



2018 Investor day



Te Mihi Power Station

6 November 2018

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This presentation does not constitute investment advice.

Agenda

1	Wholesale	James Kilty
2	Geothermal advantage	Mike Dunstall
3	Geothermal options	James Kilty
4	Closing remarks and Q&A	Dennis Barnes



Wholesale – James Kilty

Wholesale

James Kilty – Chief Generation and Development Officer

1

Environment and strategy

2

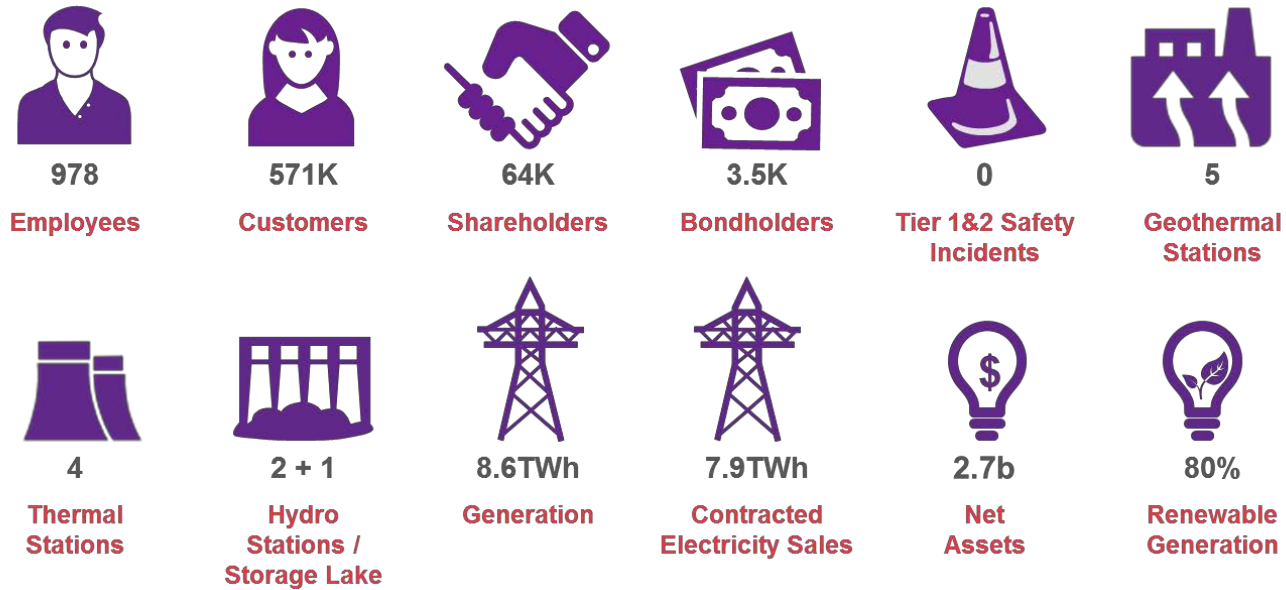
Organising for success

3

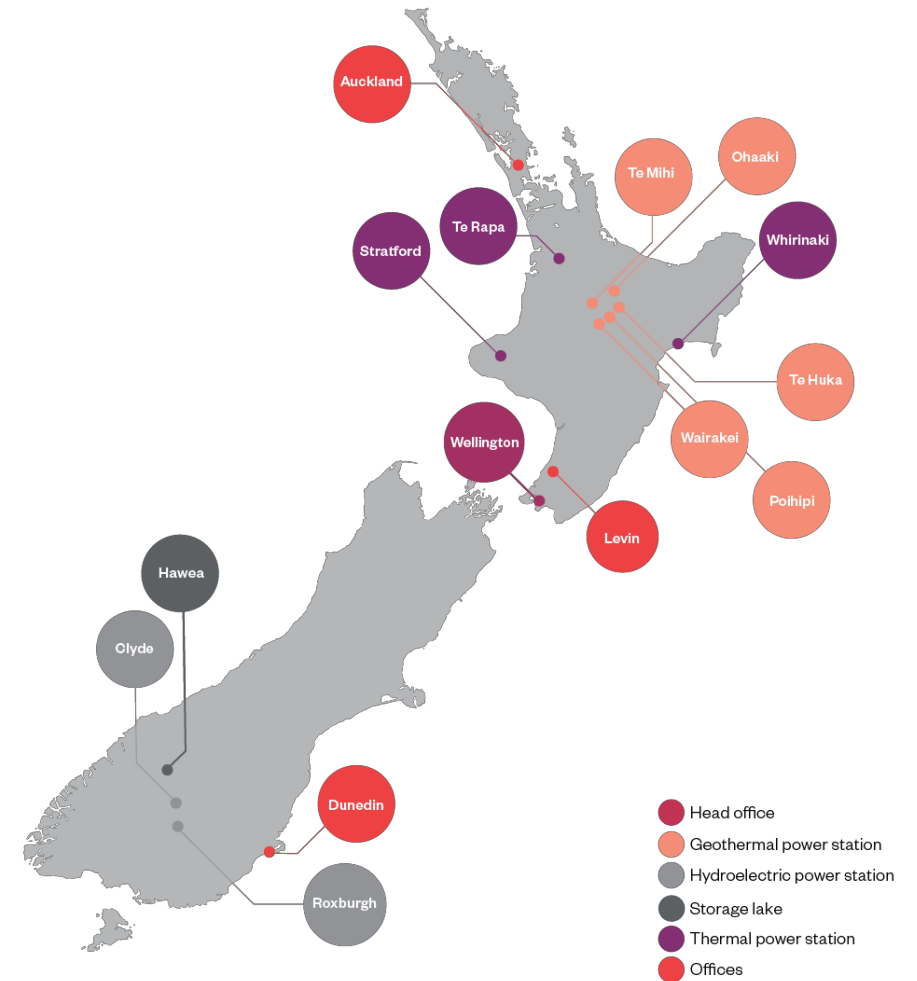
Wholesale market outlook



About Contact



* - All figures as at June 30 2018



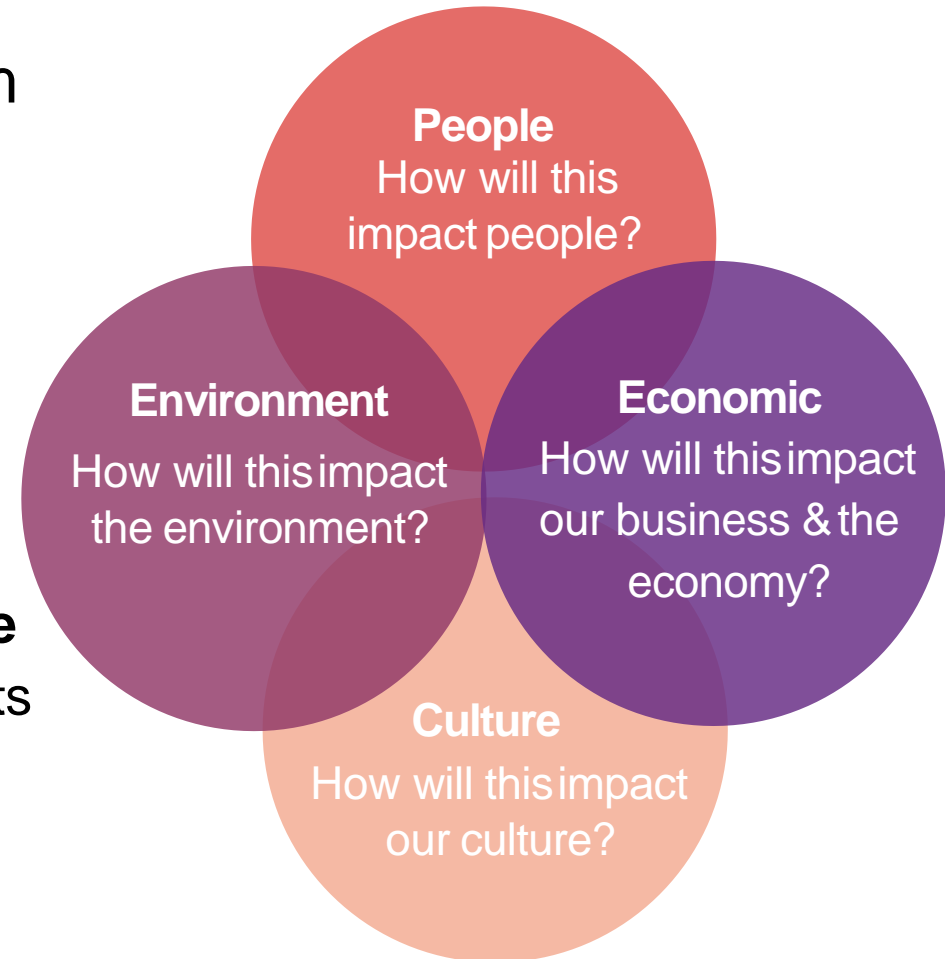
Sustainability is business as usual

Sustainability is about integrating diverse interests into our strategy to ensure long term value creation.

It's who we are.

