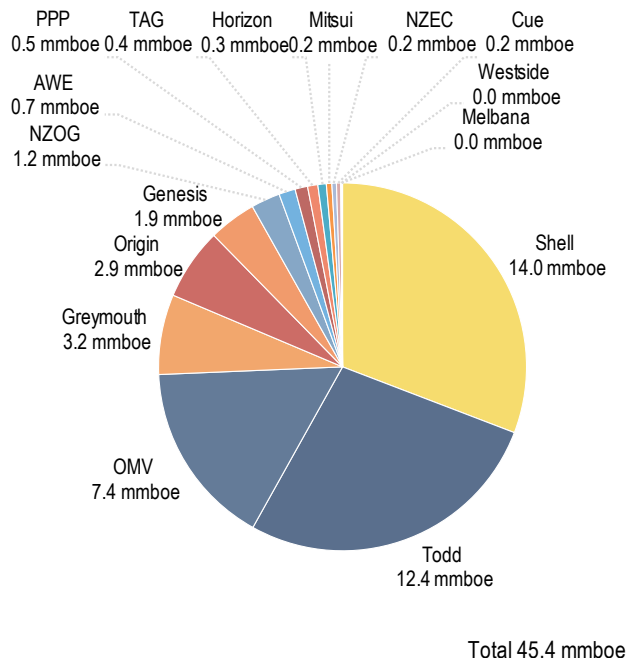
Source: Woodward Partners

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# 2017-18 M&A-led sector recast

Midstream becoming a much more active space

## Gas

- **First Gas:** clear growth mandate
- **Genesis:** new Huntly CSA with BT Mining
- **Contact:** Ahuroa gas storage operated in anger for first time in winter 2017
- **I&C:** increasing appetite for spot market exposure in GSAs

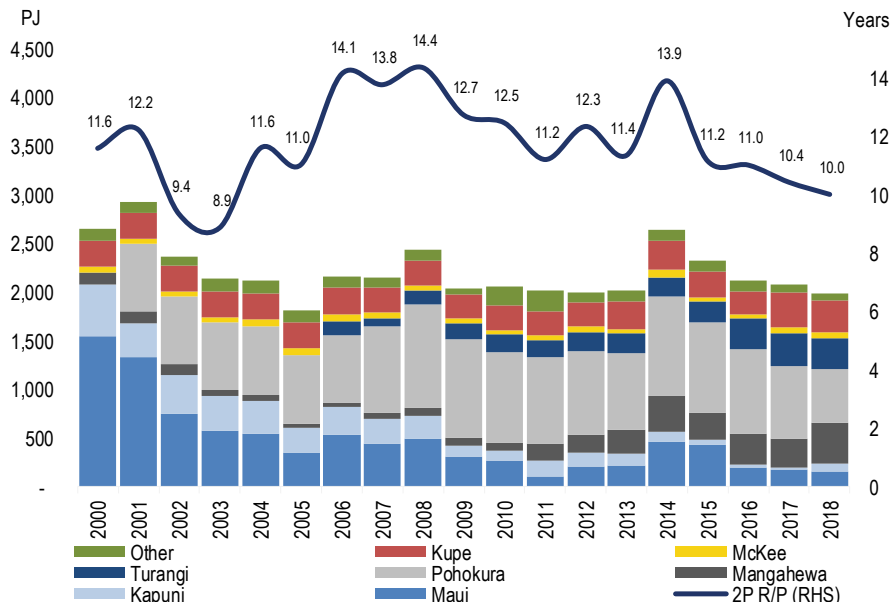
## LPG

- **Genesis:** Nova acquisition complete, focus now on unlocking value
- **First Gas:** Rockgas a major step-out
- **Vector:** Papakura LPG bottling facility
- **Balancing:** Demand growth with declining indigenous supply creating both challenges and opportunities

# Resource endowment

## 2P gas+LPG lowest since Maui redetermination

### Gas+LPG 2P remaining, 2000-2018



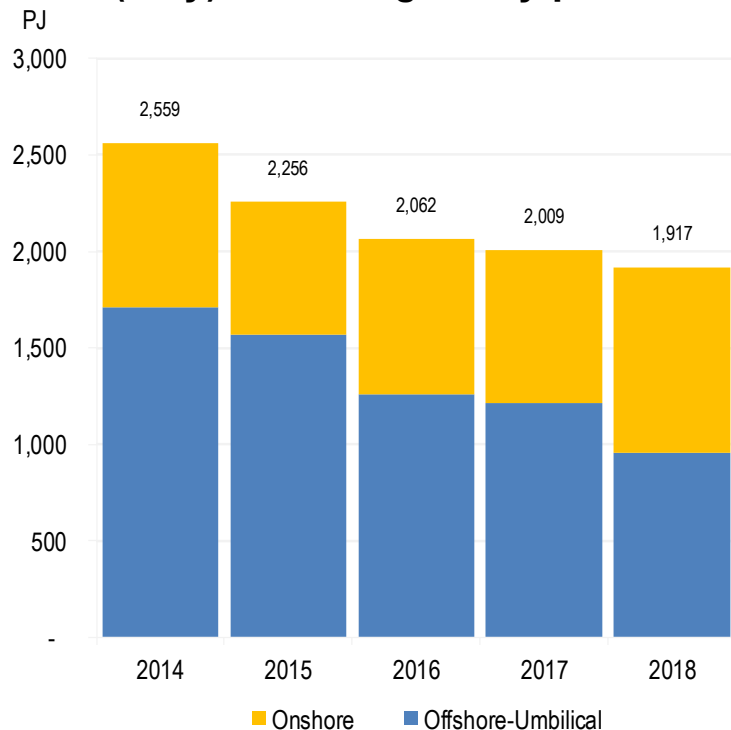
Source: MBIE, company disclosures, Woodward Partners

