

Meeting Date: 23 May 2024

## GAS RESILIENCE PAPERS AND PRESENTATIONS

## SECURITY AND RELIABILITY COUNCIL

This paper introduces papers and presentations on the theme of the gas resilience, a high priority for the SRC, as reflected in its risk radar. The secretariat has invited Enerlytica, GIC, Clarus, OMV and the Authority to provide different perspectives on the role of gas to support a secure and reliable electricity supply.

**Note:** This paper has been prepared for the purpose of the Security and Reliability Council (SRC). Content should not be interpreted as representing the views or policy of the Electricity Authority except where specifically noted.

# Gas resilience papers and presentations

## 1. Introduction

- 1.1. The SRC has asked the secretariat to arrange a suite of papers and presentations to inform the SRC about the state of gas resilience in New Zealand, and its ability to support a secure and reliable electricity supply.
- 1.2. Presenters were asked to provide views on the following topics, as they relate to electricity supply:
  - 1.2.1. Gas resiliency
  - 1.2.2. Fitness for purpose of gas regulation
  - 1.2.3. Gas monitoring of inputs, trends and areas needing improved visibility
  - 1.2.4. Gas investment to address 2025-2027 electricity security of supply concerns (including impediments to new gas peaking plant being built)
  - 1.2.5. Gas availability for electricity generationto support the SRC's advice to the Authority Board.
- 1.3. The Minister and MBIE will have attended the morning session of the SRC's 23 May meeting to present and hear from industry, perspectives on key security and reliability issues impacting the sector, so Members will have this information fresh to mind assisting their focus for this gas resiliency session.
- 1.4. The secretariat has included in item #6 for this meeting, a range of recent *Energy News* articles relevant to the gas resilience theme.
- 1.5. The Authority paper includes an update on security of supply, including thermal fuels.
- 1.6. The secretariat has been advised some presentations will not be available for inclusion in members' pre-meeting reading material. The secretariat will make copies of any available presentations via Diligent and in the room on the day.

## 2. Questions for the SRC to consider

The SRC is asked to consider the following general questions.

- Q1. What further information, if any, does the SRC wish to have provided to it to maximise member-understanding of the government's approach?**
- Q2. What further themes or topics are of interest to the SRC, arising from the Gas Resilience papers and presentations?**
- Q3. What advice, if any, does the SRC wish to provide to the Authority?**

- 3. Appendix A: Enerlytica presentation**
- 4. Appendix B: Authority presentation**
- 5. Appendix C: Gas Industry Co (GIC) presentation**
- 6. Appendix D: Clarus presentation**
- 7. Appendix E: OMV presentation**

# **NZ energy markets outlook**

Security & Reliability Council  
Electricity Authority

May 2024



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# NZ energy stress meters

## Clear domestic bias to system tension

	<3 mths	>3 mths	
<b>Crudes</b>			Market sentiment fluid as OPEC+ production cuts are offset by expectations of significant production growth from the Americas
<b>Gas</b>			Supply is insufficient to meet the full call of market demand and the activity outlook for the work required to stabilise supply is weak
<b>Coal</b>			Coal has retreated from all-time highs and supply appears able to meet demand despite strong growth in India and drought in China
<b>LPG</b>			The Kupe field which at plateau supplied >50% of NZ demand is in decline, KS-9 well result looks likely to see higher reliance on imports
<b>Refined</b>			Conflict in the Red Sea continues to bring pressure to refined oil product prices however the system is also showing resilience
<b>Electricity</b>			Very high forward pricing on security margin concerns, increasing system intermittency, El Nino, outages, fuel & carbon costs

Source: Enerlytica

# 2022 + 2023 outlier winters unlikely to repeat

We are bearish towards winters 2024, 2025 & 2026



## System risks to mean hydro

### Upside

- Wet sequence(s)
- Low demand growth

### Downside

- Dry sequence(s)
- High demand growth
- Gas field outage(s)  
Thermal plant outage(s)
- Transmission outage(s)
- Under-delivery of  
generation gas under  
existing GSAs
- Asset-specific  
commercial decisions
- Natural disaster(s)

Source: Enerlytica

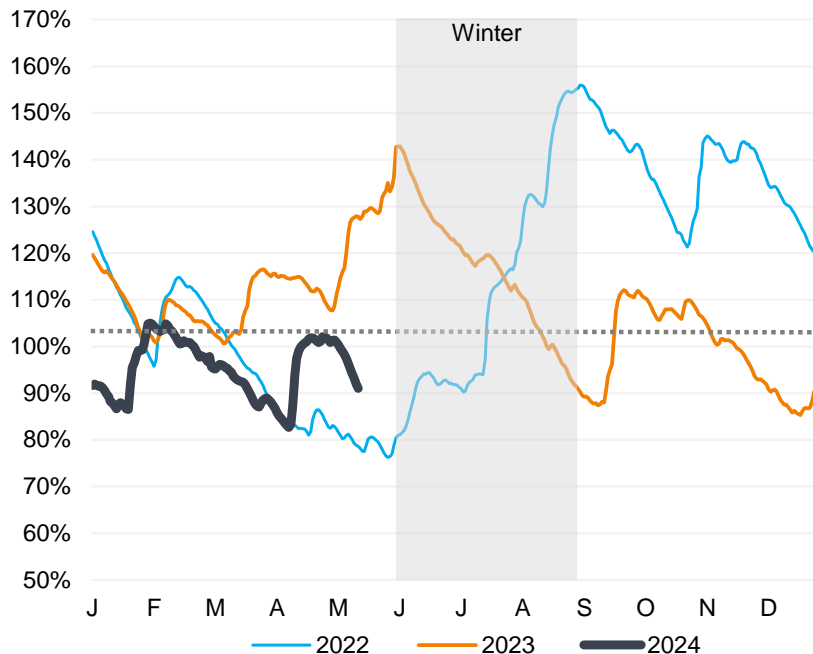
# Hydro ... will do whatever it does

2022 & 2023 delivered opposing trajectories but similar bottom lines



## System hydro storage

% of long-run average, 2022-



Source: NZX data, Enerlytica

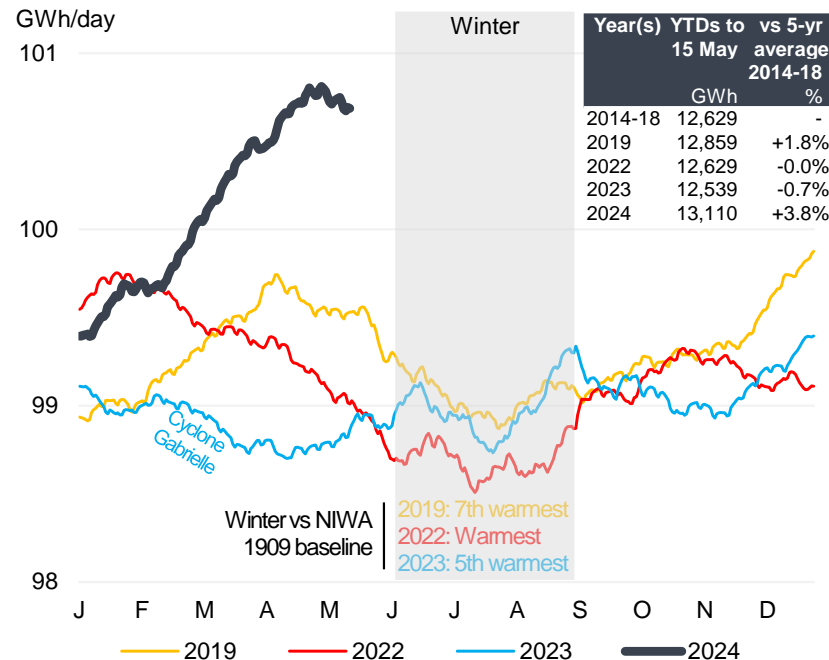
# Demand growth has finally arrived

## Emerging volume growth dulled by warm recent winters



### NZ electricity demand

12-month rolling average, excl NZAS, non-COVID years to 15 May



Source: ems data, Enerlytica

# Gas delivery decay now structural

Field supply declines flowing directly to powergen capacity factors

Hydro inflows



Demand growth



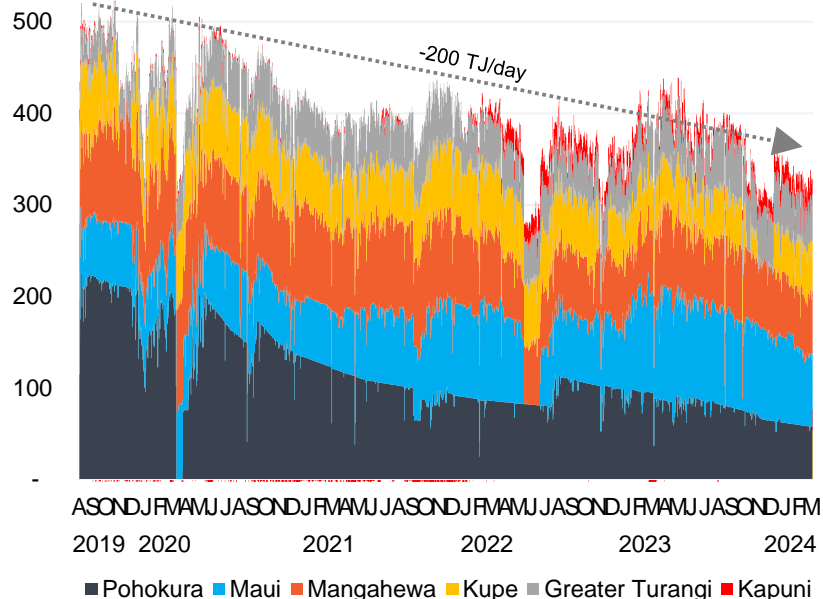
Gas deliverability



## 'Big-6' field gas deliveries

Since August 2019 Pohokura & Kupe plateau exits

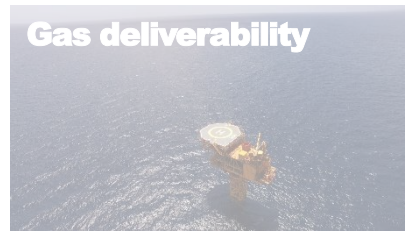
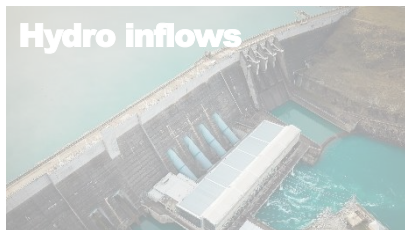
TJ/day



Source: OATIS data, Enerlytica

# Thermal fleet remains unfit for purpose

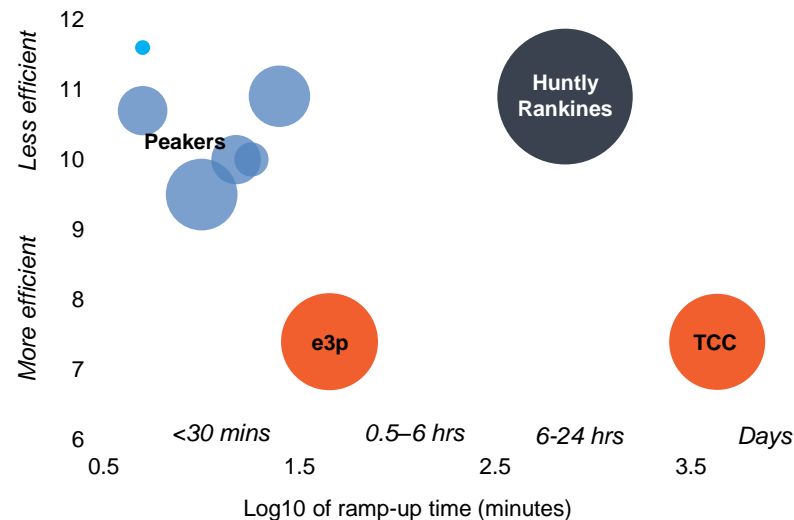
## Legacy, inflexible plant symbolises system (ir)responsiveness



### Thermal fleet ramp times vs capacity

Actual vs idealised

Heat-Rate  
GJ/MWh



● Steam Turbine ● CCGTs ● OCGTs ● Reciprocating Engine

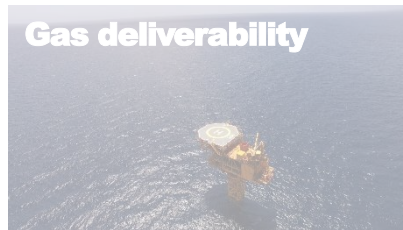
Note: relative bubble size reflects MW capacity

Source: ems data, Enerlytica



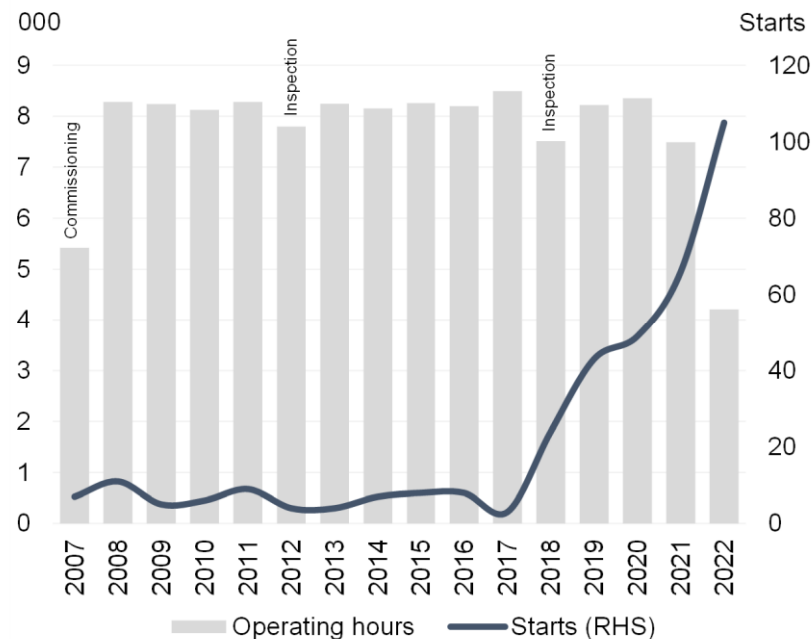
# Thermal fleet remains unfit for purpose

## Legacy, inflexible plant symbolises system (ir)responsiveness



### e3p operating hours vs start cycles

Since commissioning



Source: ems data, Enerlytica

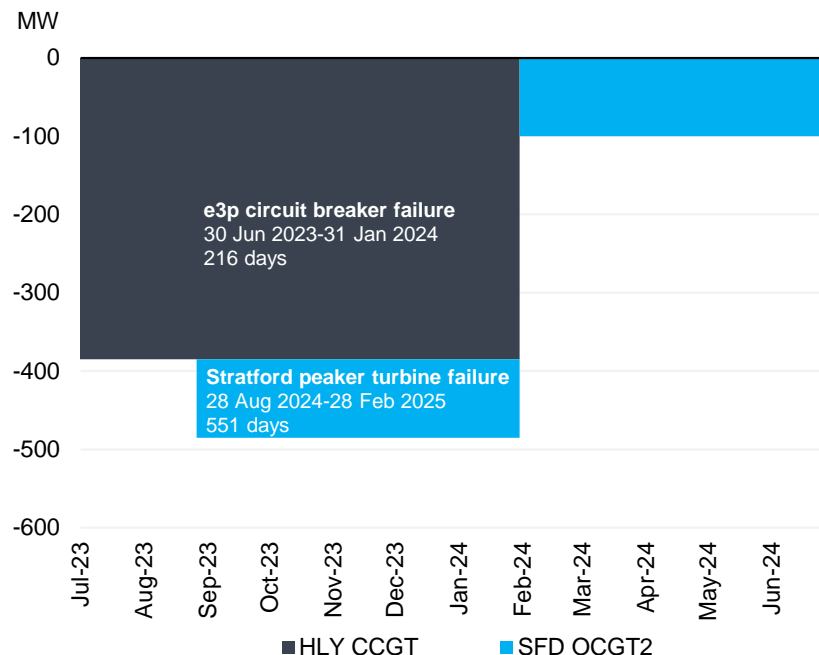
# Thermal fleet remains unfit for purpose