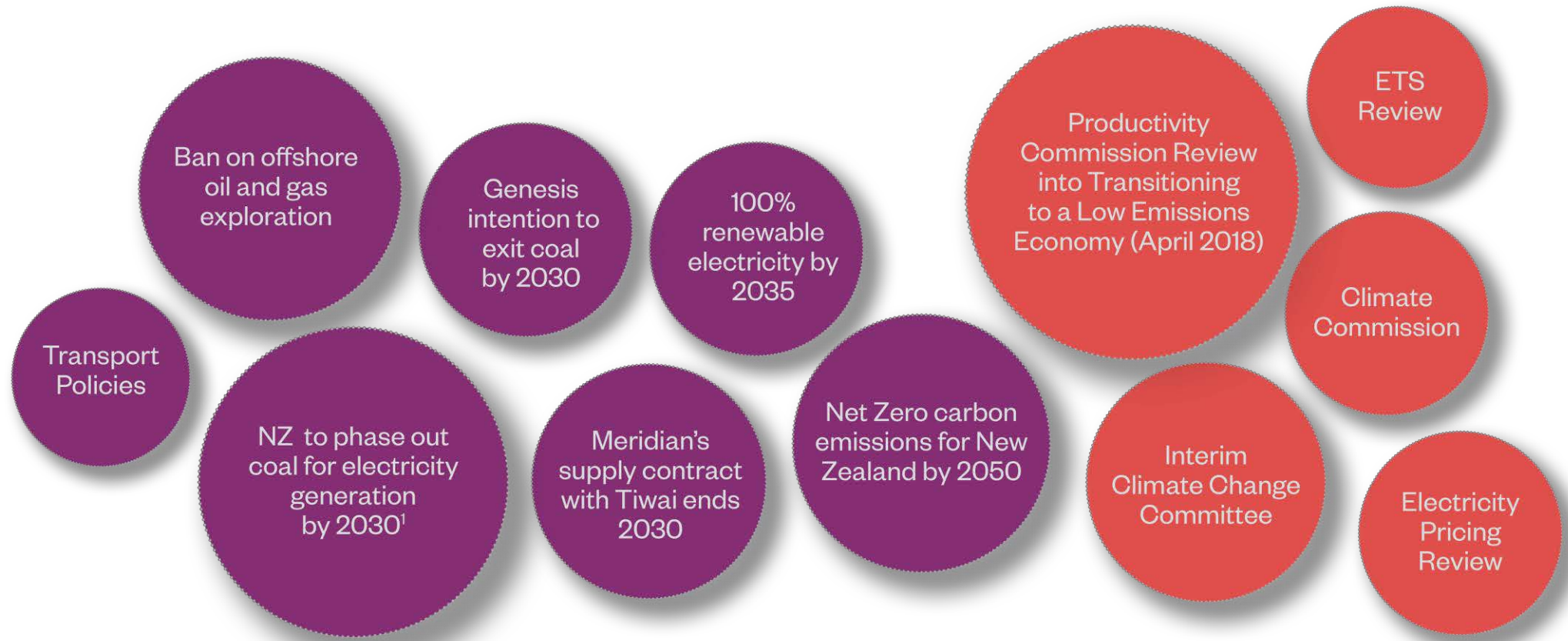
- **GRI** integrated reporting since 2015
- Supporter of the **Taskforce on Climate Related Financial Disclosure**
- New Zealand's first **Green Borrowing Programme**
- Adopting **Science Based Targets** to limit the effects of climate change in line with scientific evidence

Me haere ngatahi tatou



Societal action on climate change is increasing

Macro-trend towards a lower carbon future



¹ A commitment made by the Government when New Zealand joined the Powering Past Coal Alliance.

Contact's strategy

Optimising our Customer and Wholesale businesses to deliver strong cash flows



Customer

A service and value focussed retailer, **connecting customers** and communities to **smart solutions** that **make living easier** for them now, and in the future



Wholesale

An innovative, **safe and efficient generator** working with business customers, partners and suppliers to **decarbonise New Zealand's** energy sector

Underpinned by a disciplined and transparent approach to operating and capital expenditure while continuing to investigate ways to optimise our portfolio of assets

Strategy to optimise the business and to focus on cash remains appropriate for now

The medium term demand picture appears increasingly positive



Electricity demand and supply

- » National demand for electricity has been flat since 2007
- » Over 10 years renewable generation has increased from 67% to >80%
- » Long term wholesale prices firm on no significant change to net supply
- » The Tiwai fourth potline provides medium term demand strength

Decarbonisation

- » The Government's decarbonisation agenda and the speed of movement to act on climate change has increased
- » Government targets are likely to promote the uptake of further renewable projects
- » Known hydrology risks remain
- » Further market led thermal transition likely in the coming years

Regulatory settings

- » Regulatory settings have historically been focused on creating a progressive, efficient market structure