- Aggregate 2P gas+LPG reserves of 1,985 PJ mmboe fell -4.5% y/y
- Lowest 2P outcome since following Maui redetermination in 2003
- Pohokura decrease of -205 PJ or -27.2% the biggest negative mover
- Mangahewa increase of +128 PJ or +44.2% the biggest positive mover. Kapuni +63 PJ or +258.2%.
- Coverage falls to 10.0 years

# Resource endowment

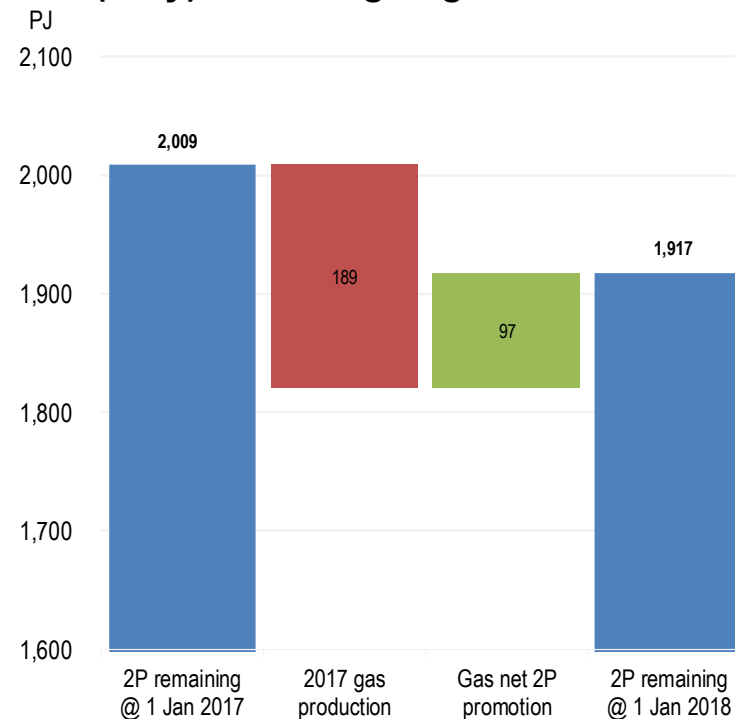
## Net 2P gas on five-year unbroken trend

### Gas (only) remaining 2P, by prdn format



Source: MBIE, Woodward Partners

### Gas (only) 2P change agents 2017 → 2018

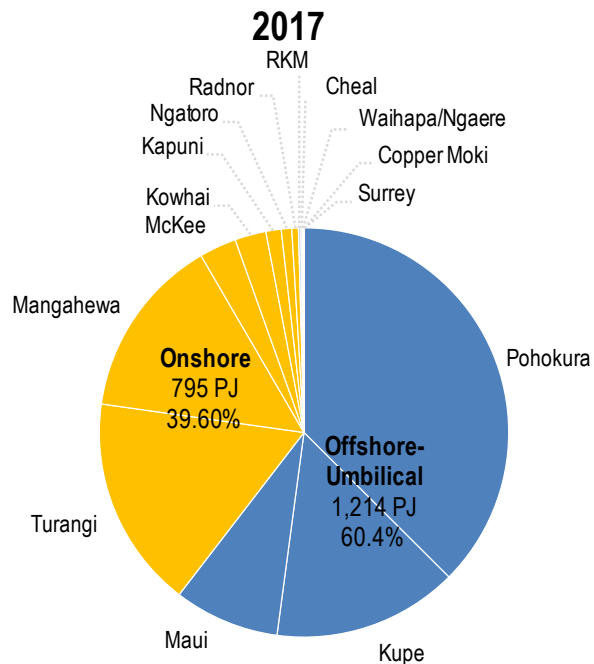


Source: MBIE, Woodward Partners

# Resource endowment

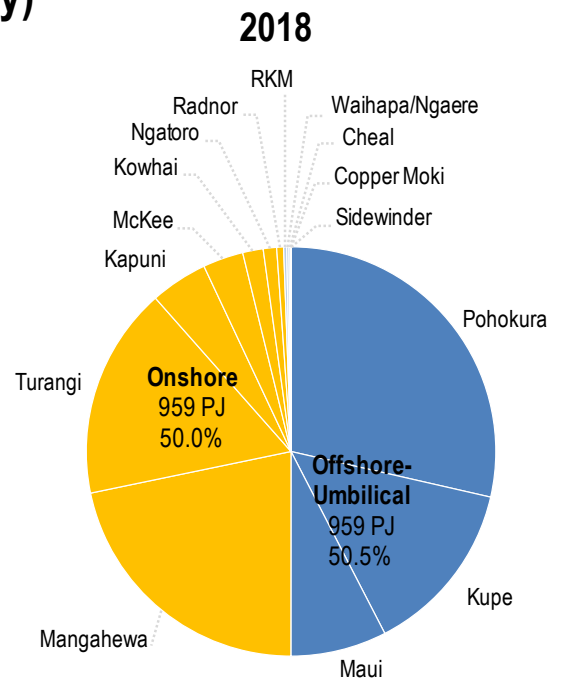
Remaining 2P gas now an even bias offshore/onshore