## 2023 timing of ~500 MW thermal outages was extremely fortuitous



### Thermal extended unscheduled outages

1 July 2023 +12 months



Source: pocp, Enerlytica

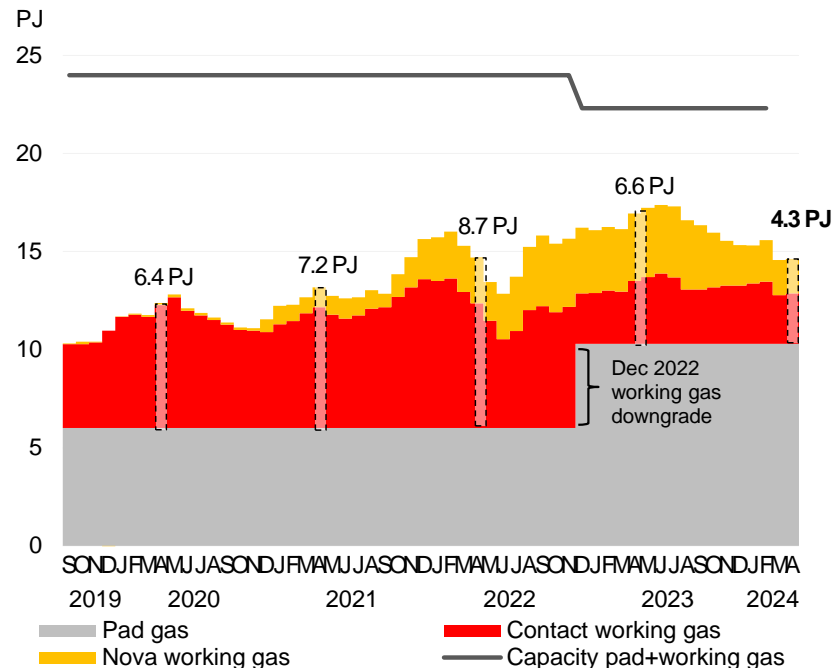
# Deep thermal storage now shallow

## AGS entering winter 2024 with lowest working gas inventory on record



### Ahuroa gas storage

Pad gas + Working gas volumes



Source: GIC data, company data, Enerlytica

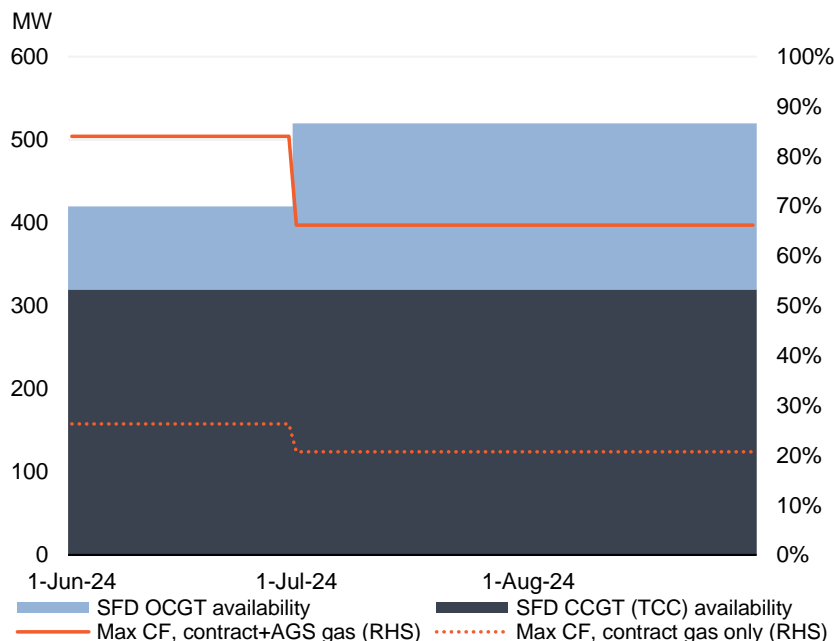
# Deep thermal storage now shallow

## Fuel a material winter 2024 capacity utilisation constraint at Stratford



### Stratford PS winter 2024 capacity factors

Based on outage slates at 19 May 2024



Note: capacity factors (CF) based on year-ahead contracted fuel at 7.4 PJ + AGS withdrawal access at 45 TJ/day

Source: company data, Enerlytica

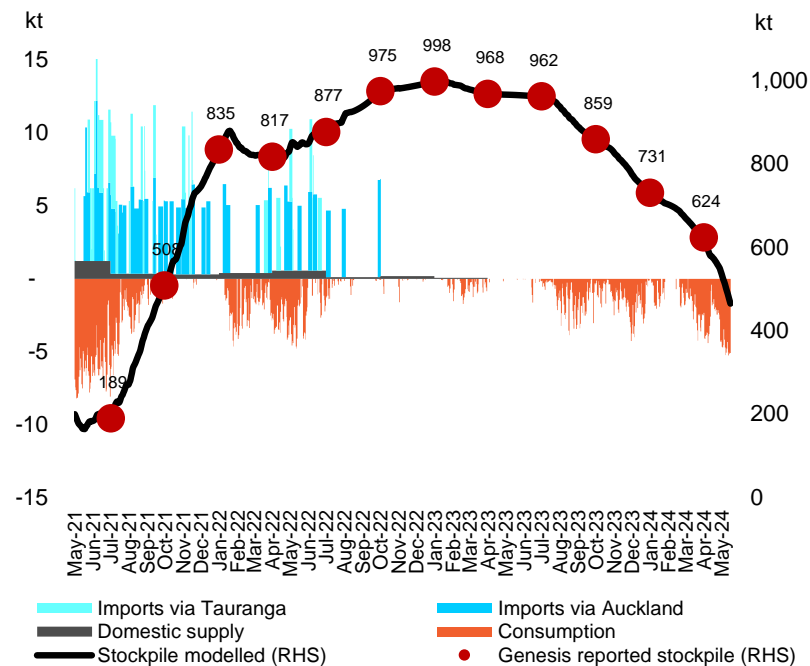
# Deep thermal storage now shallow

## Coal draw accelerating towards Huntly Firing Option 350 kt cap



### Huntly coal stockpile

May 2021 – May 2024



Source: company data, Enerlytica



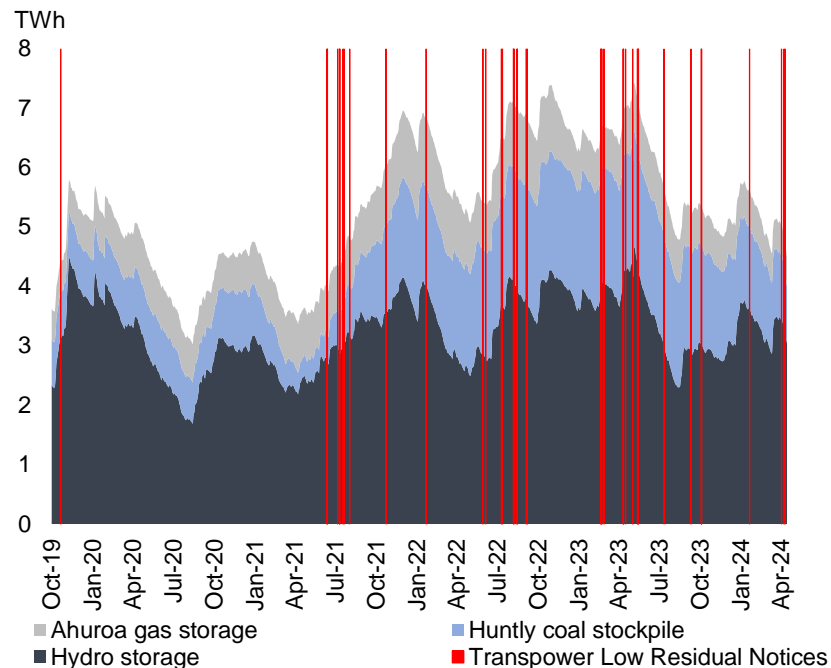
# Deep thermal storage now shallow

## 'Peak electricity storage' of winter 2023 now history



### Electricity system storage vs CAN notices

2019-



Source: NZX data, Transpower, Enerlytica

# Methanex turnaround cycle now complete

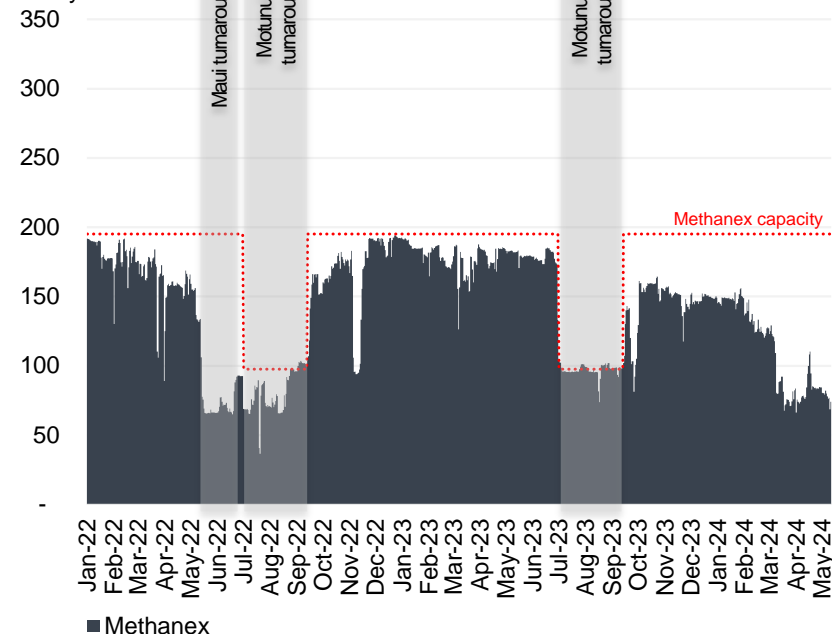
## Opportunistic gas of winters 2022 & 2023 will not repeat in 2024, 2025, 2026



### Methanex + powergen gas liftings

2022-

TJ/day

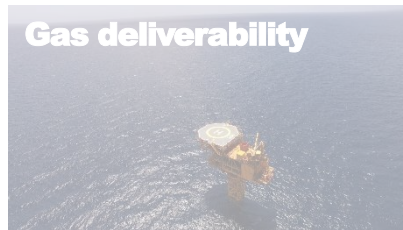


Source: OATIS data, company data, Enerlytica



# Methanex turnaround cycle now complete

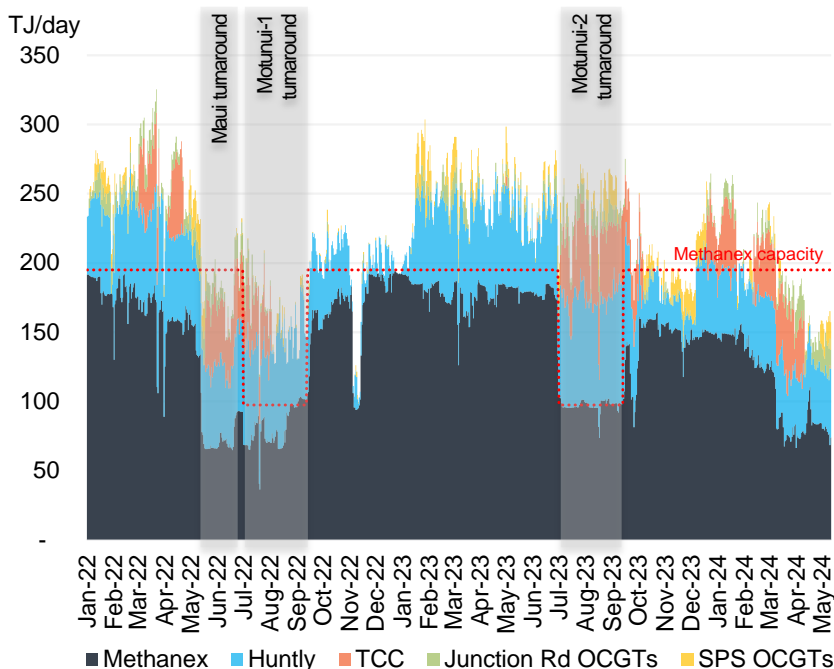
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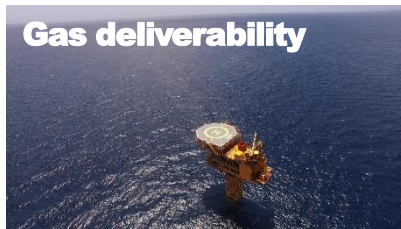
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Source: OATIS data, company data, Enerlytica

# 2022 + 2023 outlier winters unlikely to repeat

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generation gas under  
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- Asset-specific  
commercial decisions
- Natural disaster(s)

Source: Enerlytica

# Deep energy system exposure to natural hazards

Seismic forewarnings in particular appear not to be landing

## Cyclone Gabrielle

Redclyffe substation, 14 Feb 2023



Source: NZ Herald

- Gabrielle was a small fraction of any realistic worst case energy sector scenario
- North-South energy supply/demand imbalance leaves NZ Inc heavily exposed
- North Island generation also exposed to discrete hazard risks
- NZ must plan towards diversity and spread of generation and connective redundancy, not just towards building more wires to connect the same places to the same places

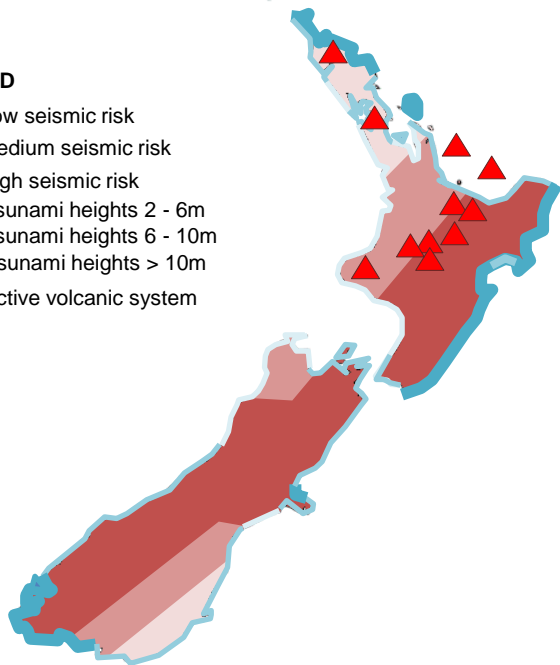
# Deep energy system exposure to natural hazards

Seismic forewarnings in particular appear not to be landing

## NZ natural hazard risk assessment

### LEGEND

- Low seismic risk
- Medium seismic risk
- High seismic risk
- Tsunami heights 2 - 6m
- Tsunami heights 6 - 10m
- Tsunami heights > 10m
- Active volcanic system



Note: Seismic risk from 2004 Building Act zone factors (z-factor), tsunami heights from 2004 GNS study of last 2,500 years of tsunamis, active volcanic systems from GNS monitoring

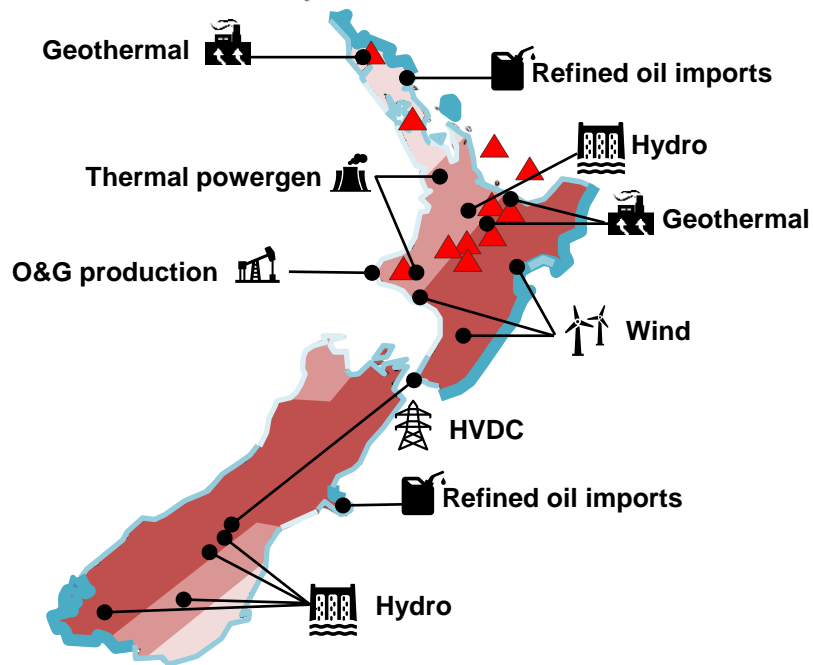
Source: GNS, Enerlytica

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### NZ natural hazard risk assessment

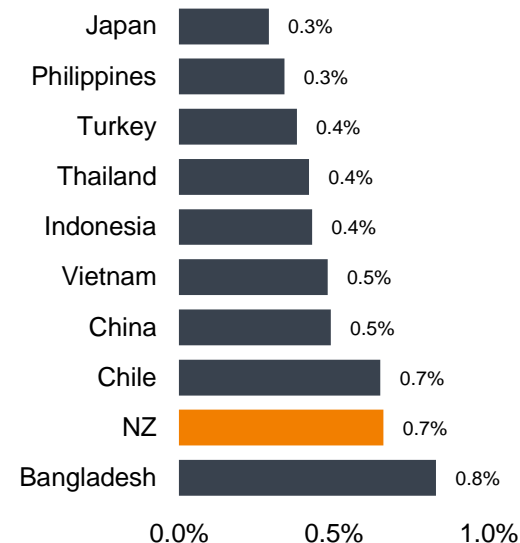


Note: Seismic risk from 2004 Building Act zone factors (z-factor), tsunami heights from 2004 GNS study of last 2,500 years of tsunamis, active volcanic systems from GNS monitoring