Retail competition

- » Retail sector competition continues with 10 new entrants in the last 2 years - growing Tier 2 market share has seen pressure on retail gross margins
- » Increased competition for C&I load from integrated generator / retailers looking to match load with their generation assets

Brand refresh and new customer propositions to mitigate these headwinds

To capture value for shareholders we will accelerate execution of the strategy



Customer

- » Move to a simple, lean operating model centred on the customer experience reinventing key customer experiences and processes
- » Capable employees, identifying and driving performance initiatives with ownership and accountability
- » Transform technology to drive both efficiency and better automated customer experiences
- » Reposition the brand and reputation from a strong operational retailer to a smart customer solutions provider



Wholesale

- » Sustainable cost reduction balanced against risk
- » Strengthen geothermal capability to remain as a recognised world leader
- » Partner with customers on mutually beneficial decarbonisation opportunities
- » Develop options to enable the economic substitution of thermal generation with renewables
- » Lower the cost of geothermal to ensure Contact development options are cost competitive with firmed intermittent renewables

Capital discipline to continue

Delivering on continuous improvement

Compelling uplift to near term cash flows from execution

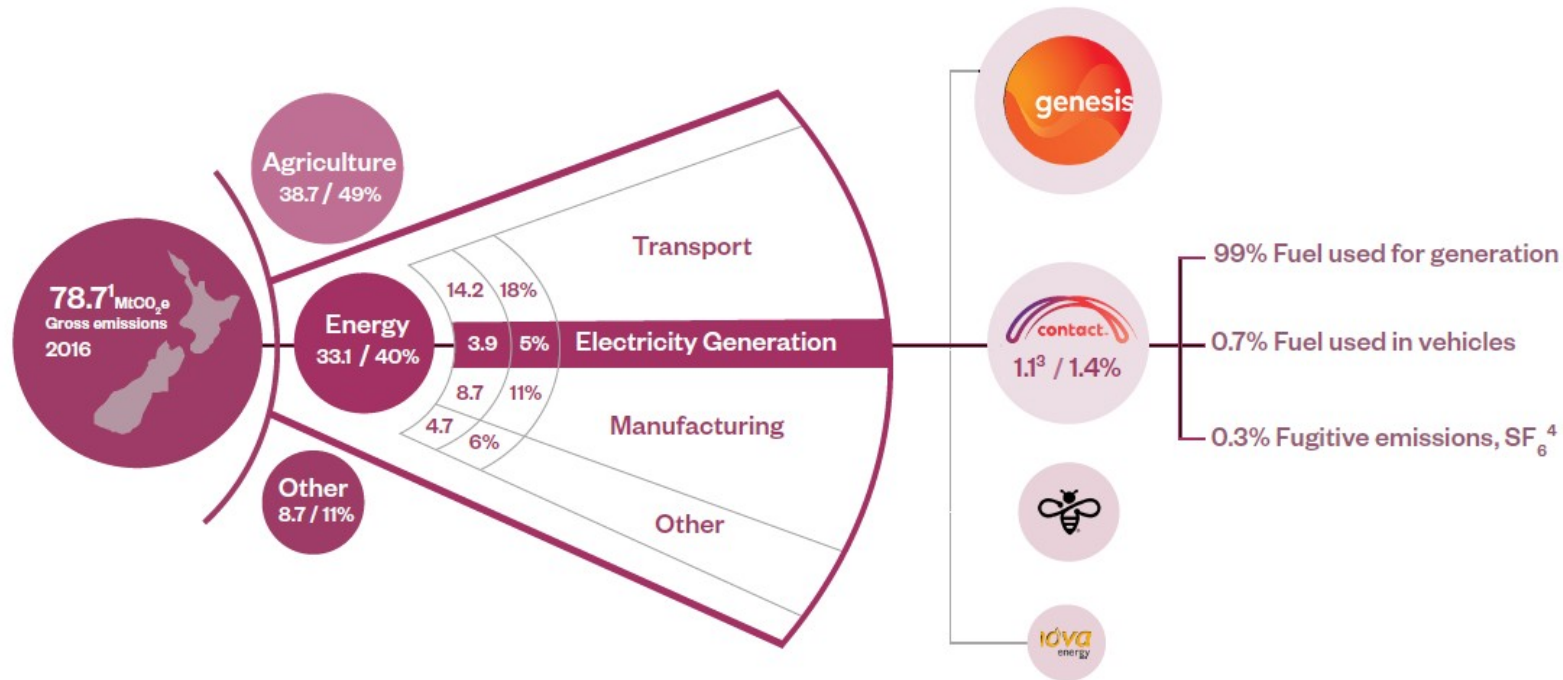
	FY16	FY17	FY18	FY19 (f)
Employee engagement	60%	65%	68%	73%
TRIFR	3.2	3.3	5.2	3.2
Cash costs ¹	\$214m	\$185m	\$165m	\$143m
3 year average forward price	\$77.00 / MWh	\$77.80 / MWh	\$78.60 / MWh	\$79.50/ MWh
Geothermal and hydro volumes	3,297 GWh 4,090 GWh	3,233 GWh 3,562 GWh	3,323 GWh 3,479 GWh	3,350 GWh 3,950 GWh ²
Plant availability	90%	92%	89%	89%
Cost of energy	\$26.71/MWh	\$27.61/MWh	\$28.00/MWh	\$21.00/MWh ²