## 2P remaining gas (only)



Total 2,009 PJ

Source: MBIE, Woodward Partners



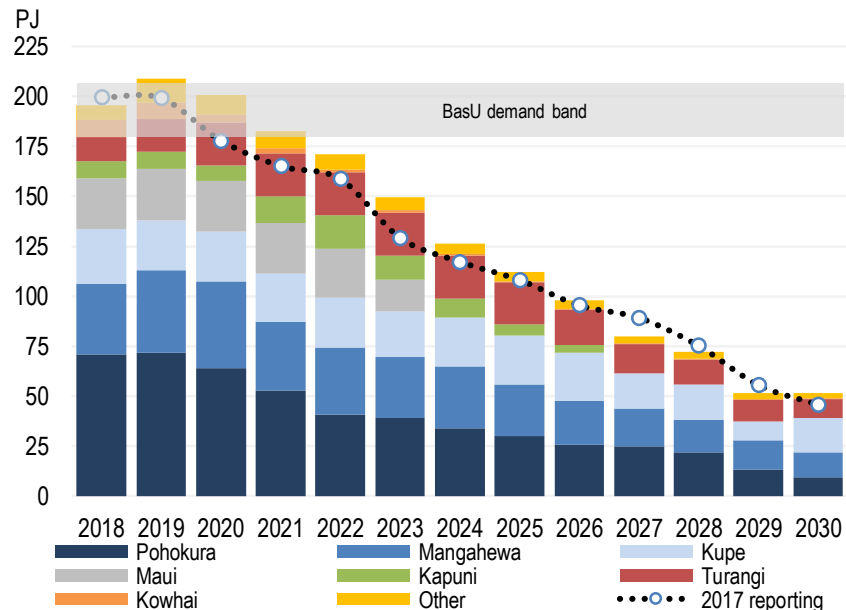
Total 1,917 PJ

# NZ gas supply/demand outlook

Forward profiling infers 2P-based supply gap from early 2020s

## Gas supply outlook, 2P delivery basis

Based on 2018 operator reportings



Source: MBIE, Woodward Partners

- Operator reporting of expected field supply profiles suggests demand > supply from early 2020s, however profiles are based on reported 2P reserves and therefore take no account of potential future reserve and/or resource upside or downside.
- Commitments to programmes at each major existing field likely to support ongoing 2P promotion.

Electricity  
Price  
Review

Productivity  
Commission  
low carbon  
economy

Transmission  
Pricing  
Methodology  
Review

ETS review

“Offshore  
exploration ban”