Source: GNS, Enerlytica

### Natural disaster risk exposure

Expected annual % GDP loss by nation



Source: Lloyds data, Enerlytica



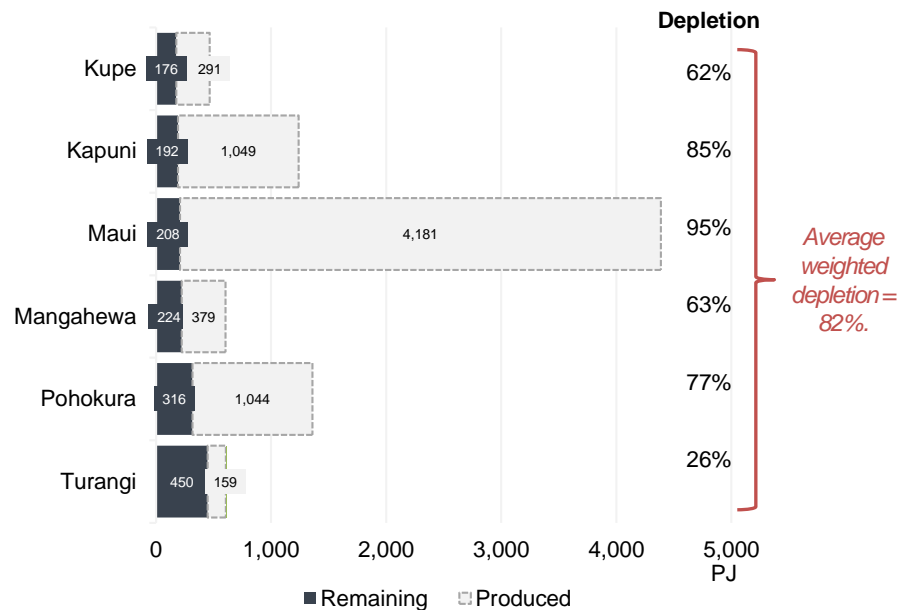
# Gas sector paucity was an issue, now a problem

>95% of system supply sourced from six mature gas-condensate fields



## NZ major gas fields

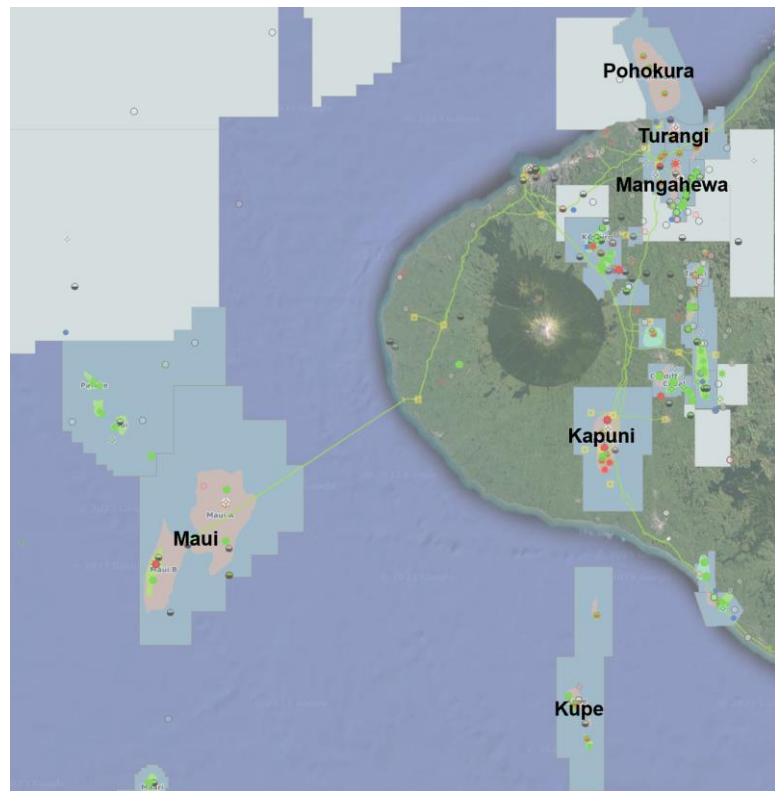
Produced vs remaining gas reserves by field, at 1 Jan 2023



Source: MBIE data, Enerlytica

# Gas sector paucity was an issue, now a problem

Most accessible gas traces back to just three wholesalers



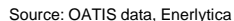
## Gas buy/sell counterparties

Field	Gas seller	Gas buyer(s)	
		Related party to seller	Unrelated party to seller
Maui	OMV		methanex the power of agility,  contact,  genesis
Pohokura	OMV		methanex the power of agility,  contact,  genesis
	TODD ENERGY	nova energy	methanex the power of agility
Mangaheha	TODD ENERGY	nova energy	methanex the power of agility
Kupe	beach		genesis
	genesis	genesis	genesis
	NEW ZEALAND OIL & GAS		genesis
Kapuni	TODD ENERGY	nova energy	
Turangi	GREYMOUTH PETROLEUM	GREYMOUTH GAS	Ballance agri-nutrients,  methanex the power of agility

Source: Enerlytica

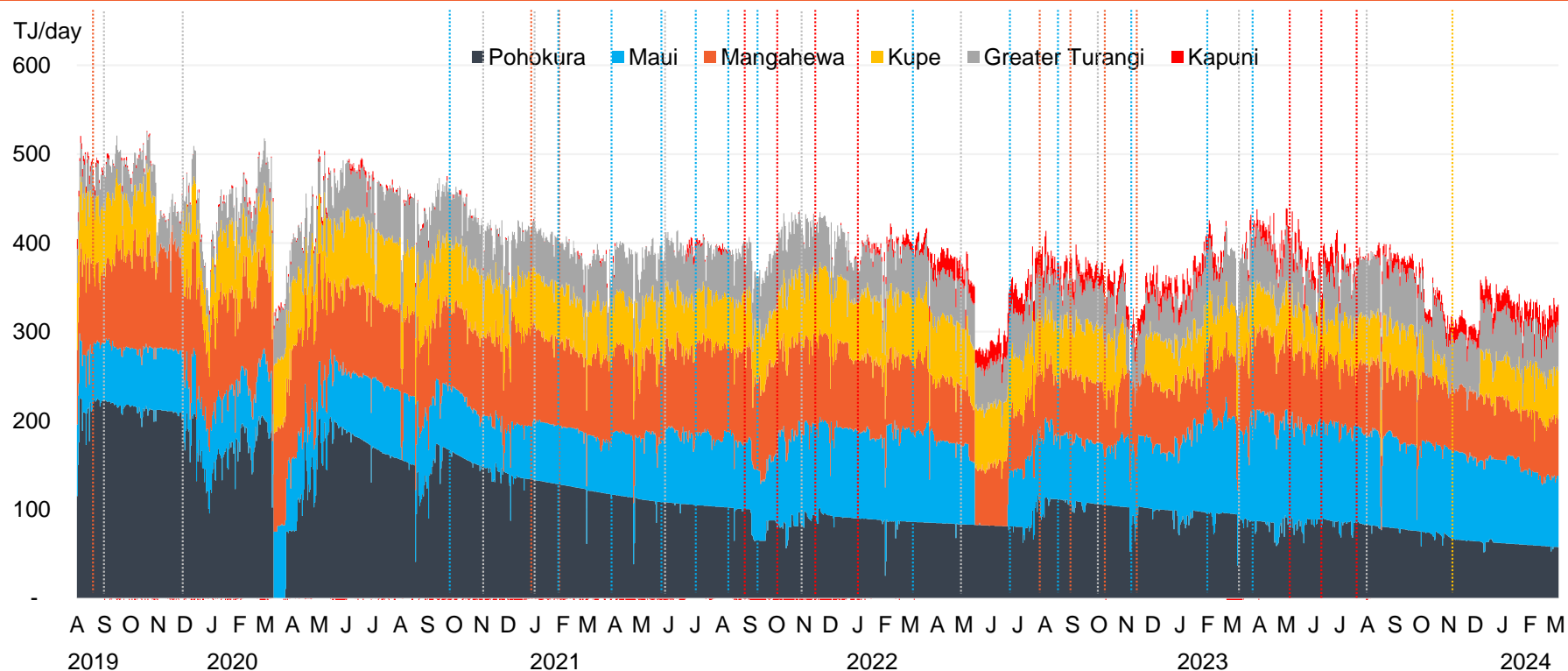


## Deliverability decline is despite period of heavy reinvestment activity



# Position in the capital cycle our biggest concern

Deliverability decline is despite period of heavy reinvestment activity



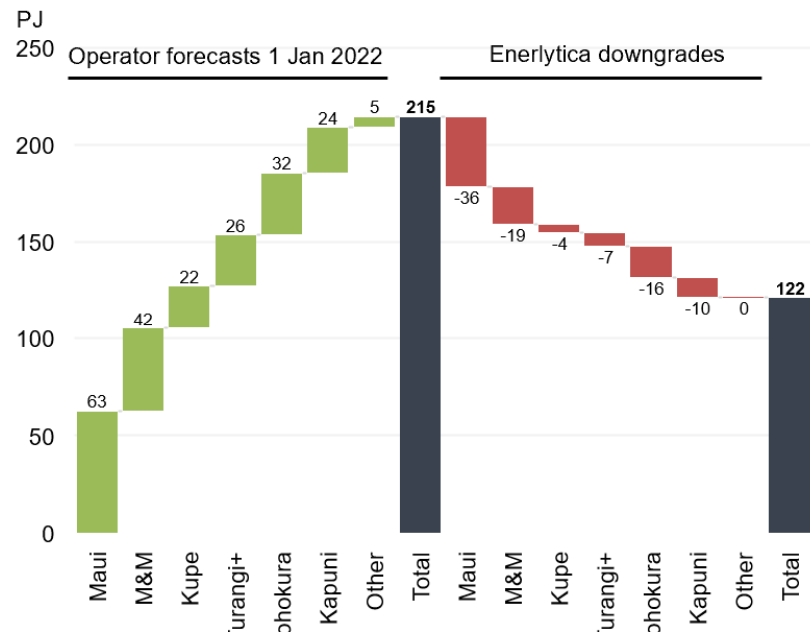
Source: OATIS data, Enerlytica

# 2024 tracking points to >40% supply downgrade

Operators had expected a 215 PJ market, we now expect 120-125 PJ

## 2024 gas production

Operator (2022) vs Enerlytica current forecasts



Source: MBIE data, Enerlytica

- Each Big-6 field downgraded, aggregate result of which is a gas market in 2024 of 90-95 PJ below what was expected in 2022
- Largest downgrade is at Maui where OMV directed most of its latest \$1 bln investment round
- Forward work programmes now reflect downcycle expected following completion of OMV-led upcycle
- Regulatory uncertainty remains a live issue, headlined by decommissioning regulations

# Reinvestment outlook appears weak

Major players now facing heavy institutional constraints



## Material gas interests

Maui 100%  
Pohokura 74%

Mangahewa 100%  
Kapuni 100%  
Pohokura 26%

Turangi 100%  
Kowhai 100%

Kupe 50%

# Reinvestment outlook appears weak

## Major players now facing heavy institutional constraints



### Situation

Sale process of NZ assets suspended following carve out from Asia-Pac process. Capital likely to remain difficult to access.

Anecdotally capital-constrained, Mangahewa likely to be focus but not until 2025. Kapuni future appears increasingly uncertain.

Activity likely to remain “slow and steady” with rigging constraints.

Kupe South-9 result likely to weigh on appetite for further development, particularly given JV makeup.

### Committed forward work programmes

**Pohokura:** 1x onshore deviated well 1Q 2025

**Mangahewa:**  
2-4 infill wells 1H 2025

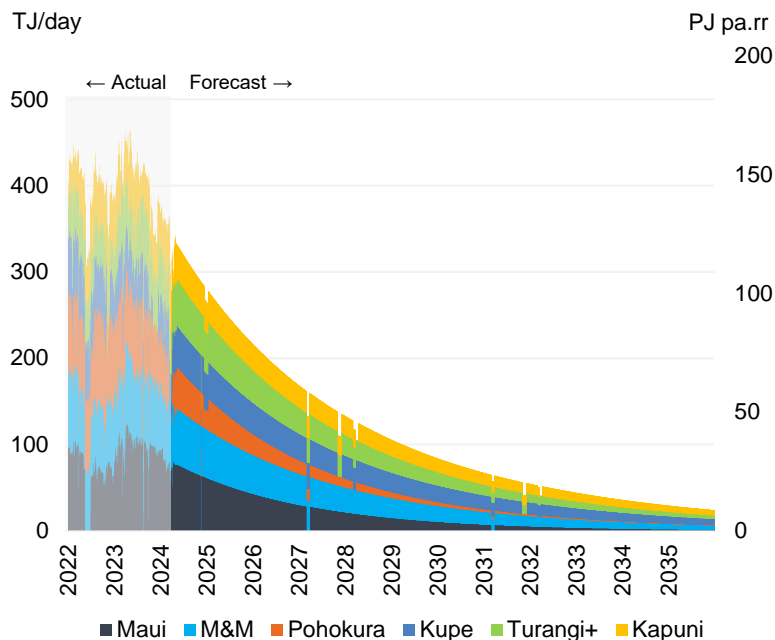
**Greater Turangi:**  
1-2 infill wells 2024-25

# Reinvestment outlook appears weak

## Baseline scenario assumes No Further Action post-2023

### Gas supply outlook

Enerlytica Baseline Scenario, TJ/day



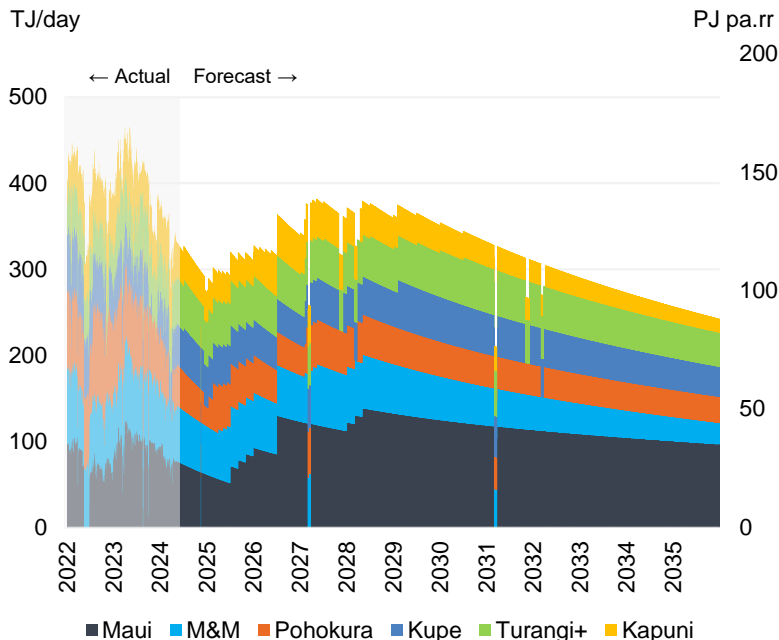
Source: Enerlytica

# Reinvestment outlook appears weak

Reference scenario relies on significant further OMV reinvestment at Maui

## Gas supply outlook

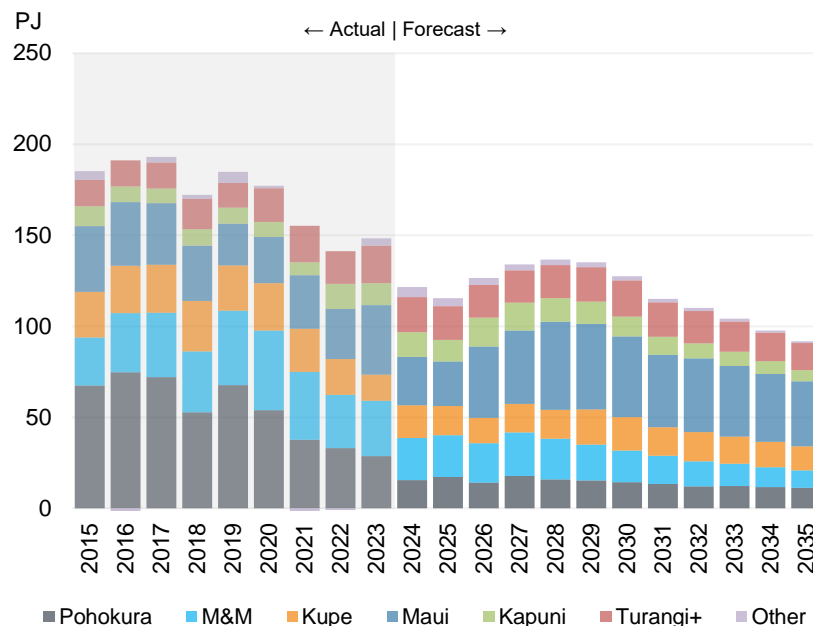
Enerlytica Reference Scenario, TJ/day



Source: Enerlytica

## Gas supply outlook

Enerlytica Reference Scenario, PJ pa



Source: Enerlytica



# Options do exist to expand indigenous capacity

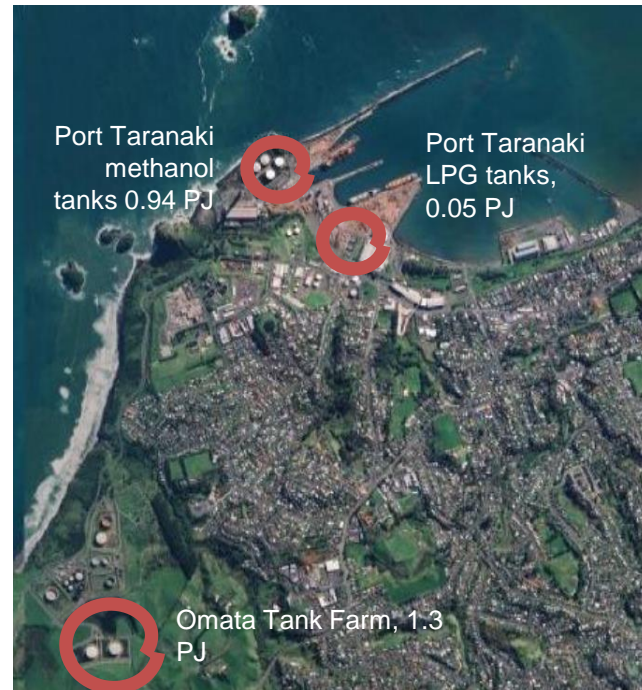
Fuel-flex & modular powergen each already feasible