¹ Operating and SIB capital costs

² Assumes mean hydrological sequences

Electricity is the solution, not the problem

A lower carbon economy will be enabled by electricity



Note all emissions expressed in MtCO₂e and all percentages are based on total gross New Zealand emissions.

¹ Extrapolated from MFE, emissions figure for Energy (33.1MtCO₂e), NZ Greenhouse Gas Inventory (1990-2016), Snapshot April 2018.

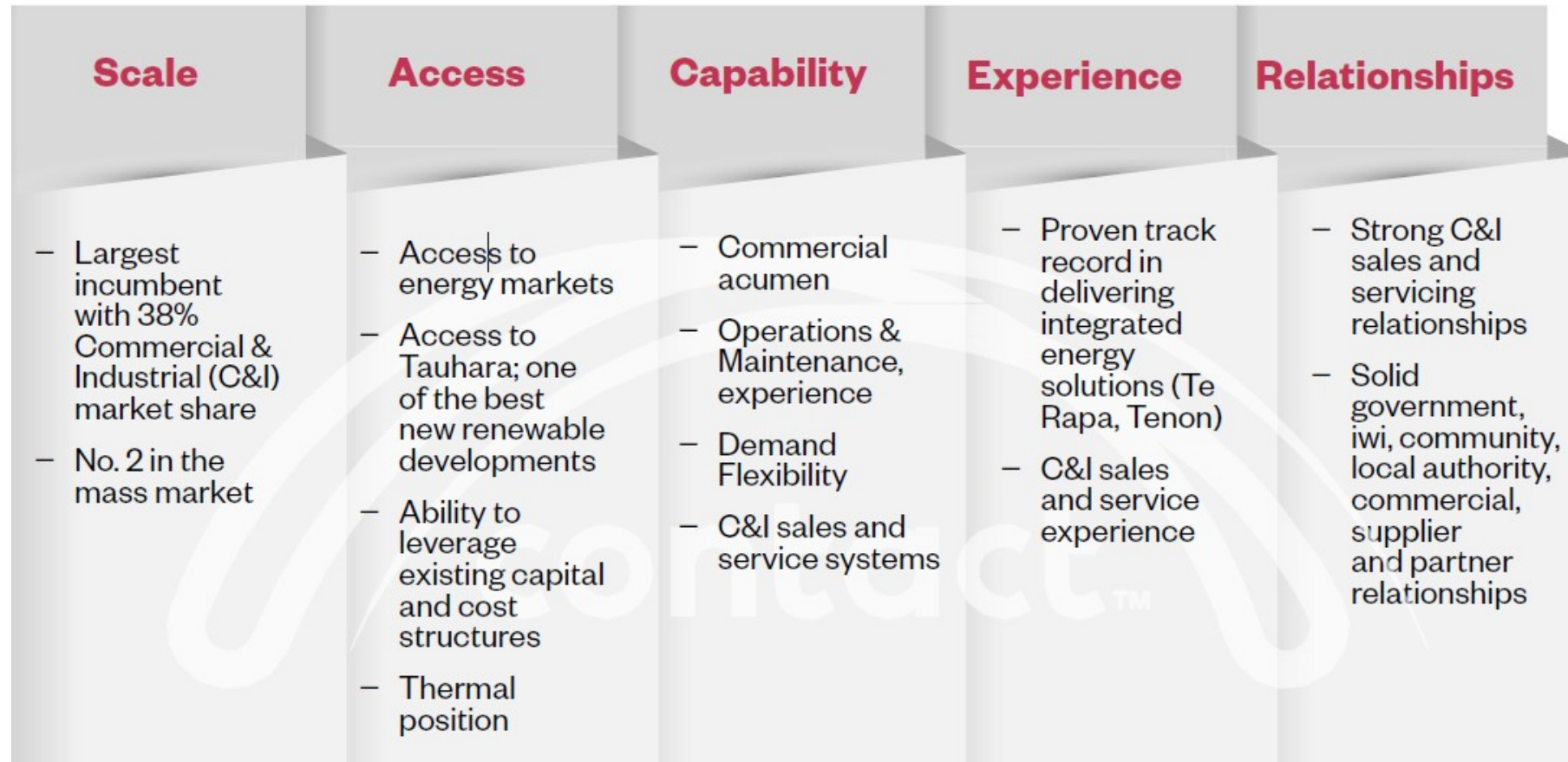
² Energy sector breakdown sourced from Productivity Commission Low Emissions Economy Issues Paper, August 2017.