Commerce  
Act  
Amendment  
Bill

100%  
renewable  
generation  
by 2035

No coal-  
fired  
generation  
by 2030

Zero  
Carbon  
Bill

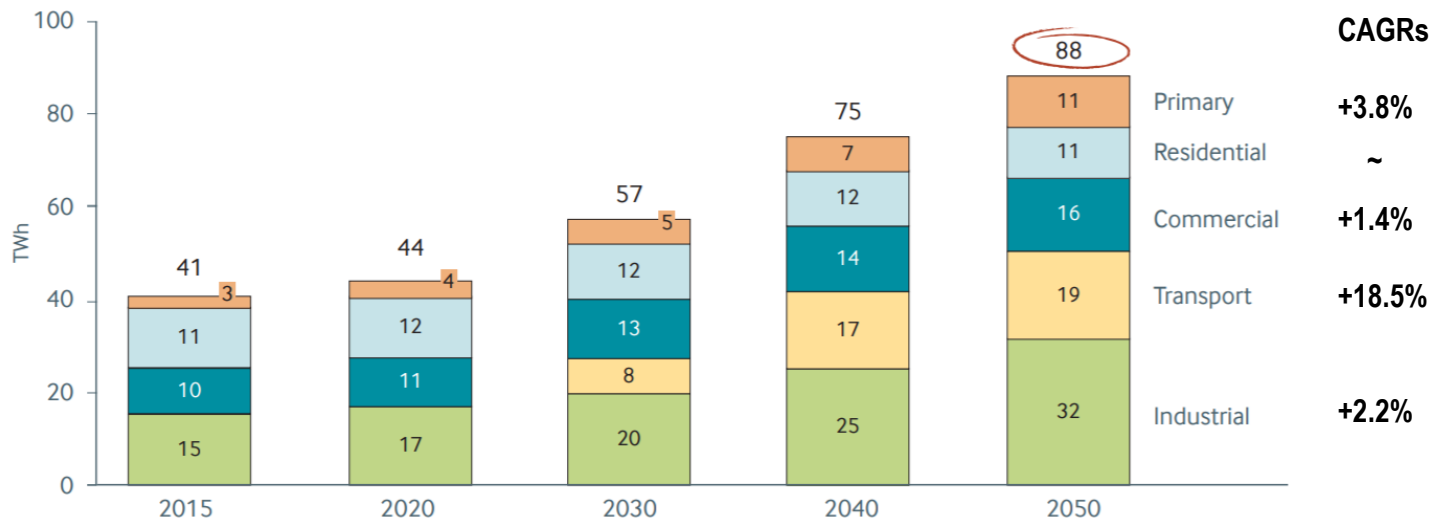
Review of  
seismic  
surveying  
rules

Interim  
Climate  
Change  
Commission

# Electrification

Dramatic change in demand-side outlook from system operator

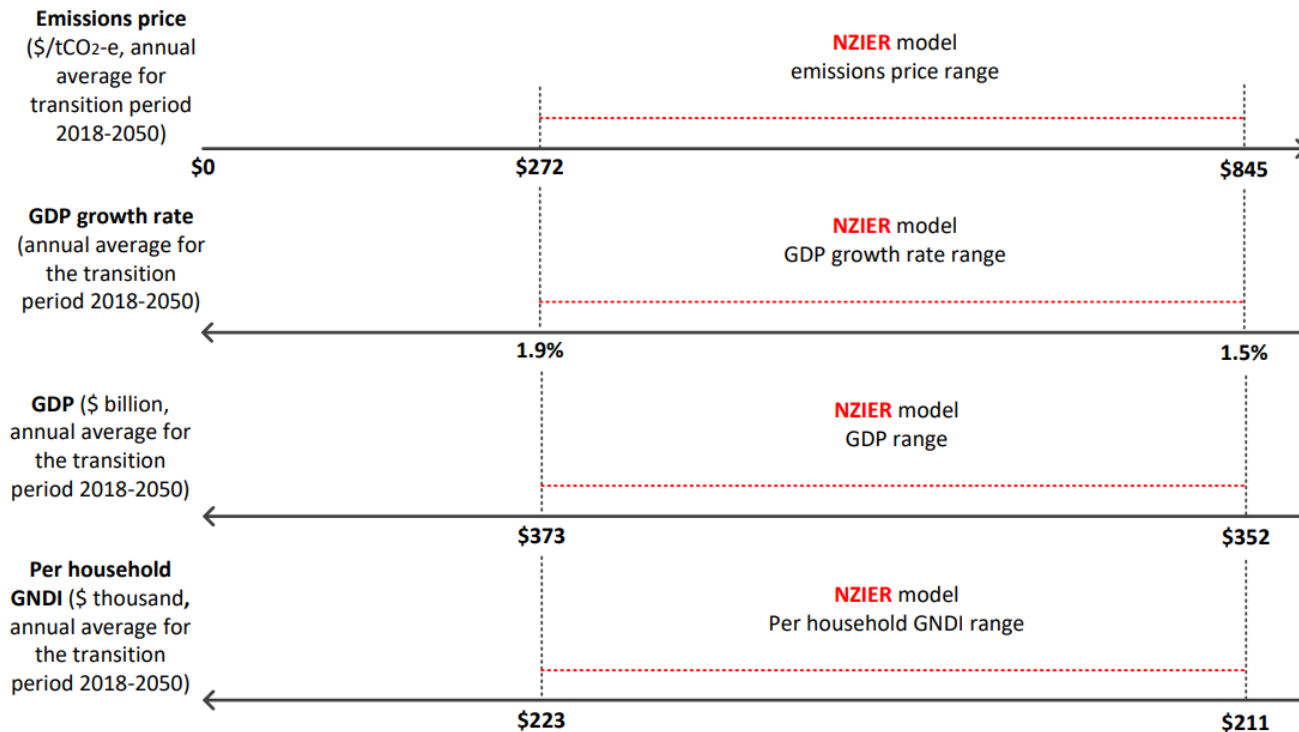
## Forecast electricity demand



Source: Transpower

# Decarbonisation

## What we all want. But at what cost?





# The “Offshore Exploration Ban”

## Flawed policy and process

12 April 2018

- Complete surprise to industry
- Cabinet policy process ignored
- No advice sought from any of MFE, Treasury, EPA, MFAT thus:
  - No evidence to support claims of climate change benefits
  - No financial/economic cost/benefit analysis
  - No analysis for multilateral impacts

### Block Offer 2018 Release of Information

5 JUNE 2018



HON DR MEGAN WOODS

Energy and Resources

Hi all, On 12 April 2018, the Rt Hon Prime Minister Jacinda Ardern announced that there will be no further offshore petroleum exploration permits granted. On the same day, Minister Woods announced the start of consultation with iwi and hapū on the proposed Block Offer 2018 release area for petroleum exploration permits.

As you know, this decision was about taking political leadership to act on climate change and its flow on impacts. The decision was a political decision, looking out 30 years and taking steps towards 2050 being emission neutral. This is a signal about the future, while current exploration and production permits continue. We are working with communities affected on how we get there.

Today we are releasing advice and communications relating to Block Offer 2018 and the decision to stop offering future offshore petroleum exploration permits.

As you can see, the Cabinet decision was the culmination of exhaustive consultation between the Coalition partners and senior Ministers which started in December 2017 immediately after the announcement of that year's block offer. Despite the fact it was an oral item, there was more discussion than most items with written papers.

# The “Offshore Exploration Ban”

What advice there was identified major policy risks and costs

## Officials became aware only 5 days ahead of announcement

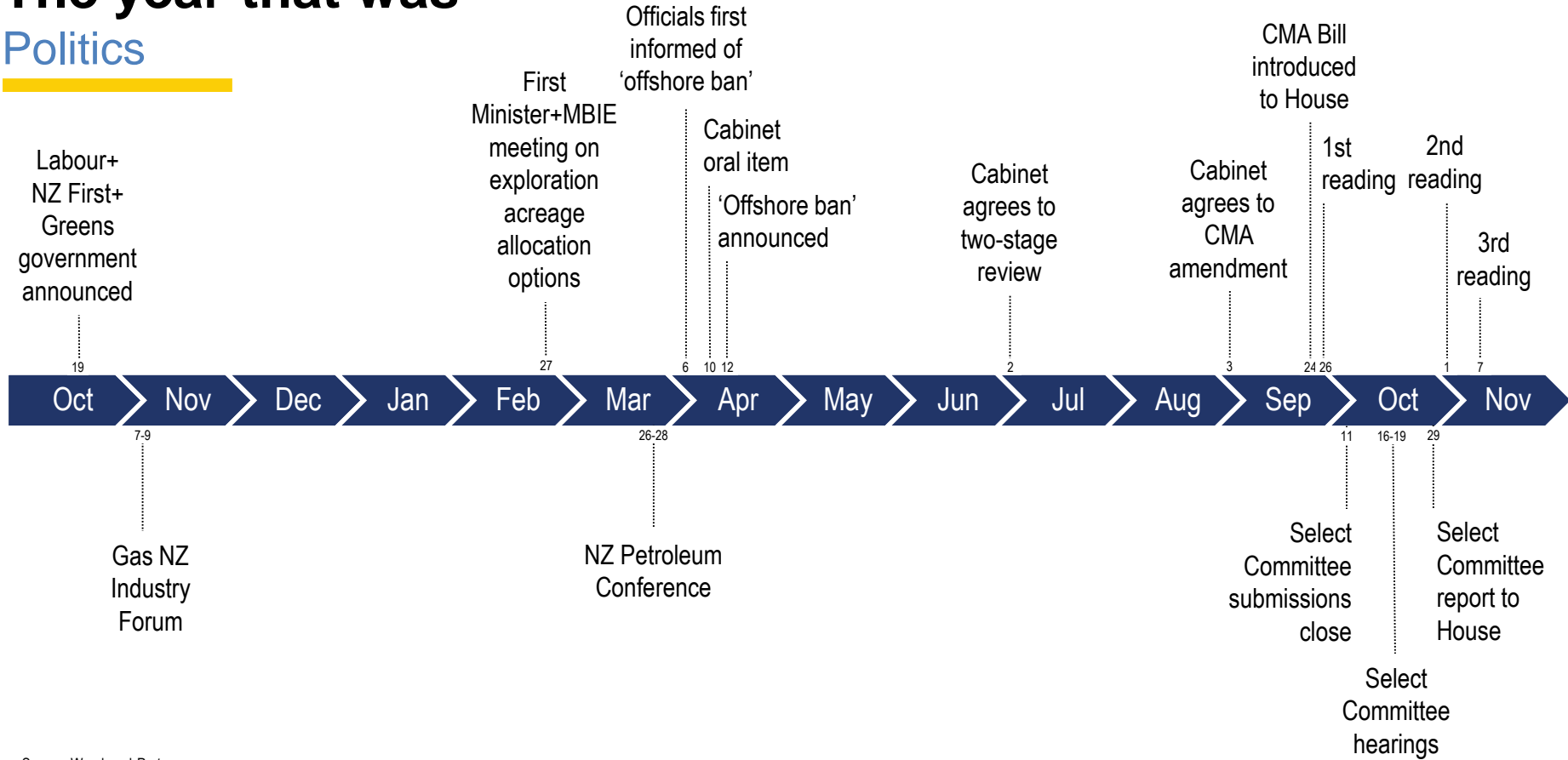
- Only one piece of policy advice was tendered which was extremely negative saying that the proposal “*runs counter to a number of important public policy objectives*”.