## GE Fuelflex turbine capabilities

Table 1 – Aero derivative fuel flex capabilities

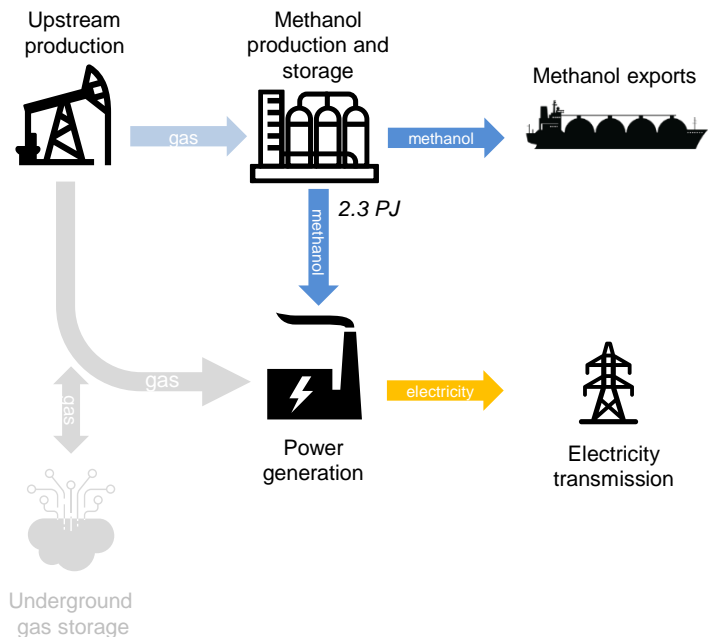
Fuels	Gaseous Fuels				Liquid Fuels			
	High BTU: ethane, propane, butane, LPG, isopentane	Natural Gas & LNG	Medium BTU: lean methane	Low BTU: syngas, steel mill, landfill	Light Distillates: diesel, kerosene, jet fuel (A, A1), naphtha	Biodiesel	Ethanol	Methanol
Heating Value	>1,200 BTU/scf	~900 BTU/scf	~300-700 BTU/scf	<300 BTU/scf	~18,000-19,000 BTU/lbm	~16,500-18,000 BTU/lbm	~11,500 BTU/lbm	~8,500 BTU/lbm
	>44,900 kJ/Nm <sup>3</sup>	>35,800 kJ/Nm <sup>3</sup>	~11,200-26,000 kJ/Nm <sup>3</sup>	<11,200 kJ/Nm <sup>3</sup>	~42,000-44,000 kJ/kg	~39,500-18,000 kJ/kg	~26,850 kJ/kg	~19,800 kJ/kg
Gas Turbine								
LM/TM2500	✓	✓	✓	✓	✓	✓	✓	✓
LM6000	✓	✓	✓		✓	✓	✓	✓
LM9000		✓	✓		✓	✓		
LMS100	✓	✓	✓		✓	✓	✓	✓

Source: GE



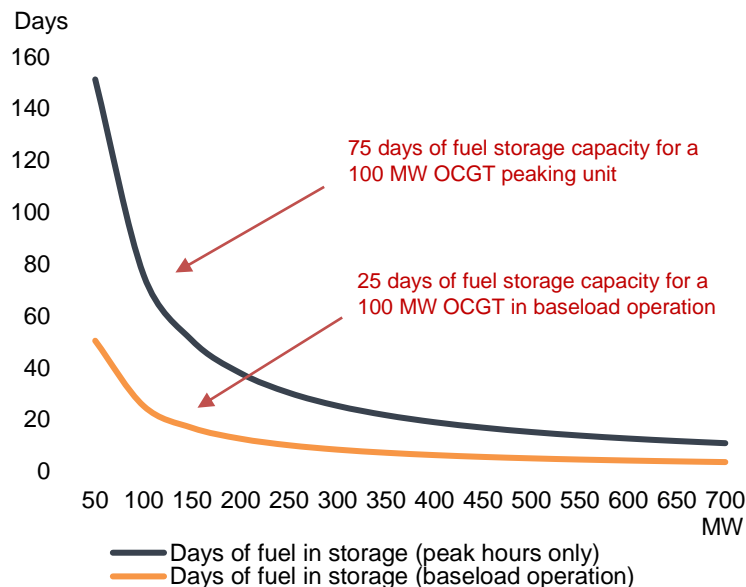
# Options do exist to expand indigenous capacity

## Fuel-flex & modular powergen each already feasible



## Methanol-to-power

Fuel duration by capacity under peaking or baseload operation

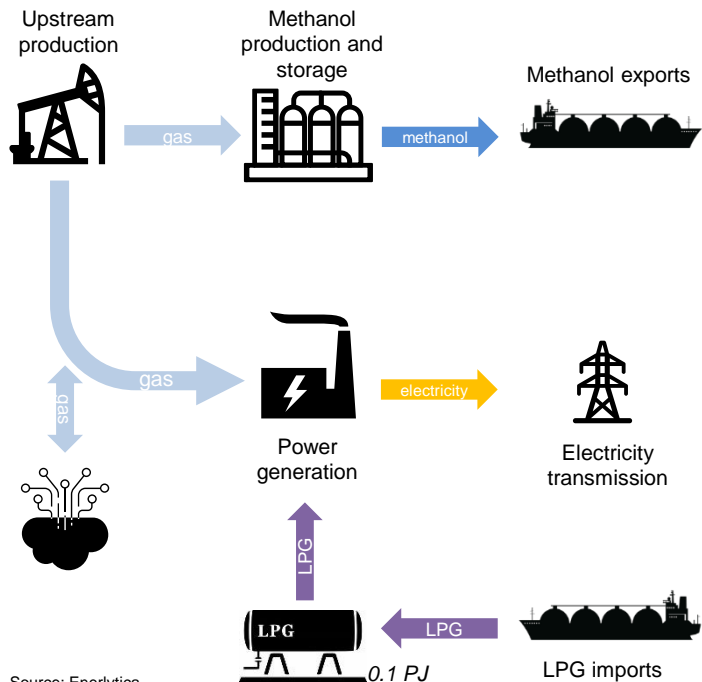


Note: Assumption of one third of storage capacity available for domestic use (0.76 PJ) with heat rate of 12.5 GJ/MWh

Source: Enerlytica

# Options do exist to expand indigenous capacity

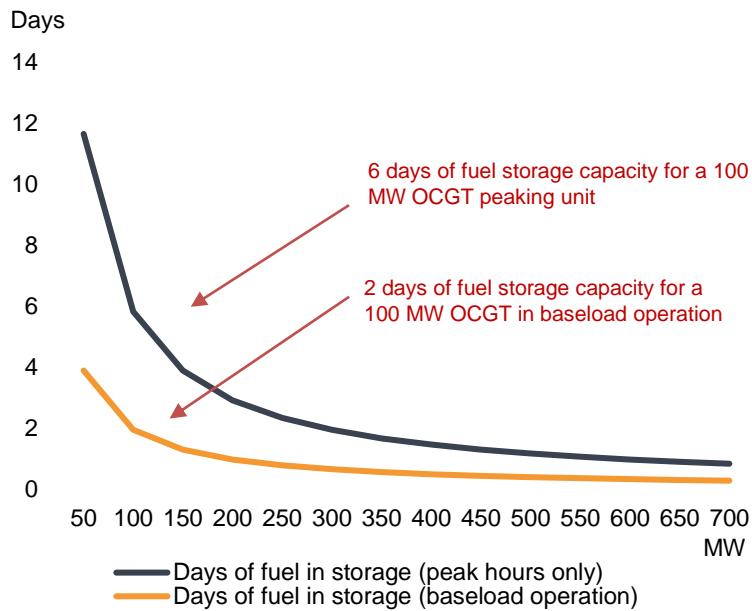
## Fuel-flex & modular powergen each already feasible



Source: Enerlytica

## Port Taranaki LPG-to-power

### Fuel duration by capacity under peaking or baseload operation



Note: Assumption of 0.05 PJ in storage with heat rate of 10 GJ/MWh

Source: Enerlytica

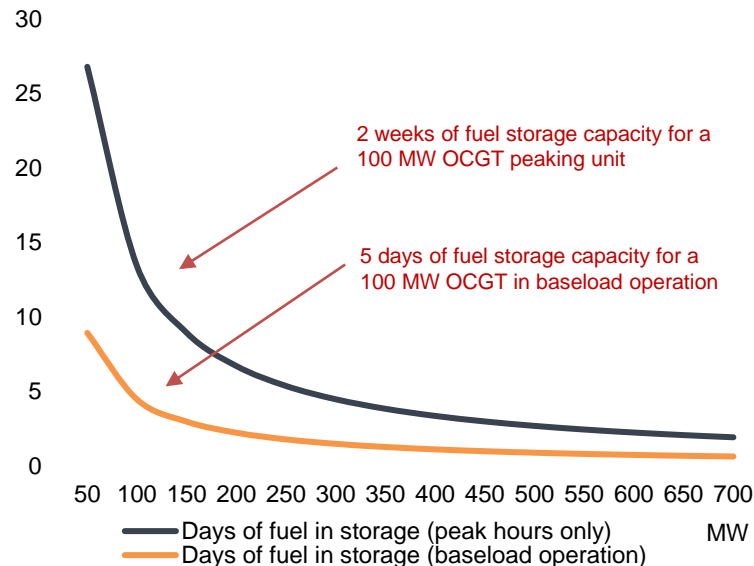
# Options do exist to expand indigenous capacity

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### Wiri LPG-to-power

Fuel duration by capacity under peaking or baseload operation

Days



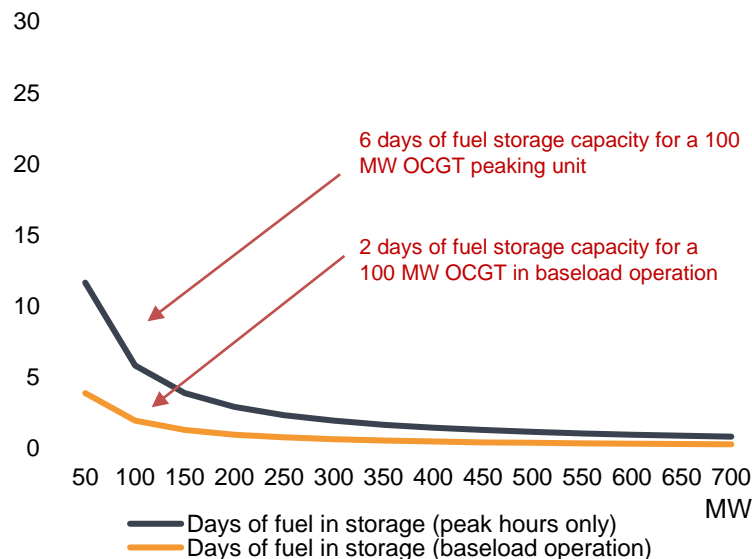
Note: Assumption of 0.11 PJ in storage with heat rate of 10 GJ/MWh

Source: Enerlytica

### Port Taranaki LPG-to-power

Fuel duration by capacity under peaking or baseload operation

Days

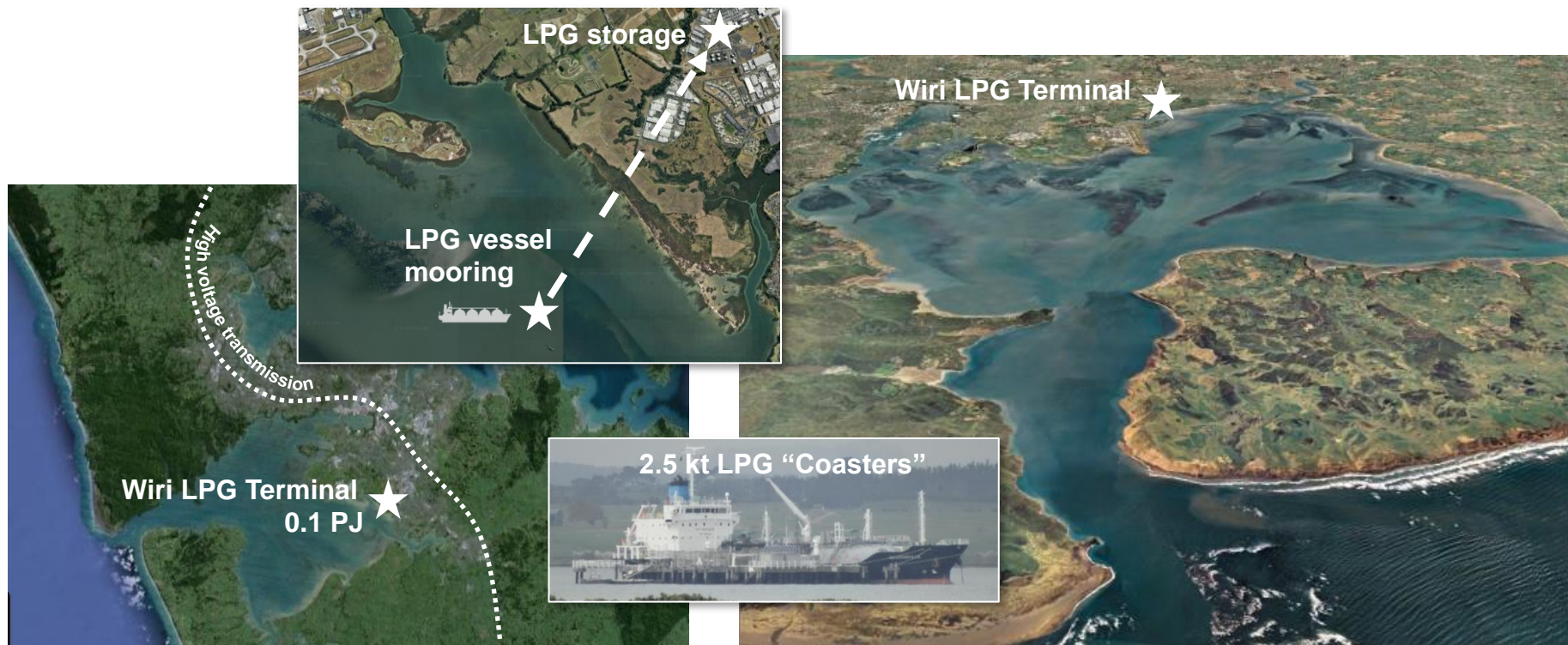


Note: Assumption of 0.05 PJ in storage with heat rate of 10 GJ/MWh

Source: Enerlytica

# Options do exist to expand indigenous capacity

Fuel-flex & modular powergen each already feasible





# Options do exist to expand indigenous capacity

## Fuel-flex & modular powergen each already feasible

### Thermal fuel generation options

Fuel price ranges 2016-2023 at \$50/tCO<sub>2</sub>e carbon

Electricity

\$/MWh

1,000

800

600

400

200

0

0 10 20 30 40 50 60 70 80 90 100 110 120  
Fuel \$/GJ

— LPG

— Methanol

— LNG

● Current LPG price

● Current methanol price

— Diesel

— MSO Coal

— Gas

● Current diesel price

● Current coal price

Source: Refinitiv data, Enerlytica





# LNG import also feasible for NZ

## Four options investigated with two clear stand-outs

- Four locations assessed:
  - Marsden Point and Port Taranaki present as the most technically and commercially feasible options
  - Restrictions on gas send-out and port operations, respectively
- Scaling infrastructure to fit port host environments and gas demand each possible but do sacrifice LNG trading optionality
- Marsden Point a potential winter 2025 option
- Containerised LNG a potential bridging solution



Source: First Gas, Enerlytica

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# Security of supply and thermal fuels

**Presentation to Security and Reliability Council**

May 2024

# Approach for today

- Staff would like the SRC to note the following items and provide feedback on our approach to managing security of supply and thermal fuels.
- We will be providing information on:
  - the latest outlook for security of supply for fuel for 2024
  - the role of thermal fuel information to underpin key monitoring activities such as the Electricity Risk Curves
  - our preliminary thinking about how to improve the disclosure of information on thermal fuels in the electricity market
  - the Authority's wider work to support security of supply.

# Energy outlook

Enough fuel to **generate electricity over the longer term.**

- **Water** – as of 16 May, national hydro storage is currently sitting 5 to 10 per cent below the average for this time of year.
- **Gas** – Gas availability is declining, but generators have previously indicated they have sufficient gas contracted to run over winter 2024. Risks remain if supply is under contracted demand. Staff are monitoring.
- **Coal** – stockpile has declined to approximately 480kT. At the current rate of consumption (January to May 2024) this is enough to last until March 2025. Genesis have now stated a willingness to import coal again, should that be required.

Released HFO

# Thermal Fuel Information

Thermal fuels are a key area of focus given declining gas availability and the role that these fuels play in the electricity market.

The Authority and stakeholders are concerned about the timeliness and quality of thermal fuel information disclosure.

Information underpins robust decision-making by participants and supports both the Authority and system operator's monitoring of system risks. Both of these provide long-term benefits to electricity consumers from increased system reliability.

We are exploring ways to improve disclosure from thermal generators.