³ Contact Energy emissions, FY16, sourced from Annual Report, FY17

⁴ SF₆ is used to insulate high voltage switchgear.

Support further decarbonisation of energy

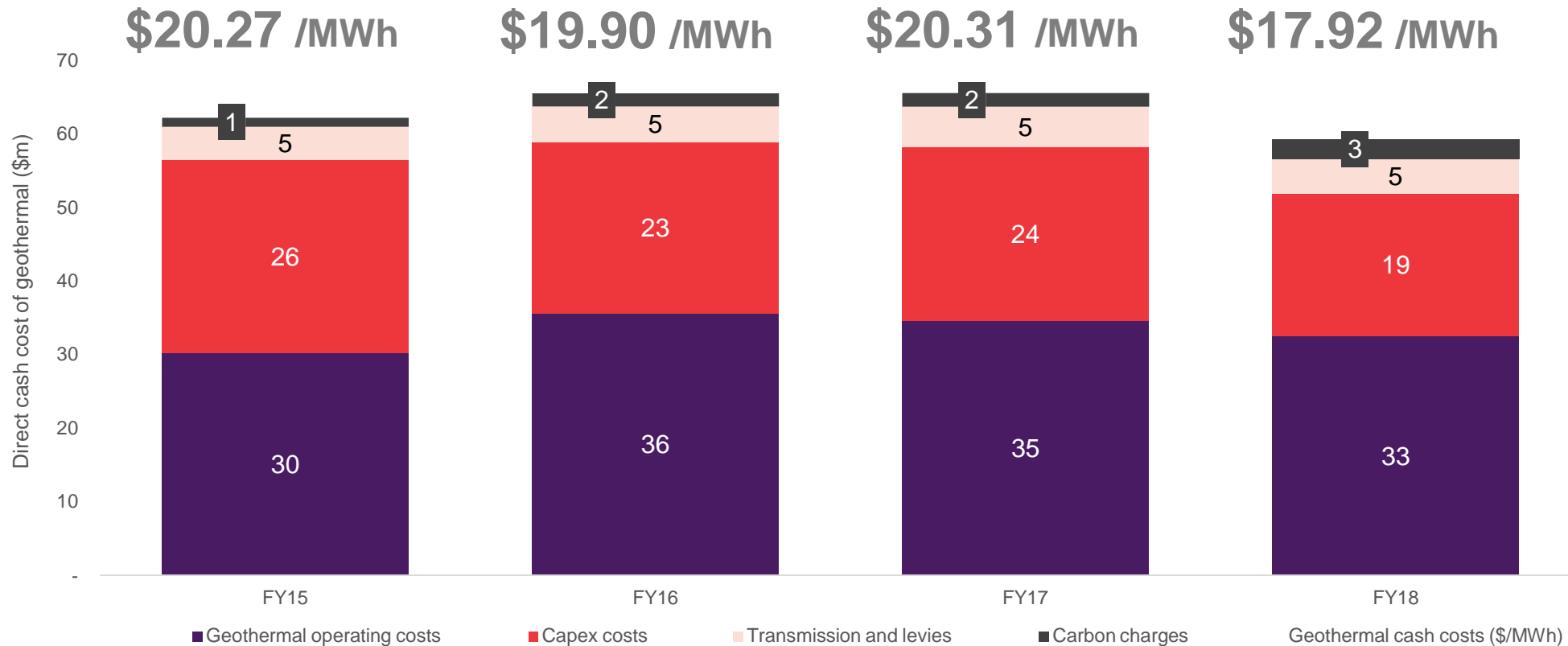
Leveraging capability to expand C&I products and services



Insights and relationships will allow Contact to capture value from demand growth