### “Offshore ban” costs and benefits

Costs	Benefits
<ul style="list-style-type: none"><li>Cost to the Crown of foregone royalties and taxes</li><li>Cost to E&amp;P companies of foregone profits</li><li>Cost to national and regional economies in foregone economic contribution</li><li>Security and affordability of supply of energy, particularly gas and electricity</li><li>Sovereign risk</li><li>Investment uncertainty</li><li>Acceleration of decommissioning timeframes</li><li>Foregone geoscience information</li><li>Global greenhouse gas emissions</li></ul>	<ul style="list-style-type: none"><li>Domestic greenhouse gas emissions</li></ul>

# The year that was

## Politics



Source: Woodward Partners

# The “Offshore Exploration Ban”

It's done

## Crown Minerals (Petroleum) Amendment Bill the ‘fix’

- Policy announcement carried significant legal risks, requiring mitigation
- Cabinet has agreed on CMA Amendment Bill to explicitly exclude offshore with no Ministerial discretion. To reverse the policy would require a law change.
- Government rushed Bill through the House on (false) pretence that legislation is time-critical to enable Block Offer 2018 to proceed. It is not.
- Legislation sent to Environment (not Economic Development) Select Committee
- Policy creep clearly evident – all non-Taranaki land and sea is excluded
- Select Committee hearing process was time best spent doing something else

# The “Offshore Exploration Ban”

It's done

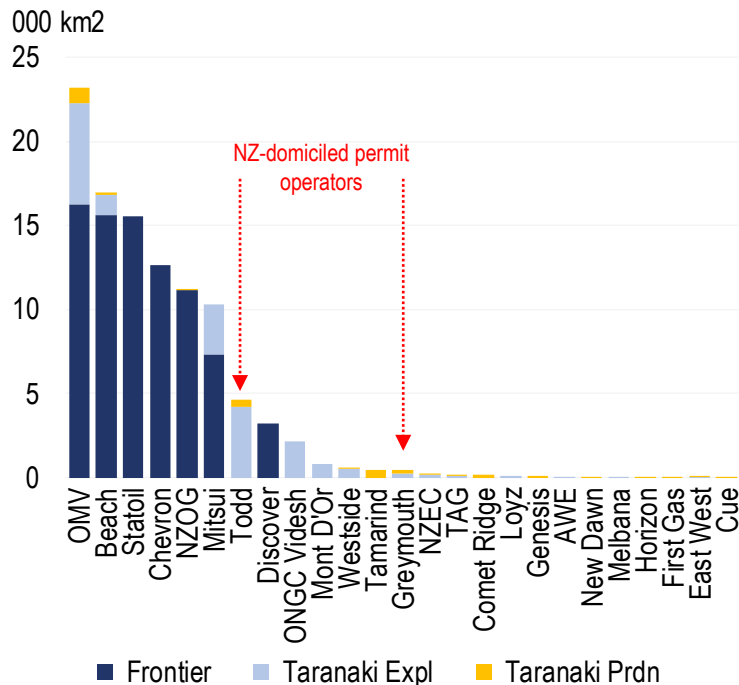
## Our view:

- The ban is an arbitrary intervention made in the name of climate change but without any supporting evidence or analysis. We agree with the mainstream (and officials’) view that the policy will likely increase global emissions
- We support the financial methodology applied in MBIE’s cost/benefit analysis in the RIS but consider it dramatically understates the economic costs
- There appears nothing “managed” about the transition
- Investors are worried about read-across to other sectors and industries
- There is much reason for caution towards the next stage of CMA “review”

# Biting the hand that feeds

Foreign expertise and capital screening decisions still underpin local E&P

## Net NZ E&P acreage holdings



Note: assumes OMV's acquisition of Shell NZ's assets proceeds as announced

Source: Woodward Partners

## NZ acreage by operator domicile

Acreage	Domicile of permit operator		
	NZ net 000km²	Non-NZ net 000km²	NZ %
Production	0.5	1.8	21.7%
Exploration	4.5	68.8	6.1%
<b>Total</b>	<b>5.0</b>	<b>70.6</b>	<b>6.6%</b>