## Current disclosure requirements

- Primary information disclosure requirements for electricity industry participants are under Part 13.2A of the Code:
  - Wholesale market participants are obliged to make disclosure information available when they become aware of it
  - Disclosure information is information that is about the participant, that is held by the participant, and that the participant expects, or ought reasonably to expect, will have (or is likely to have) a material impact on prices in the wholesale market if made available to the public.
- The 2023 post-implementation review of the 2021 changes to the wholesale information disclosure obligations found that it had not resulted in materially more thermal fuels information being published.
- Two relevant recommendations from the Wholesale Market Competition Review and the post-implementation review:
  - reduce information asymmetry by creating a central platform for participants to post industry announcements
  - Work with GIC to improve thermal fuel information disclosure across both industries.

## Key Issues

- The Authority did not find any material instances of non-compliance with the Part 13.2A disclosure rules during the post-implementation review.
- While there is no material non-compliance, two issues remain:
  - Timeliness of disclosure – most information that is released is currently posted quarterly, or ad-hoc
  - Quality of disclosure – range of approaches taken by different participants, most info ex-post
- There remain concerns from stakeholders about information asymmetry (particularly from renewable generators).

Thermal Generator	Summary of info published
Nova Energy	Publishes p50 forecast gas supply for baseload/daytime/peaking. This is set out across several time horizons, from next week to beyond 3 months.
Genesis Energy	Publishes information quarterly as part of its performance report to the NZX, including coal and gas used in internal generation and coal stockpile information.
Contact Energy	Publishes information quarterly as part of its performance report to the NZX, including gas storage volumes and 'Gas used in internal generation'.

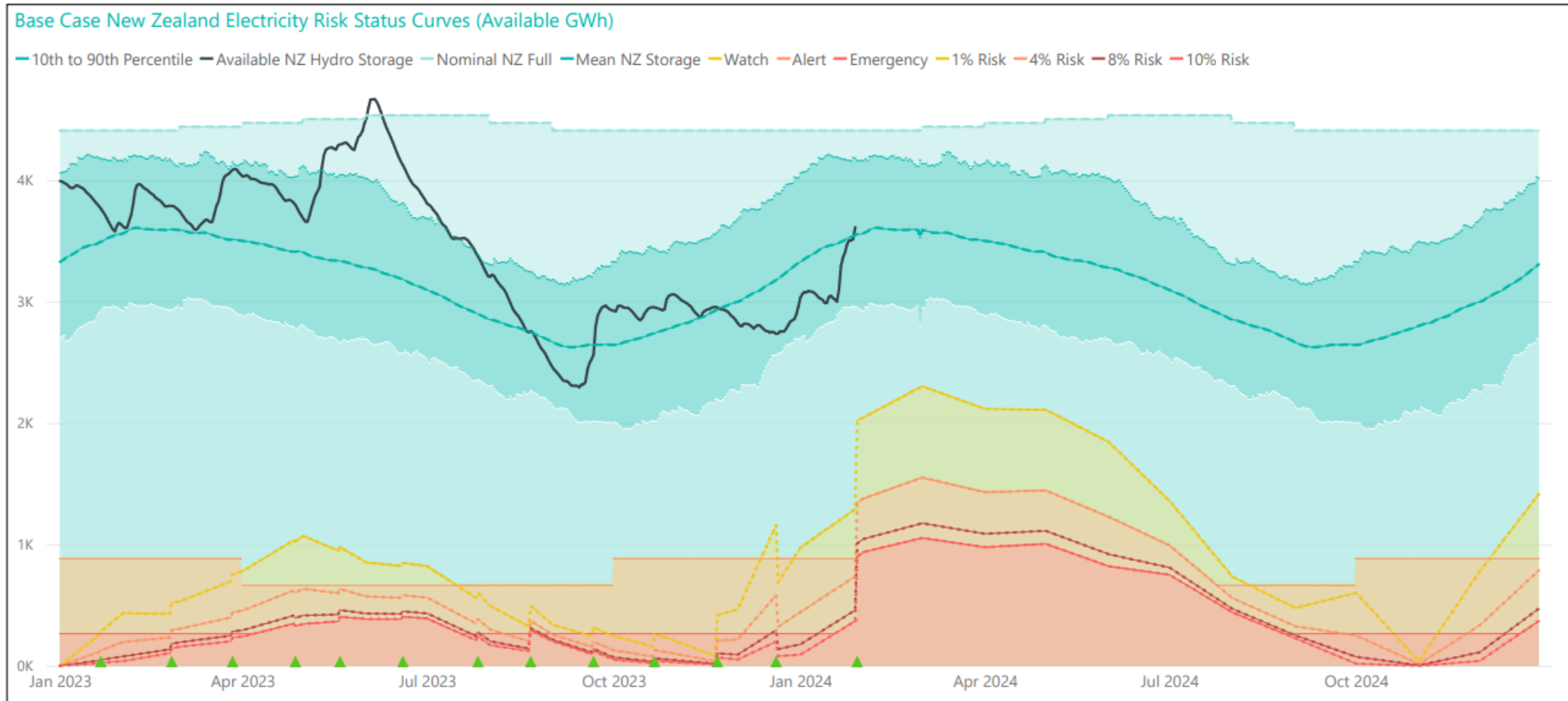
# Security of Supply and Thermal Fuel Disclosure

Thermal fuel information is important for the system operator's security of supply reporting.

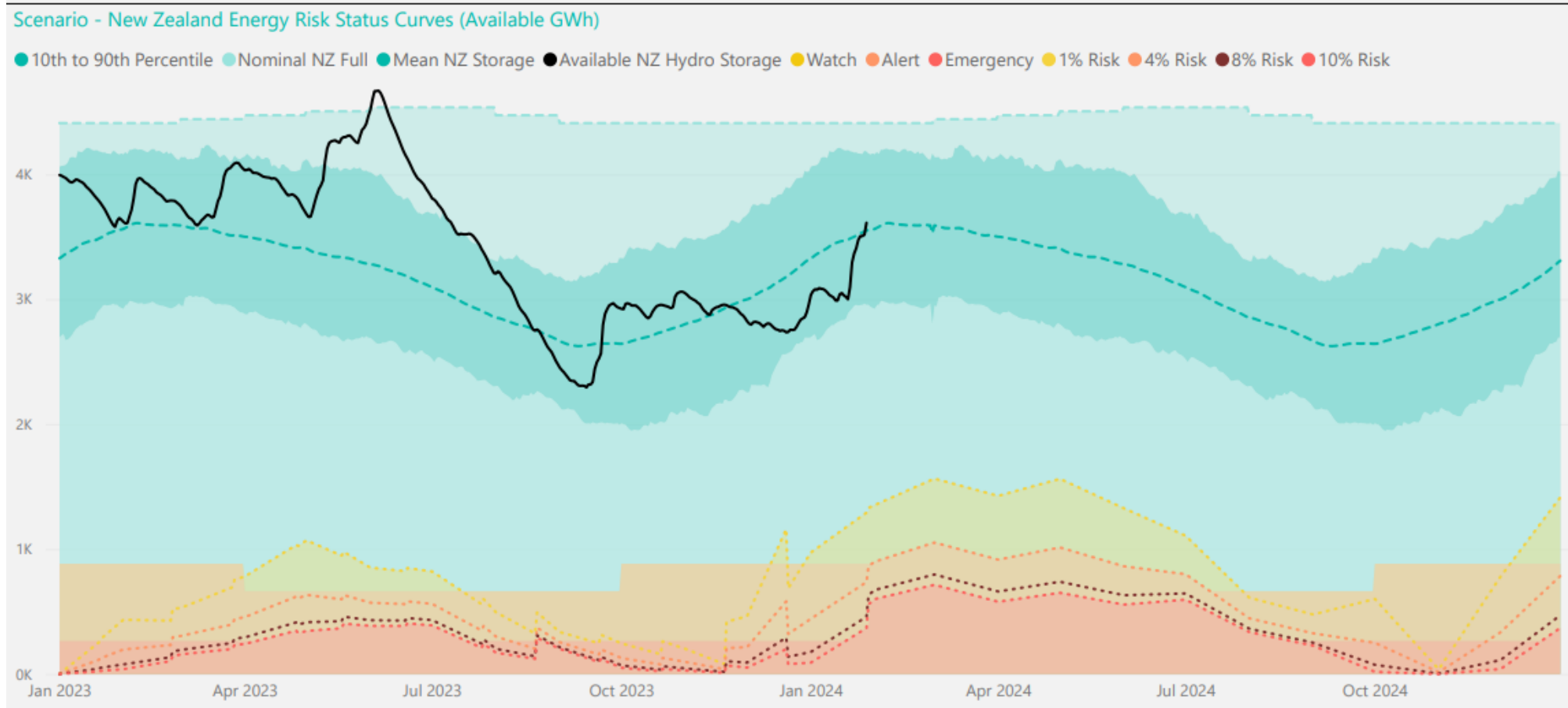
It also informs the Authority's market monitoring role, policy development, and our advice to our Board and Ministers.

We see a gap particularly around the disclosure of expected volumes of thermal fuels that have been contracted (for both gas and coal).

## How thermal fuel information impacts the ERCs (Jan 2024 ERC)



## How thermal fuel information impacts the ERCs (Jan 2024 ERC - Gas reallocation scenario published by system operator)



## There are a range of matters to consider

- Our focus for this work is security of supply – that's our main priority. Price information is not currently a priority – its more about the volumes that we are interested in at the moment.
- While its clear that this type of information will be beneficial to the Authority and system operator, the net benefit of this information being disclosed publicly is less clear.
- **Discussion**
  - Role of thermal fuel information in supporting security of supply monitoring – what are your views on this?
  - Should information be made publicly available, or is this type of information better used to inform aggregate security of supply reporting?



## What sort of information disclosure would be useful?

- A broad range of information could be disclosed:
  - Current volumes under contract for the quarter
  - Forward contract volumes
  - volumes in gas/coal storage
- Several factors that need to be worked through:
  - Reporting frequency – monthly vs quarterly.
  - Event-based reporting – e.g. providing data when thermal generators are notified of a change in expected gas volumes for the next quarter
- What other types of information would be useful for informing participants, the Authority or the system operator?

## Options for improving thermal fuel disclosure

- We are still in the early stages of exploring how any changes would be made we have identified three high-level options:
  - Industry developed arrangement
  - Part 2 notice for participants to provide information to the Authority
  - Code amendment

## Next steps

- The Disclosure of information will not lead to more gas being available. It will help monitor and manage security of supply risks.
- We expect to consult on our preferred approach later this year. We will continue to engage with Gas Industry Co. on this.
- Centralised disclosure website, an outstanding recommendation from Wholesale Market Competition Review, will likely be progressed separately.
- What other matters relating to thermal fuels would you like to see the Authority investigate?

## Authority work programme

The Authority has a broad work programme that addresses aspects of security of supply across multiple time horizons:

- **Operations Policy** – immediate developments to enhance security of supply in the short-term (1-3 years)
- **Wholesale Policy**
  - short term – improved intermittent generation forecasting
  - mid to long term developments for risk management (MDAG recommendations)
- **Future Security and Resilience** – mid to long term improvements to common quality obligations and FSO work
- **Retail and Networks** - incentivising visibility of distribution networks and use of flexibility
- **Monitoring** - support policy work through analysis of market behaviour and policy proposals

# Other work underway to support security of supply

Please note that the following projects were suggested in our Potential Solutions for Peak Electricity Capacity Issues paper or are otherwise underway.

This update is largely for information. We will engage more with the SRC as these projects develop.

The Authority is in the process of finalising its work programme for the coming year.

# Electricity Risk Curve Improvements

Alongside thermal fuel information improvements, we are working with the system operator to improve the ERCs.

This includes discussing methodologies and supporting the SO to obtain more information from participants.

This work is important for ensuring that the ERCs accurately portray the likelihood of electricity shortage given prevailing system conditions.



# Security Standards Assumptions Document (SSAD) Update

Stakeholder confidence is built on a clear understanding of the underlying policy assumptions

Recent structural changes to both the supply and demand side of the wholesale market call into question assumptions regarding the cost of outages and the value of mitigating actions

The SSAD is a foundational document for the Authority and system operator security of supply monitoring. Sets winter energy and capacity margins based on economically “acceptable” levels of outages, last reviewed 2017.

Concerns that the technical and economic assumptions in the model are outdated, may not reflect actual tolerance/ impact of consumer outages.

# Ancillary Service Cost Allocation Update

Current interpretation of the instantaneous reserve (IR) cost allocation Code requirements mean that intermittent generators (IG) avoid paying costs allocated to potential underfrequency event causers. This is despite several newer IG stations being large enough to cause an event should they trip.

This provides no incentive for generators to manage their risk exposure through station configuration, flexible resource investment, or financial contracts.

Updating the IR cost allocation definitions will provide a greater incentive for IG to manage potential system risk through direct or indirect investment in flexible resources

# Frequency Keeping re-design

System Operator analysis indicates normal frequency management is performed by governor response and the FKC functionality of the HVDC link.

MFK provides a mitigation for generation and load variability on a longer timeframe

Re-defining MFK as a 5-minute variability ancillary service would allow SO to increase the procured band to manage periods of increased variability. This would work in a similar way to the NEM's 5-minute FCAS.

Other procurement changes would remove barriers for BESS and demand side participation, increasing competition and incentivising investment in flexibility.

# Intermittent Generation Forecasting Improvements

Enhancing forecasting of intermittent generation provides a range of security of supply benefits:

- Greater confidence in, and visibility of, IG forecasts (offers).
- More certain resource commitment decisions
- Improved visibility of potential supply shortfalls and their impact, enabling efficient management of security of supply.

# Security of Supply Roadmap

We are working on a security of supply roadmap to set out our related work programme for 2024-25, and beyond.

This roadmap will include many of the items outlined above.

We are keen to test this roadmap with the SRC as it is developed, with the aim of it being an input into the SRC's August strategy session.



THANK YOU





# Security of Supply

## Security and Reliability Council

Date: 23 May 2024

Author: Gas Industry Co



# Gas supplies are constrained

Gas production is declining.

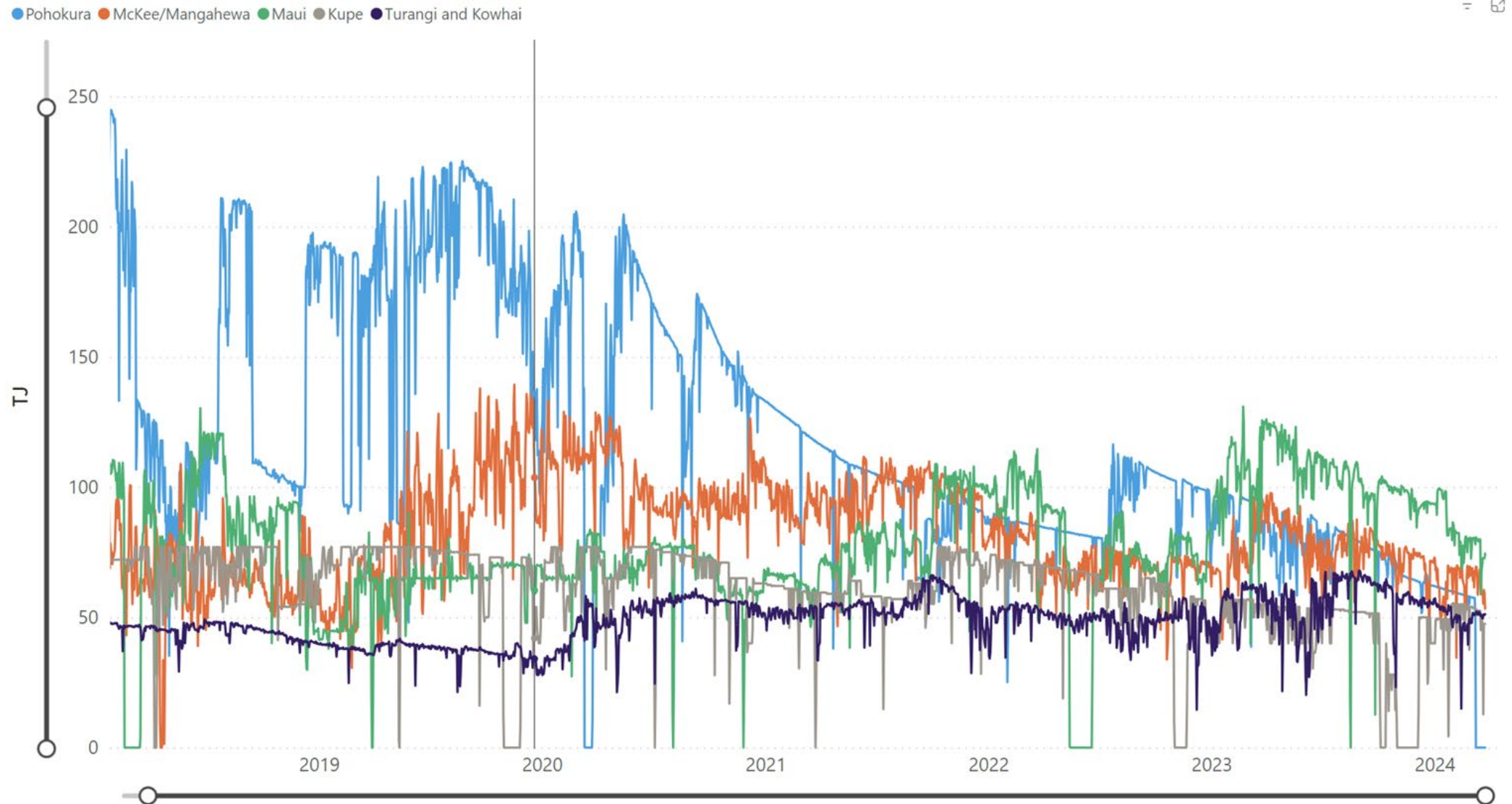
There is insufficient gas to meet contracted demand. Exporting major industrials are idling plant.