New Zealand's lowest cost geothermal producer

Operating and capital cost of production



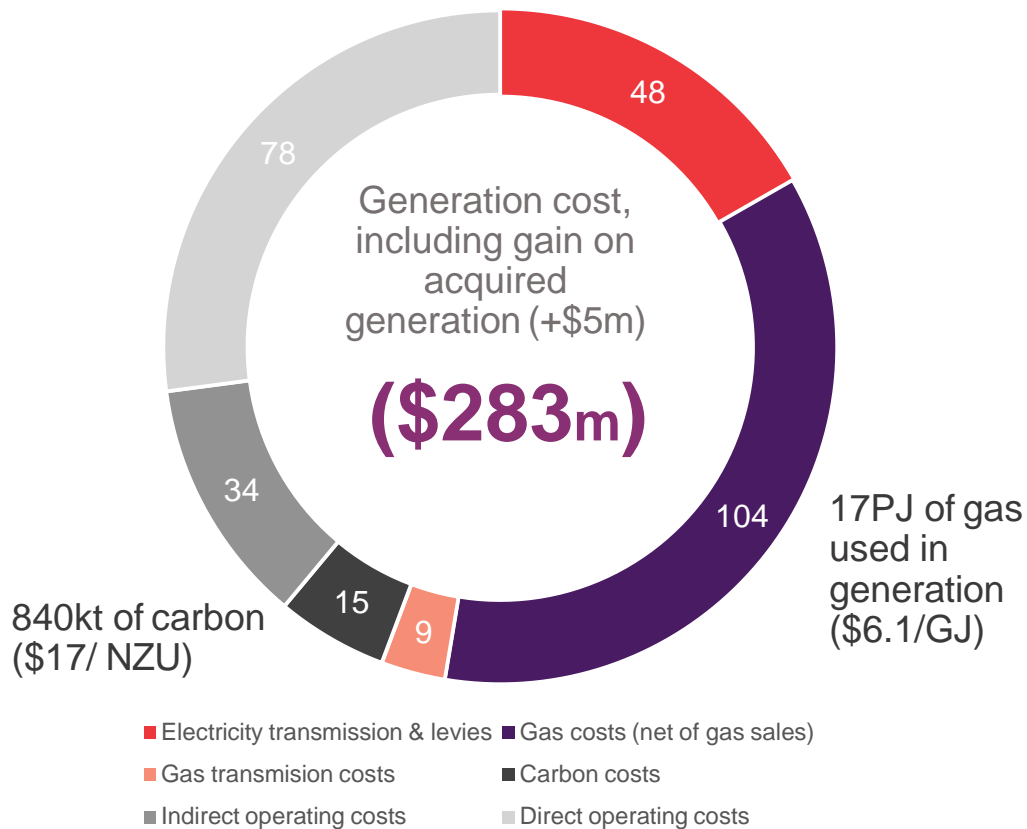
Wholesale sales revenue

Sales channels	Electricity sales to Customer	Electricity sales to Commercial and Industrial	Contracted electricity sales	Steam revenue
	Fixed price variable volume sales to Customer business mass market at market linked transfer price	Fixed price variable volume sales to C&I, includes retailing margin	Revenue from contracts for difference – includes support for NZAS and direct C&I	Revenue from the sale of steam
Revenue	\$314m	\$285m	\$90m	\$25m
Sales volume	3,648 GWh	3,349 GWh	1,356 GWh	584 GWh
Volume weighted average price	\$86.13/MWh	\$85.10/MWh	\$66.03/MWh	\$42.78/MWh