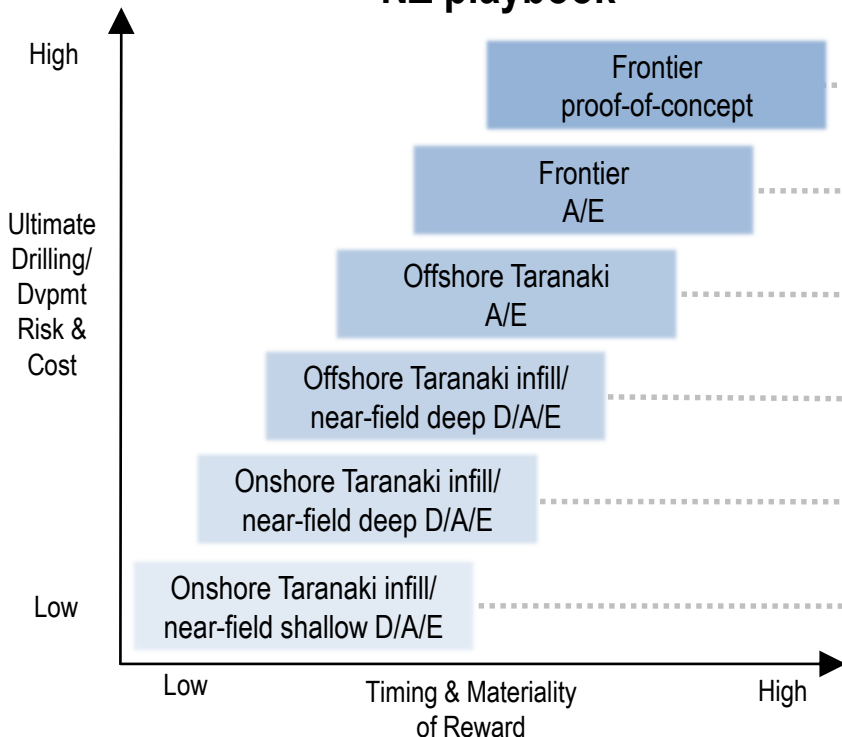
Source: Woodward Partners

- Capital screening decisions impacting NZ largely undertaken out-of-country
- Institutional capital increasingly difficult to attract locally

# Activity & work programmes

Investor focus and risk tolerance likely to consolidate

## NZ playbook



D/A/E = Development/Appraisal/Exploration drilling

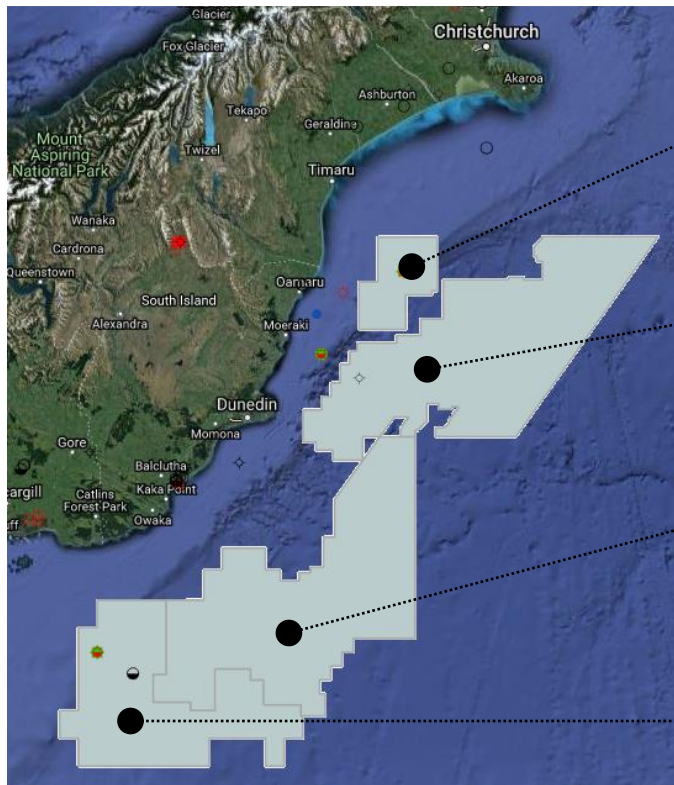
Acreage equity		
Available	Unclear	Unavailable
OMV Pegasus Basin	Chevron Pegasus Basin	
OMV GSB, Carack/Caravel, Clipper		
OMV Taranaki Basin x2		OMV Taranaki Basin x3
Tui	Maari, Kupe, Maui, Pohokura	
Kohatukai, Cardiff	Rimu/Kauri	Mangahewa, Kapuni
Cheal, Sidewinder, Puka	Manutahi	

# Activity & work programmes

## Frontier: Great South & Canterbury basins

FIRM

CONTINGENT



### Clipper PEP 52717



NEW ZEALAND  
OIL & GAS



Drill-commit April 2019  
Drill-drop August 2020

### Carack-Caravel PEP 38264



DISCOVER  
EXPLORATION LIMITED

Drill-commit August 2018  
Drill-drop August 2020

### Great South Basin PEP 50119



Drill-drop July 2019

### Toroa PEP 55794



NEW ZEALAND  
OIL & GAS

Drill-commit March 2020  
Drill-drop March 2021



# Activity & work programmes

## Taranaki Basin: Offshore

FIRM

CONTINGENT

**Tui** PMP 38158

**TAMARIND**

2-3 x dvpm sidetracks 2019

1 x exploration 2019

**Maari** PMP 38160

**cue energy** **Horizon Oil** **OMV**

Manaia-3  
2019

**Pohokura** PMP 38154

**OMV** **TODD ENERGY**

P2D drilling?