Prices will rise for un-contracted consumers.

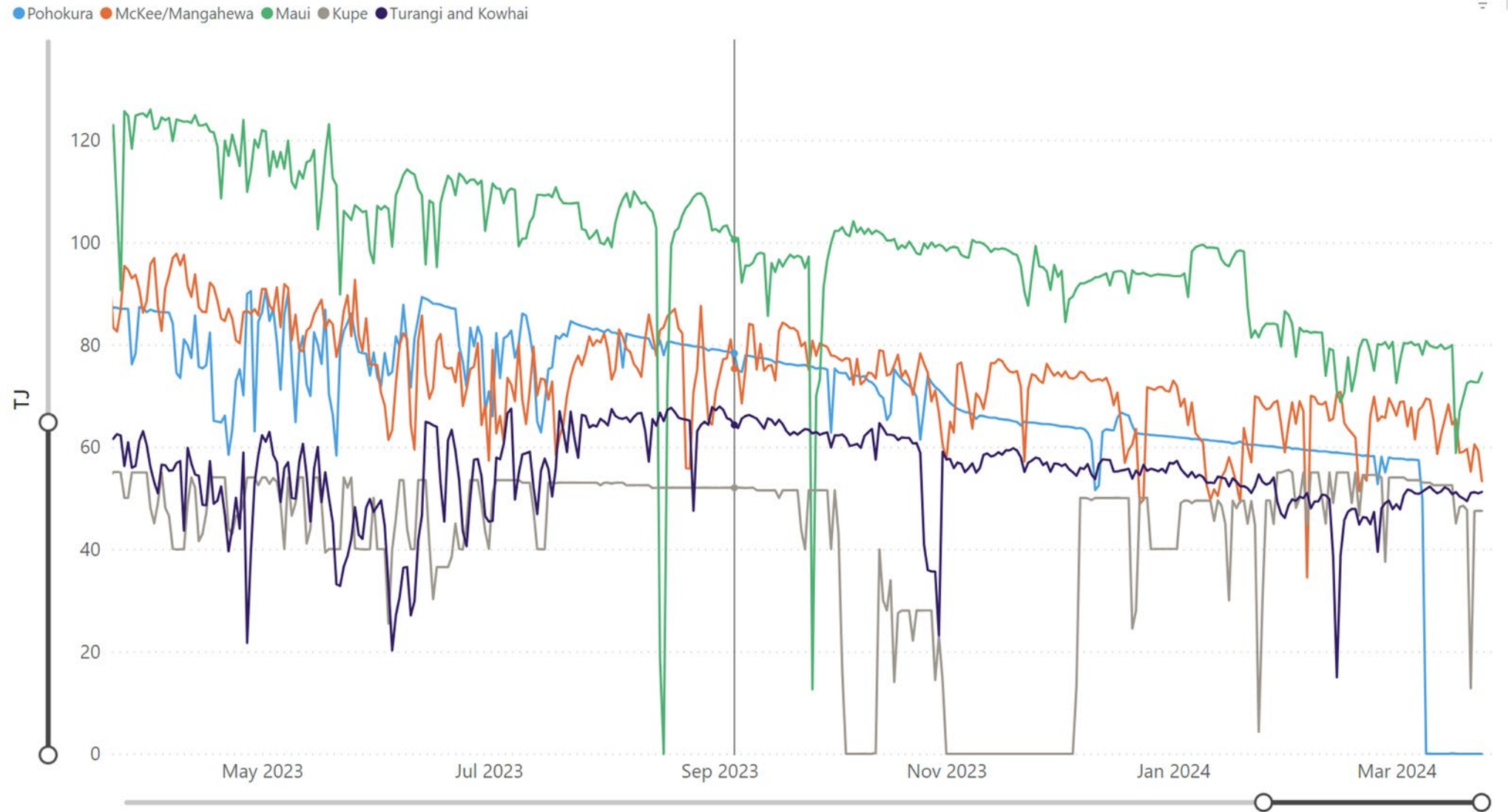
Investment in gas production is required.



# All major fields are in decline



# Past 12 months



# Decline is at the bottom end of expectations in our December 2023 Supply and Demand Study, which was based on 31 Dec 22 Reserves data

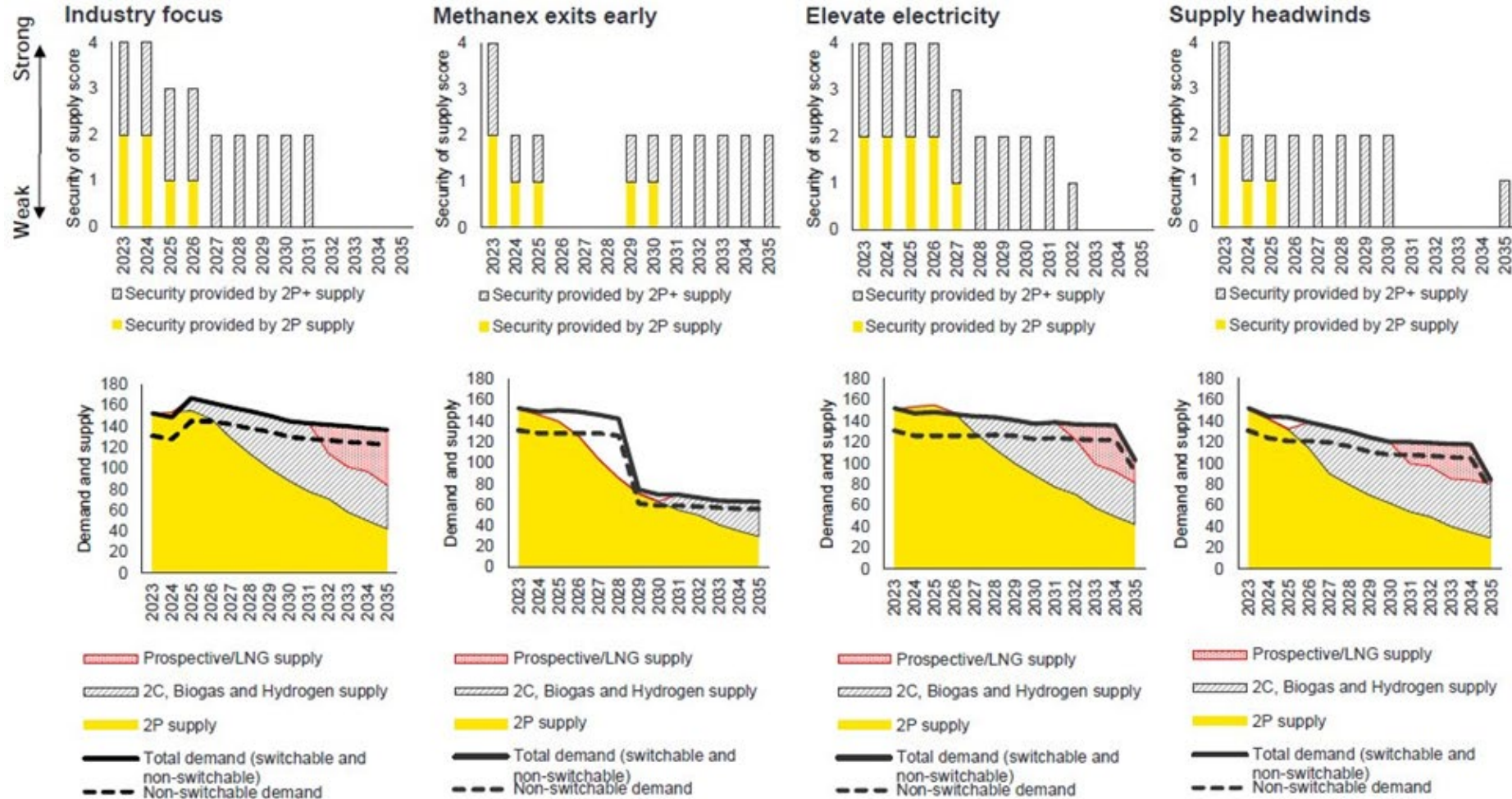
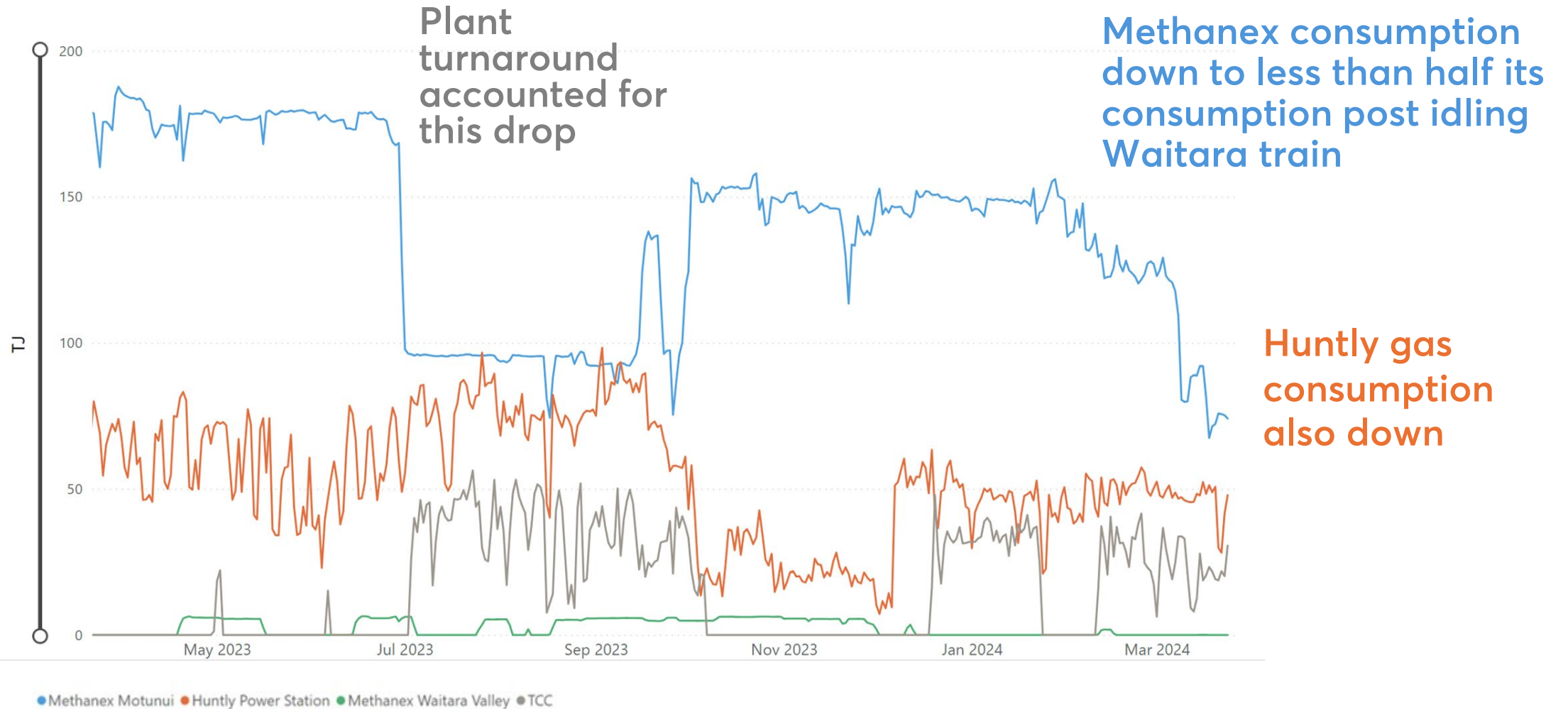


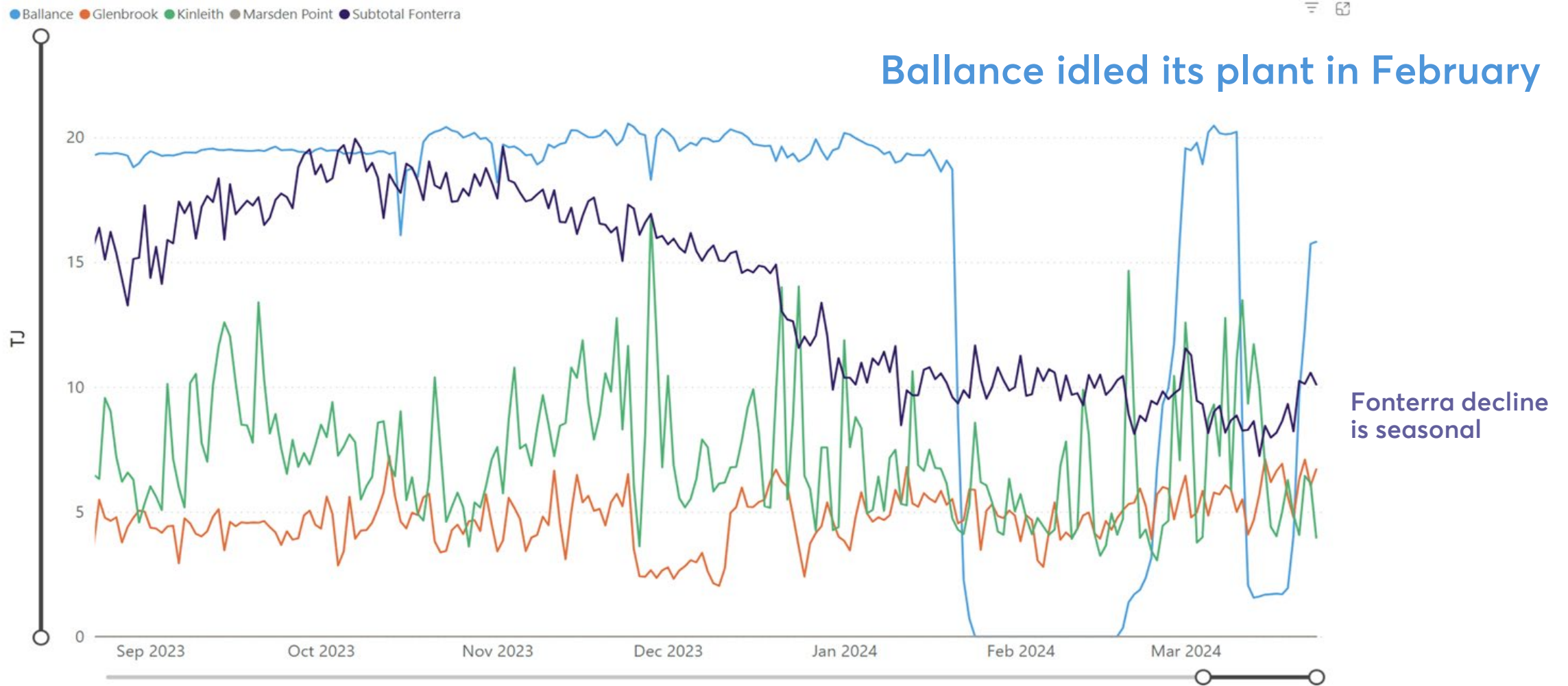
Figure 4: Security of supply score (top row) and the supply demand balance (bottom row) across the scenarios



# Daily consumption of major users



# Daily consumption of major users cont'd

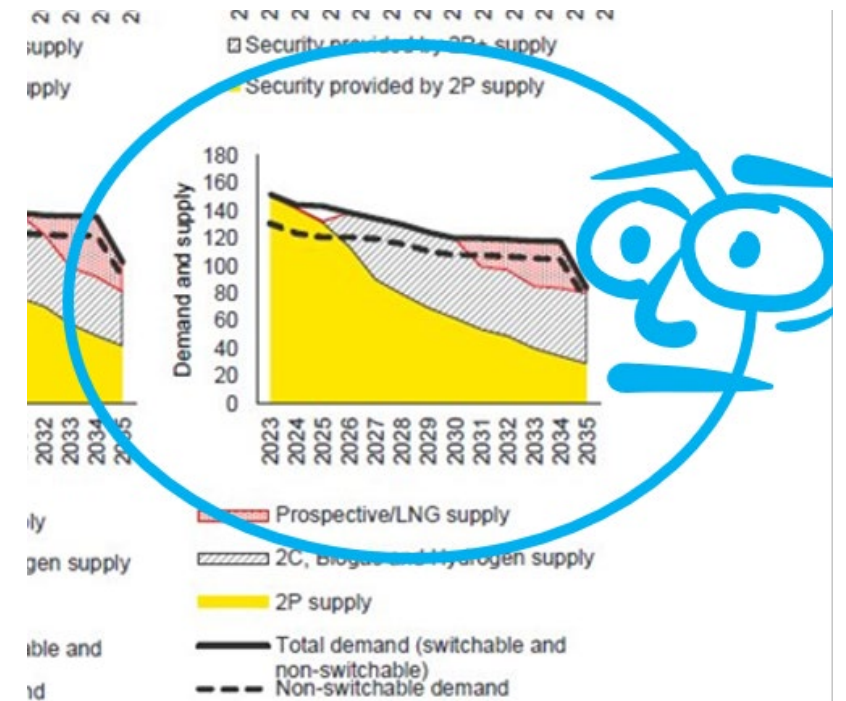


# Assumptions in supply-constrained scenario will not be achieved

2P supply was expected to drop below total demand in 2024 and 2025 but stay above 'non-switchable' demand.

But: 'In 2026, supply picks up and can meet total demand through till 2030. In 2031, supply is no longer able to meet even the non-switchable demand. In 2035, one of the Motunui methanol trains is assumed to close.'