**Maui** PML 381012

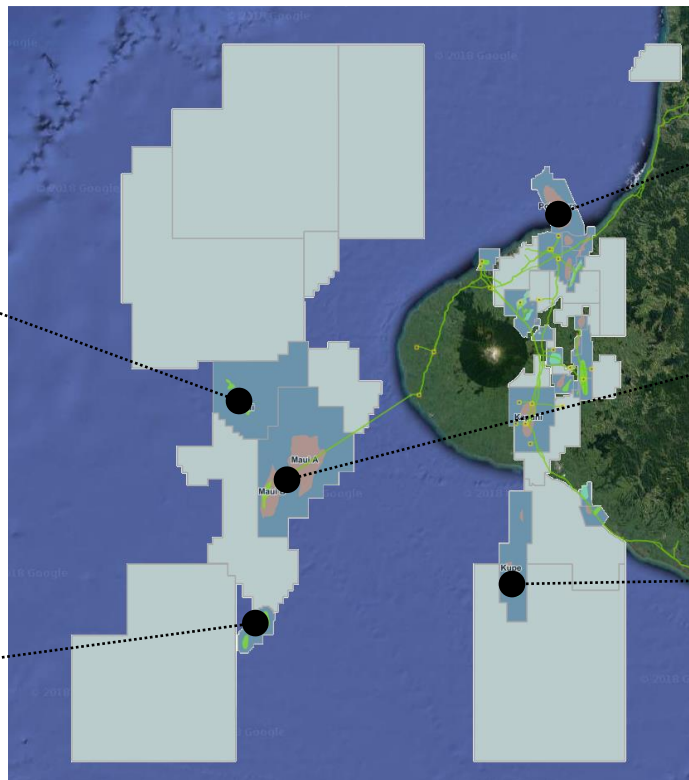
**OMV** **TODD ENERGY**

Jack-up programme

**Kupe** PML 38146

**BEACH ENERGY** **genesis** **NEW ZEALAND OIL & GAS**

P2D drilling  
~2020?



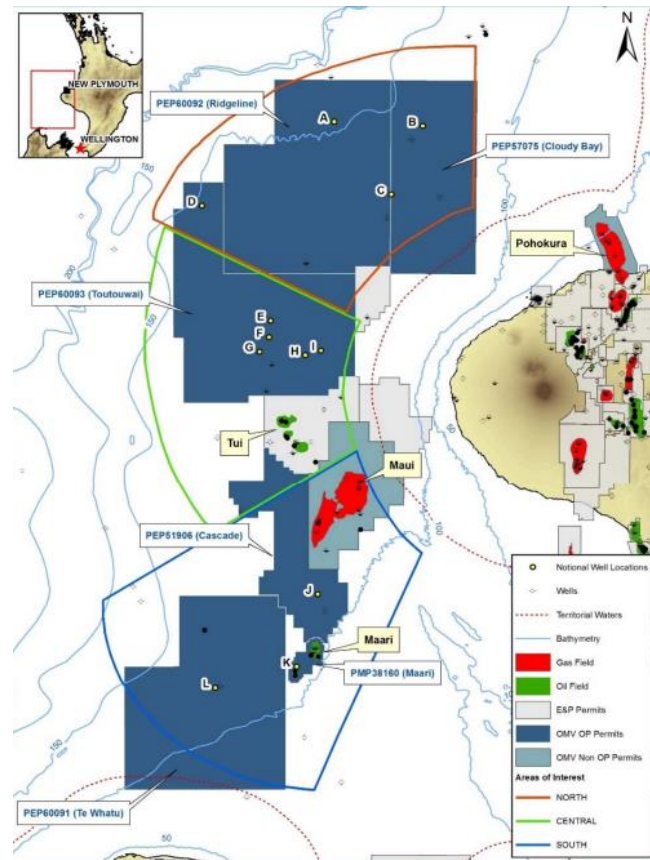
# Activity & work programmes

Major E, A & D offshore drilling programme also signalled by OMV

## OMV proposed EAD programme wells

Permit #	Permit name	Ownership	Wells
PMP 38160	Maari	OMV 69.0% Horizon Energy 26.0% Cue Energy 5.0%	1 x appraisal well
PEP 51906	Cascade	OMV 70.0% Sapura Energy 30.0%	1 x exploration well
PEP 57075	Cloudy Bay	OMV 70.0% Sapura Energy 30.0%	2 x exploration wells
PEP 60091	Te Whatu	OMV 40.0% Mitsui E&P Australia 30.0% Sapura Energy 30.0%	1 x exploration well
PEP 60092	Ridgeline	OMV 40.0% Mitsui E&P Australia 30.0% Sapura Energy 30.0%	1 x exploration well
PEP 60093	Toutouwai	OMV 40.0% Mitsui E&P Australia 30.0% Sapura Energy 30.0%	2 x appraisal wells 4 x exploration wells