We are current tracking supply below this scenario now as investment in new wells has not occurred.





Price rises are inevitable for smaller consumers and businesses without long-term gas contracts

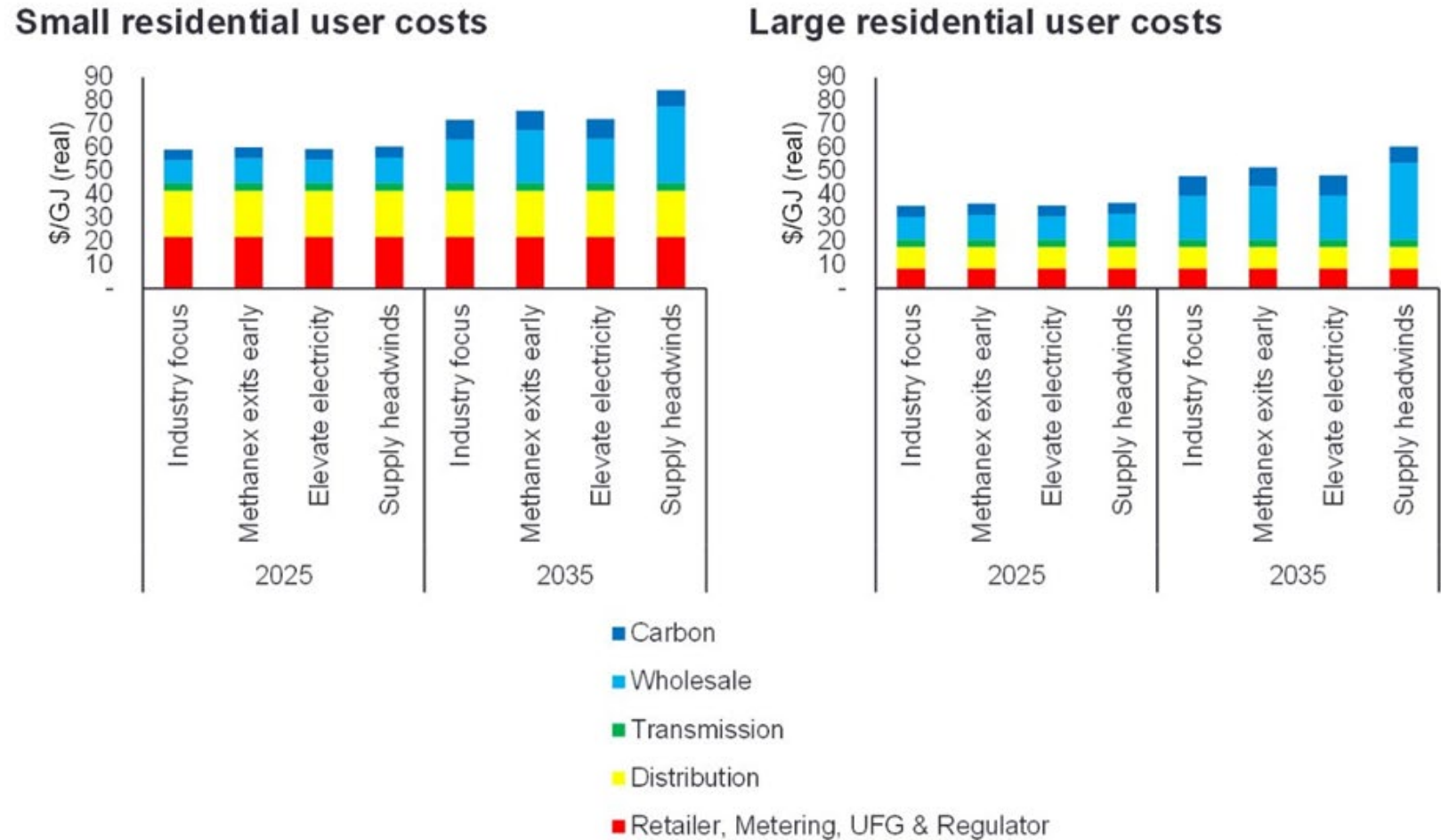


Figure 6. Residential gas costs across all the scenarios in 2025 and 2035. The chart on the left corresponds to small residential users and the chart on the right corresponds to large residential users.

# Investment is needed to secure gas supply

Investment of \$3-500m every 3-5 years is needed to sustain production from existing fields.

Weak investment confidence is threatening investment. Poor reservoir performance isn't helping confidence.

Early investigation of LNG imports is underway.

The most effective and efficient way to secure investment confidence is direct arrangement between government, producers and major consumers.

# Interface between gas and electricity is a priority

As production volumes decline, pressure will increase on the interface between gas and electricity.

As renewable intermittency requires more gas support for electricity, the need for investment to provide supply is growing.

A long-term economic instrument (for example, electricity capacity market or long-term contract) to support security of supply (through storage or demand response) will help to improve investment confidence.

In a constrained market, the mechanism for allocating gas to its highest value use may be contentious. Highest value is unlikely to be electricity peaking.

# References

Gas Transition Plan (2023) GIC

[Gas-Transition-Plan-Draft.pdf \(gasindustry.co.nz\)](#)

Biogas Research Report (2023) GIC commissioned report (Woodbeca)

[Gas Transition Plan – Biogas Research Report \(gasindustry.co.nz\)](#)

Gas Markets Settings Investigation Consultations Paper (2021) GIC

[7263~Gas-Market-Settings-Investigation-Consultation-Paper-May-2021-v2.pdf \(gasindustry.co.nz\)](#)

Gas demand and Supply Projects 2021 to 2035 (2021) GIC commissioned report (Concept Consulting)

[7268~Concept-supply-and-demand-study.pdf \(gasindustry.co.nz\)](#)

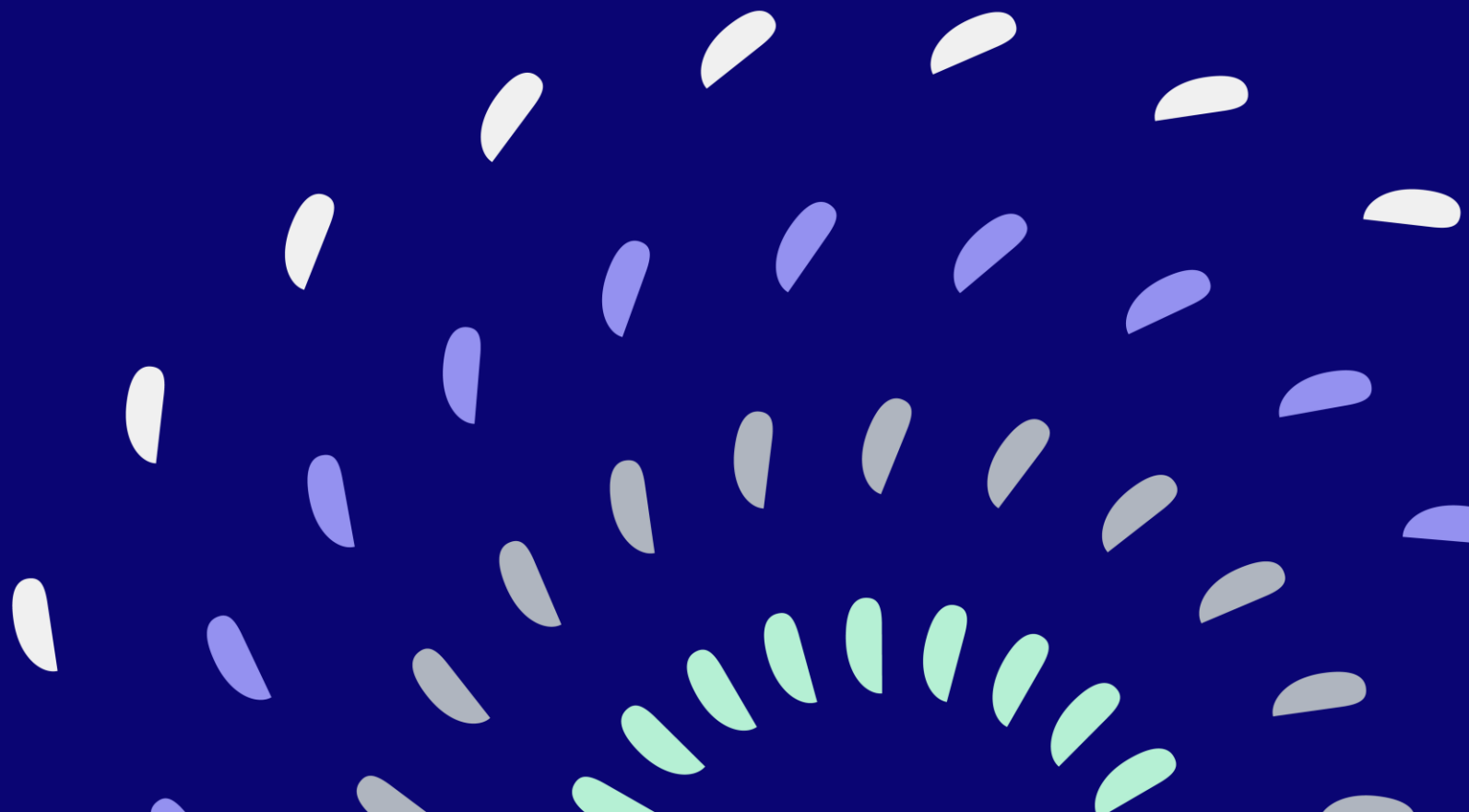
[www.gasindustry.co.nz](#)



# Gas Transmission System - Security and Reliability

Iwan Bridge  
Chief Operating Officer

23 May 2024





# Contents

1. Existing plans to address known threats to pipelines
2. Our current activities on continuing to build asset resiliency
3. Our work on improving system capability and flexibility
4. Our strategic view of the longer-term asset management challenges given current uncertainty



# Successfully delivering on plans and managing emergent threats

## Key Items Progress since last update

- Pariroa realignment complete
- Gilbert Stream realignment complete
- Early 2023 weather - threats to pipeline managed with minimal impact:
  - Pipelines to Te Puke and Rangiora – train derailment and stream washout
  - Pipeline to Gisborne free span due to washout, but Supply maintained
  - Other geohazard features noted and managed throughout the North Island





# We are continuing to build asset resiliency

## Continuing to increase our asset resilience and our ability to respond to events that threaten the integrity of the system

- Pipeline Inspection program continuing including smaller diameter high pressure pipelines.
- Further line repairs and reinforcement
  - Pipeline defects found through pigging – sleeves / wraps / strain relieving
- Control Systems upgrades - SCADA Upgrade
- Emergency management capability increased (facilities, tools, training and practice).

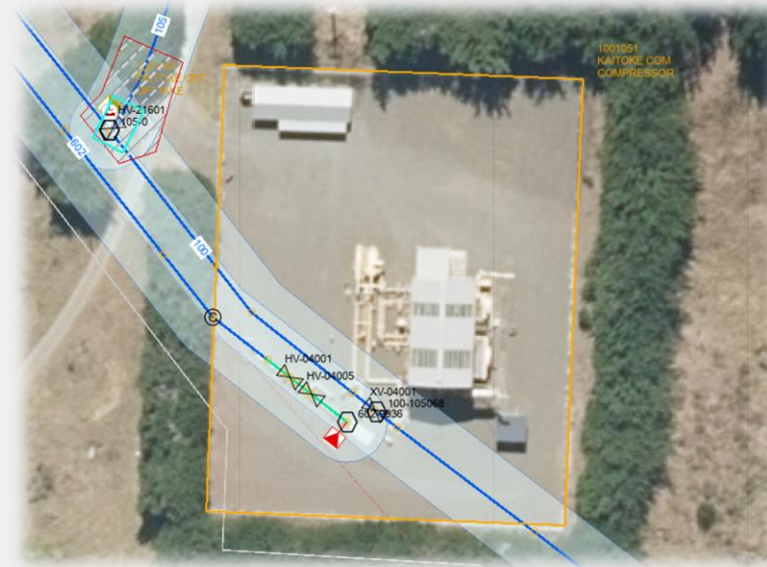




# We are improving the System

**Continuing to increase our system flexibility and optimization to support use of the assets**

- We're upgrading the compression at Kaitoke .
- Reporoa biogas (largest AD/bio-methane project in Australasia)
  - Changes to CCM Regulations
  - Changes to NZ Gas Spec 5442
- Ahuroa Gas Storage deliverability of 65TJ/d
- Looking at arrangements with system users to promote increased access and deliverability
  - e.g. possible Taranaki Target Pressure reduction



# Tomorrow's Challenges

## Sustainable business model over the longer term



- Investors are concerned about how future investment will be recovered.
- Accelerated depreciation helps. WACC percentile change doesn't.
- But our approach to asset management also needs to change.
- We haven't finalised our new strategy yet, but it will likely involve:
  - Less capital expenditure than previously planned
  - Potentially higher levels of supply risk
  - Network right-sizing, i.e. withdrawing from locations where it no longer makes economic sense



## 4 Key Messages today

1. **We have successfully delivered on plans to address known threats**
2. **We are continuing to build asset resiliency**
3. **We are improving system capability and flexibility**
4. **We are looking at the longer-term challenges and how to responsibly manage our assets given the uncertain future**





**OMV New Zealand Limited**

# **Electricity Authority – Security & Reliability Council**

Wellington, 23 May 2024



# Agenda

01

**Company Update**

02

Redevelopment and optimisation of Pohokura and Maui Fields

03

Other gas resilience issues – short, medium and long term

04

Information to assist SRC on resilience to longer-term disruption

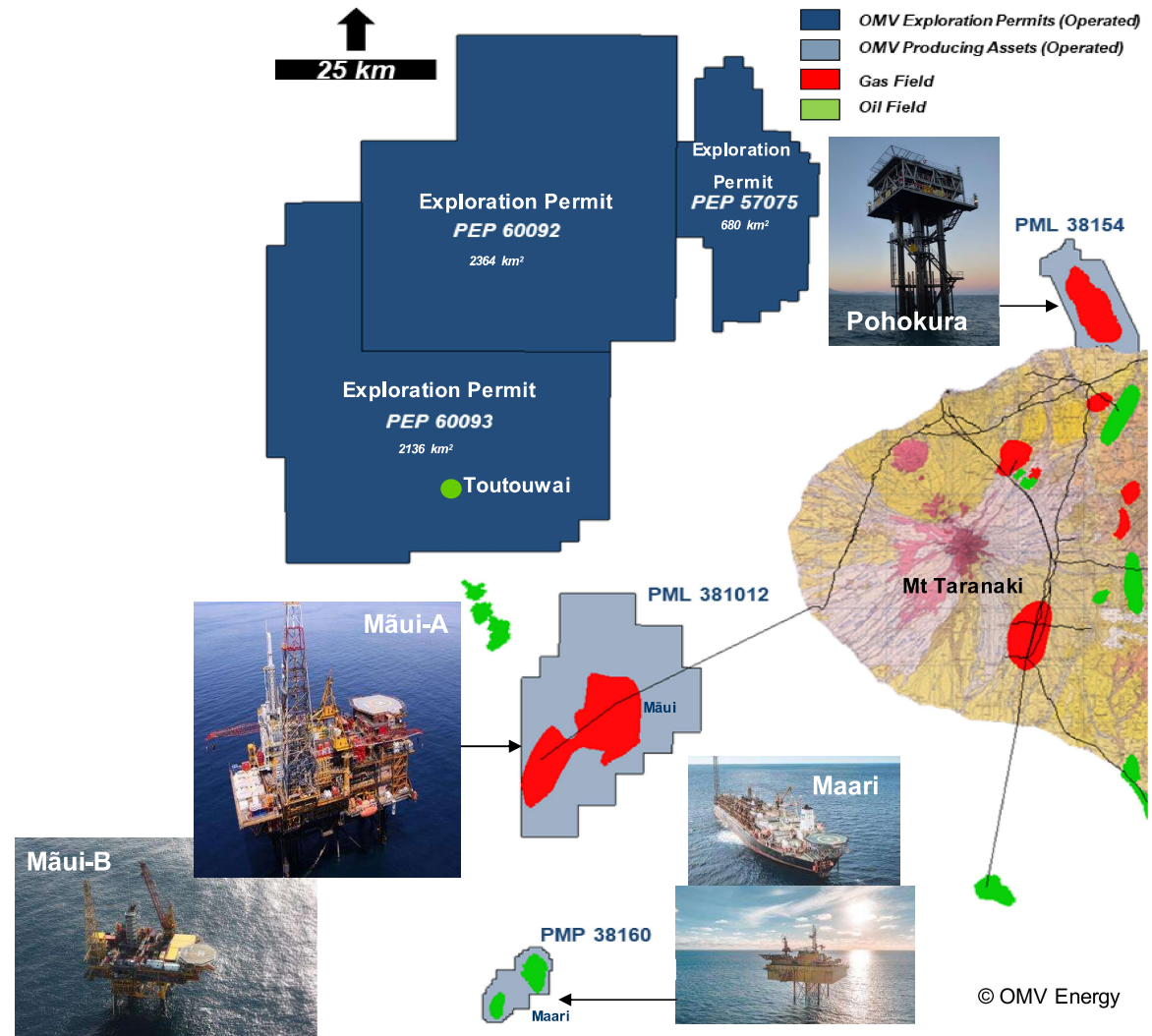
# Company Update

## 1. Introduction to OMV NZ

- Assets
- Role in NZ's energy market

## 2. OMV's energy transition

## 3. Divestment of OMV Asia-Pacific assets



## Development - Maui

# Māui Field Project Activity – MACI, MACI 2.0 & BIRF3



**Our Māui strategy focuses on sustaining deliverability, extending field life through growth projects, and preparing for decommissioning with a late life operating model**

### **MACI:**

- Eight successful sidetrack wells completed 2021-23
- All wells tied in and handed over for production immediately post drilling and completion

### **MACI 2.0:**

- Two successful sidetracks completed, MA-09C (Māui West 2) and MA-08B (Māui East 2), MA-09C tied in for production

### **BIRF3:**

- Six sidetracks delivered 2022-23, with 4 wells on production

**Next:** Māui East and/or other near-field opportunities

**Around 80% of current field production at the Māui Field is delivered by wells that have been drilled since late 2020**





## Development - Pohokura

# Pohokura Field - Activities

### 2022-23 Well Activities

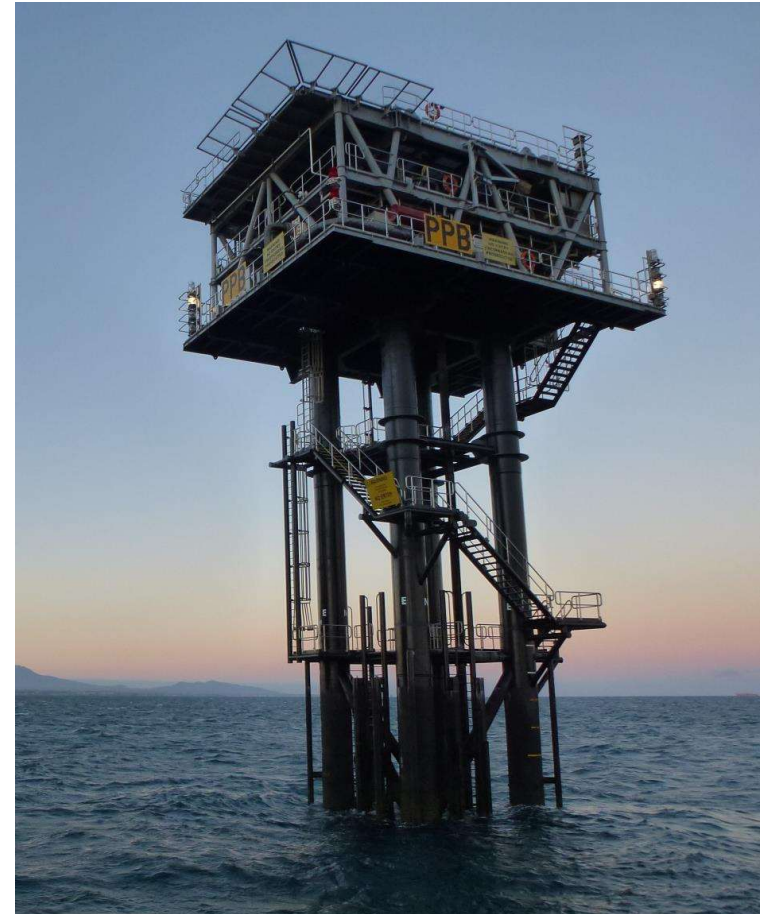
- POW-04 (infill) drilled from onshore, 7km directional drilling to intersect main reservoir – successful +30TJ/day
- Interventions on other wells to remove scale and restore well deliverability.

### 2024 Year to date

- Four-yearly plant turnaround completed in March

### Remaining planned activity in 2024

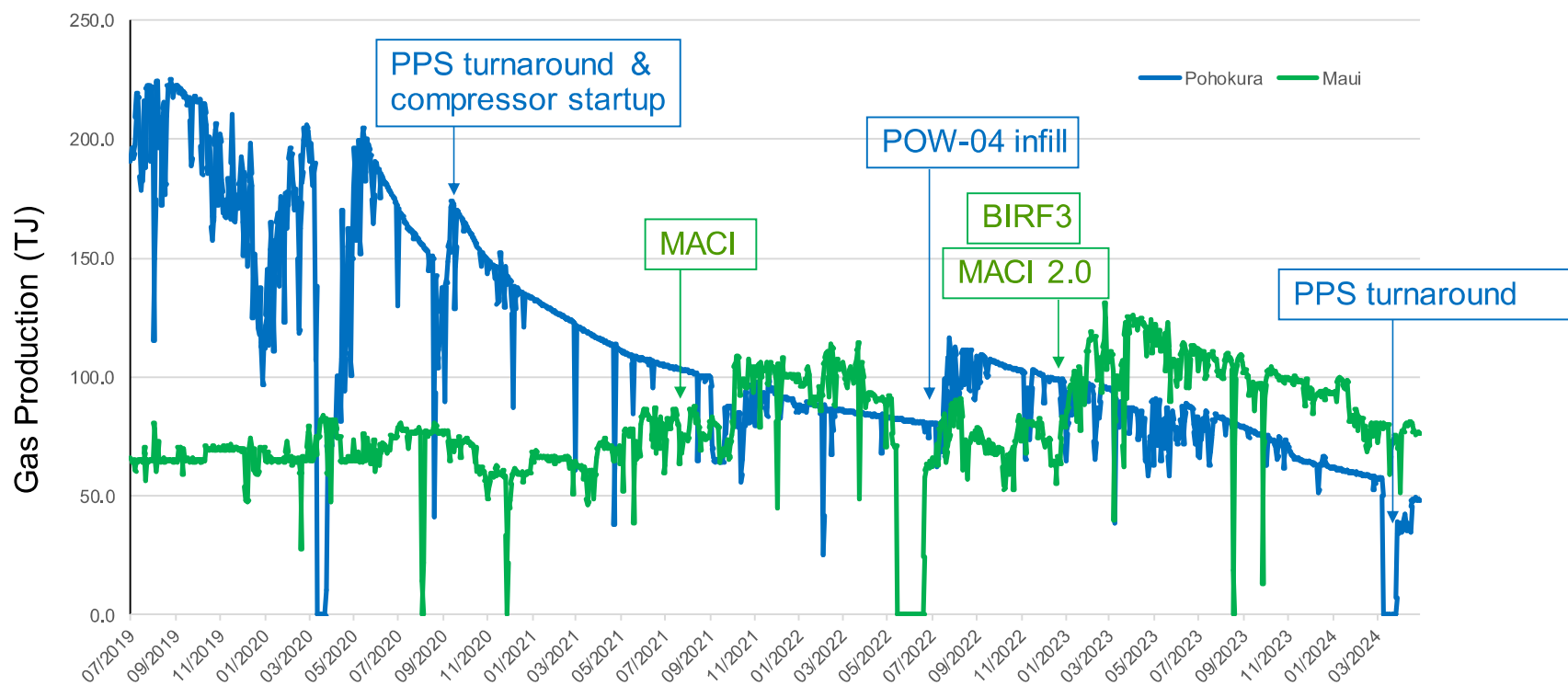
- Post turnaround interventions
- **POW-05 (infill) to be drilled from onshore, Q4**
- Next: maturing further infill drilling offshore/onshore





## Development – Maui & Pohokura

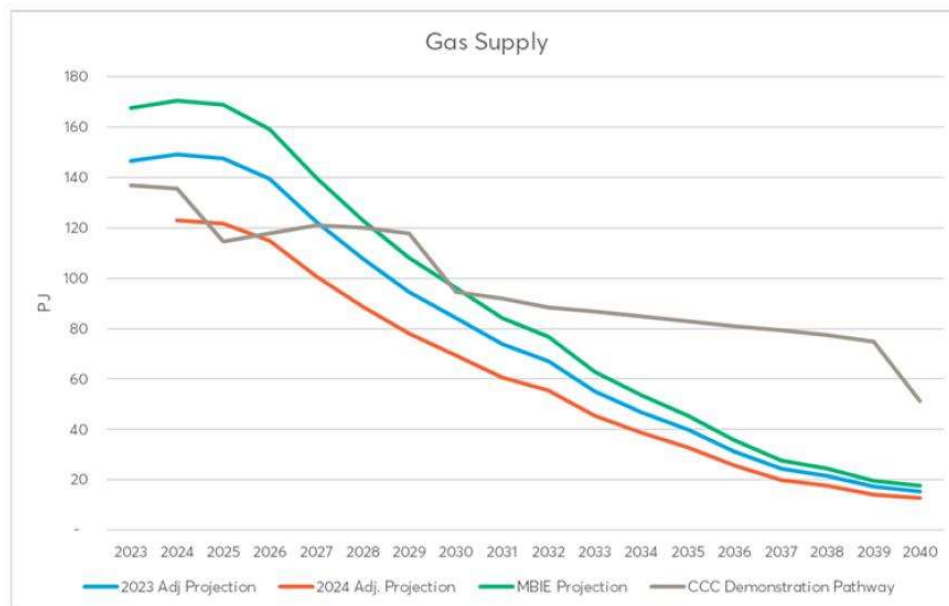
### Gas Production



(Gas production data from GIC)

## Development – NZ Production

# Gas production and reserves are falling

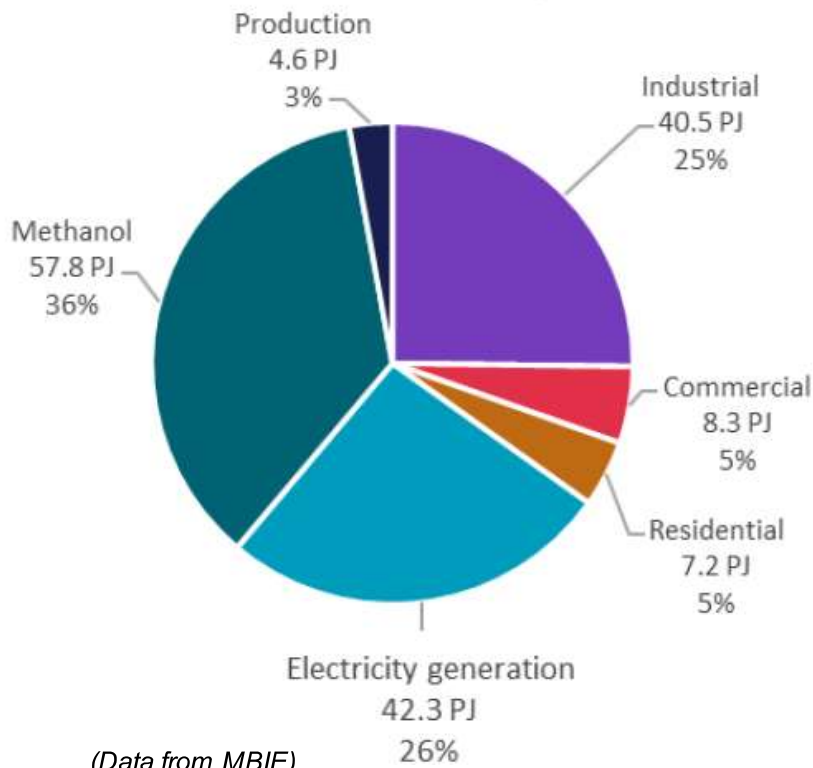


(Graph from GIC)

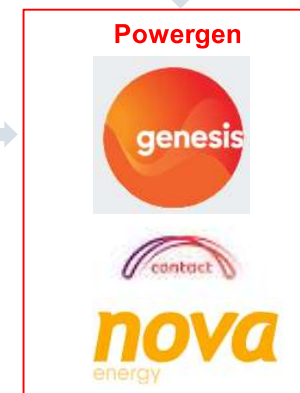
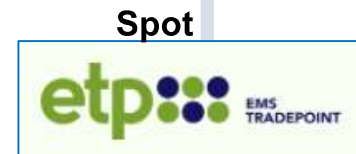
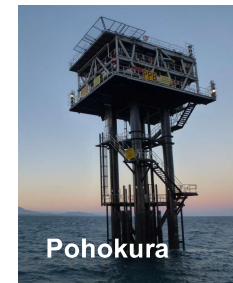
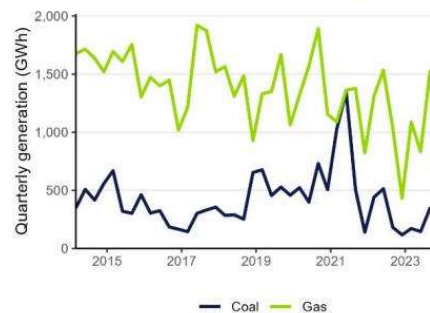
- The picture has changed significantly
- Old fields are expensive- and finite
- There is an urgent need to “fill the funnel” with new exploration and appraisal projects
- We are identifying remaining opportunities, with infill, near-field and greenfield projects (with different risk profiles)
- GIC has stated there is insufficient gas to supply market
- Gas Security Response Group stood up for Winter 2024, led by MBIE
- The industry is cyclical, and takes time to mature a package of opportunities
- Activity will be influenced by changing regulatory environment (eg offshore ban for new exploration, 2018 – present)

# Drivers of investment - Role of electricity

New Zealand Gas Consumption 2022



Electricity generation from coal and gas



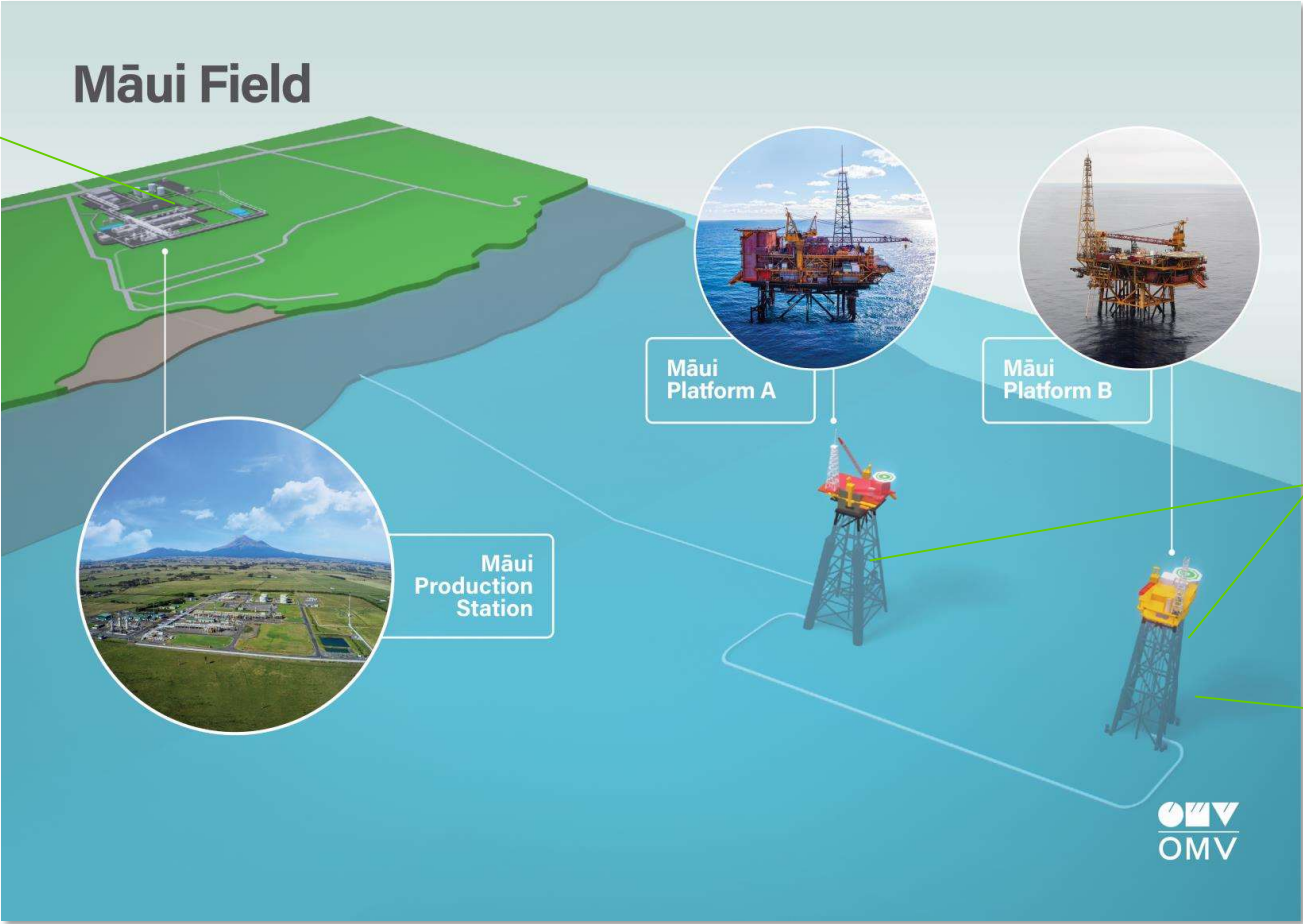
(Hat-tip to Enerlytica)

Longer Term Resilience

# Field Decommissioning

License Expiry	Jun 2036
Estimated last year of production	2032

MPS demolished



Significant uncertainty in decommissioning regime – current guidelines are a major counterweight to investment plans

Wells P&A'd, facilities removed

Flexibles removed

## Gas supply resilience Summary

- OMV continues to actively invest in NZ, and to mature new projects
- Investment into Pohokura and Maui Fields has increased production – but more is needed
- We have short- and medium-term projects to ensure gas supply remains resilient – but environment is increasingly challenging
- Regulatory change is required to avoid longer-term disruption of the gas sector - and to provide a signal that investment makes sense