Source: Woodward Partners



# Activity & work programmes

## Taranaki Basin: Onshore

### FIRM

#### Mangahewa PMP 38150



Mangahewa-G programme 4Q 2018

#### Radnor et al Multiple permits



Taranaki onshore programme

#### RKM PMP 38151 & PMP 38155



1 x sidetrack 2018  
2 x development wells 2018-19

### CONTINGENT

#### Kohatukai PEP 55768



Drill 4Q 2018

#### Tariki, Waihapa, Ngaere

PMLs 38138, 38140, 38141

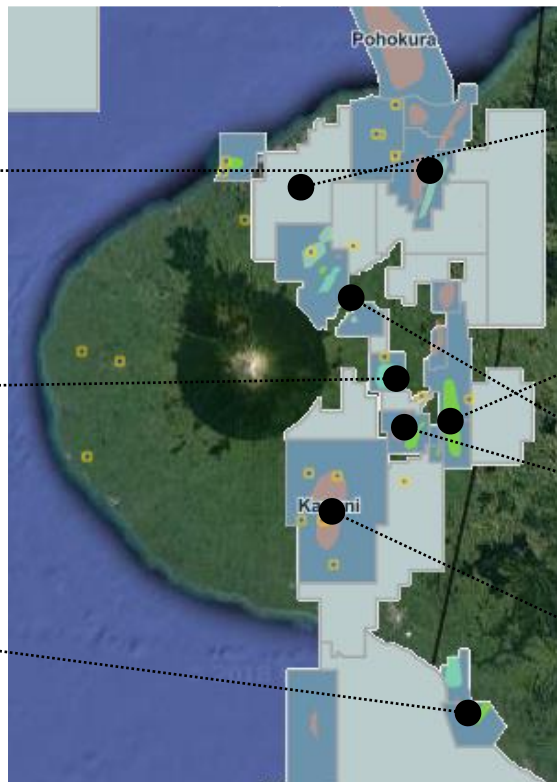


#### Cheal/Cardiff, Sidewinder

PMPs 38156, 60291, 53803



#### Kapuni PML 38839



# Key takeaways

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- **Policy fallout still to unfold** – Long-term implications of offshore ban all of negative, deep and enduring. Existing load means however that the North Island gas sector still has many decades left to run. Uncertainties are (1) price and (2) reinvestment.
- **Upstream: Focus likely to consolidate to Taranaki and established fields** – OMV (offshore) and Todd (onshore) now hold most of the cards. Substantial near-term investment is required from each to bring gas to market in an orderly manner. External-facing markets (oils + LPG) to focus on life extension and expansions. Internal-facing markets (gas) to focus on meeting the (petrochemical) challenge.
- **Downstream: All about Methanex** – Methanex is the sector's shock absorber and release valve. NZ Inc is likely to become increasingly leveraged to methanol turnaround cycles, particularly 1-2 cycles out. The recent GSA very positive (but expected) shot in the arm however longevity of NZ operations will now be shorter because of the ban.

# Key takeaways


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- **Pohokura a healthy dose of reality** – O&G operations are complex assets where things can and do go wrong. Security of supply requires redundancy.
- **Gas supply becoming an increasingly open question from early/mid-2020s** – Operators are highlighting a pending supply/demand gap from as early as 2021. With significant 2C in the back pocket this is unlikely but does highlight pending supply squeeze. Deliverability is likely to be the first signal of decline.
- **Beware policy creep** – “The ban” could end up being noise in a bigger picture involving a fundamental review of the CMA.
- **Energy debate currently a very weak one** – “The ban” represents deeply flawed public policy that is a product of its own uninformed creation. We need to do better.

# Context is everything



OCTOBER 18, 2018  
*Updated October 18, 2018*

**Gavin Evans**  
Gavin Evans is a Wellington-based business journalist with a special interest in energy, infrastructure and forestry.

**BUSINESS**

## Exploration ban ‘selfish, rich world’ approach, MPs told

**The government’s proposed exploration ban is a “selfish and rich world” approach that ignores the country’s responsibility to help deliver low-carbon energy in the broader Pacific region, MPs heard yesterday.**

New Zealand’s exclusive economic zone is the ninth-largest in the world and that brings with it a special responsibility. Elemental Group managing director Brett

## World Gas Conference

### Gas as a destination fuel

- **A gas discussion. A real one.** – Last week we and 12,000 others attended the World Gas Conference in Washington DC. This note records our high-level impressions and takeaways from what was a memorable event.
- **‘Energy transition’ nothing new** – Speaker after speaker highlighted the importance of gas in the global energy mix for its abundance, affordability and reliability. The likelihood of the ‘energy transition’ squeezing gas from the energy chain was roundly dismissed by both the buy-side and the sell-side. Instead, both sides pitched gas as a ‘destination fuel’ for its ability to meet what is expected to remain strong forward developing world demand growth compounded by ongoing pressure to progressively displace coal and oil from the energy supply chain.
- **Sustainability and energy poverty each much deeper debates** – The most striking point of difference to NZ’s recent energy discussion (or rather lack of) was debate around the energy buzzwords of ‘sustainability’ and ‘poverty’. Whereas in first-world NZ ‘sustainable’ tends to be used interchangeably with ‘emissions’ and/or ‘environment’ and ‘energy poverty’ with ‘low income’, discussion at the forum dug much deeper. Focus instead was on the world’s poorest people and how to help lift their living standards while also targeting a net-positive environmental impact. With 40% of the world’s population still cooking their meals on wood, charcoal and/or dung, that challenge is beyond enormous. There was universal agreement however that gas would be a key component of the solution.
- **Another ‘managed transition’.** But arguably a more noble one. – Where discussion at the forum did intersect with that in NZ was in its referencing of a ‘managed transition’. Interpretations of the term are however very different. In NZ it is the catchphrase government has opted for to sell its surprise move to signal an accelerated wind-down of the supply-side of the domestic oil and gas sector. At the forum talk of transition was pitched as an exercise of sector participants working together to migrate the demand-side from coal and oil and the pollutive footprints that come with each. The North American ‘shale gale’, which is now a decade old, has delivered a staggering array of economic, societal and environmental benefits. While clearly in their interest to do so, US producers are now seeking to extend the reach of those benefits by increasing LNG exports to new markets, with the environmental benefits that gas offers at the core of its sales pitch.
- **NZ read-throughs sobering** – Our takeaways from the event condense largely to an observation that NZ is out of sync with the energy policy approaches being taken by most of its developed nation peers. Whereas NZ’s policy positioning is increasingly angling towards a binary ‘its either good or its bad’ position on fuel, the approach being taken by most other countries reflects that the world is not quite that simple. As the North American example has clearly demonstrated, maintaining energy policy that is sufficiently flexible to accommodate future technology advances is critical. Not taking this approach is likely to result in rushed and/or under-thought policy decisions taken today costing dearly in international competitiveness and domestic energy security terms tomorrow.

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