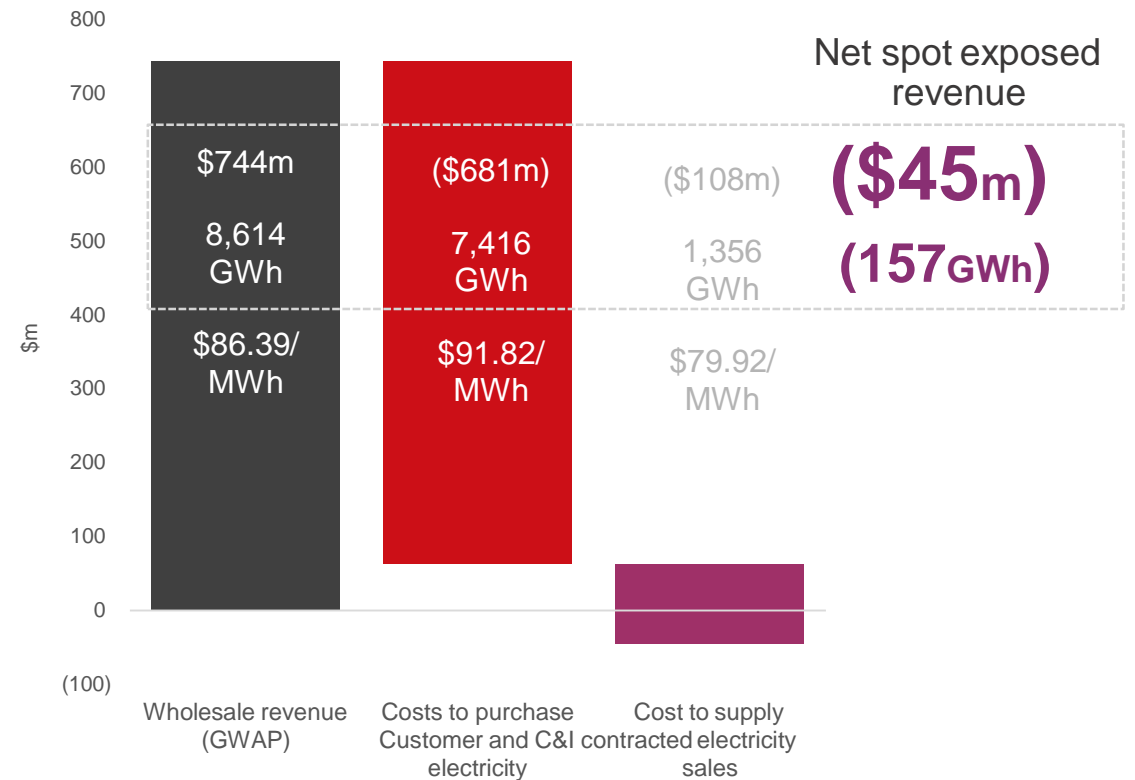
* - excludes merchant revenue

Cost of supplying energy

FY18 components of generation costs (\$m)

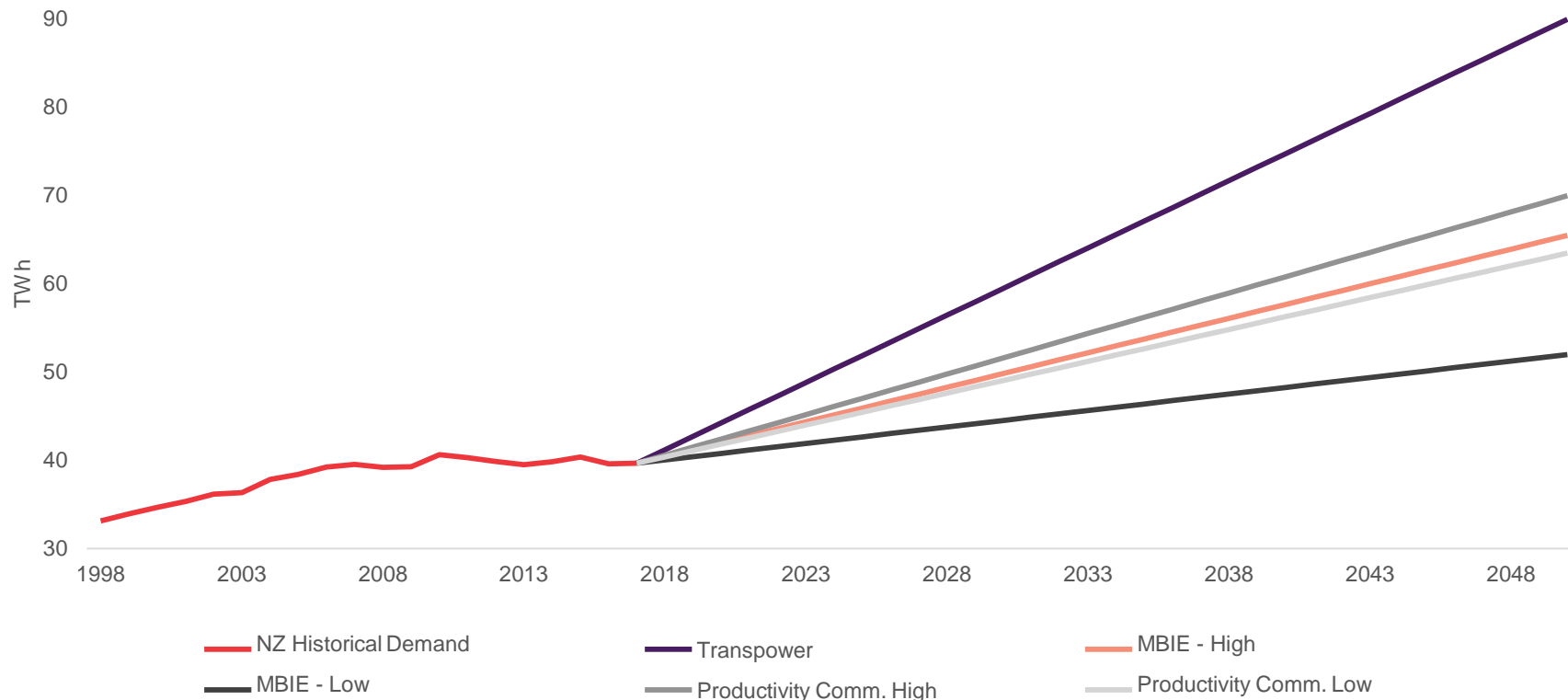


FY18 wholesale trading and cost of supply (\$m)



Demand outlook is positive long term

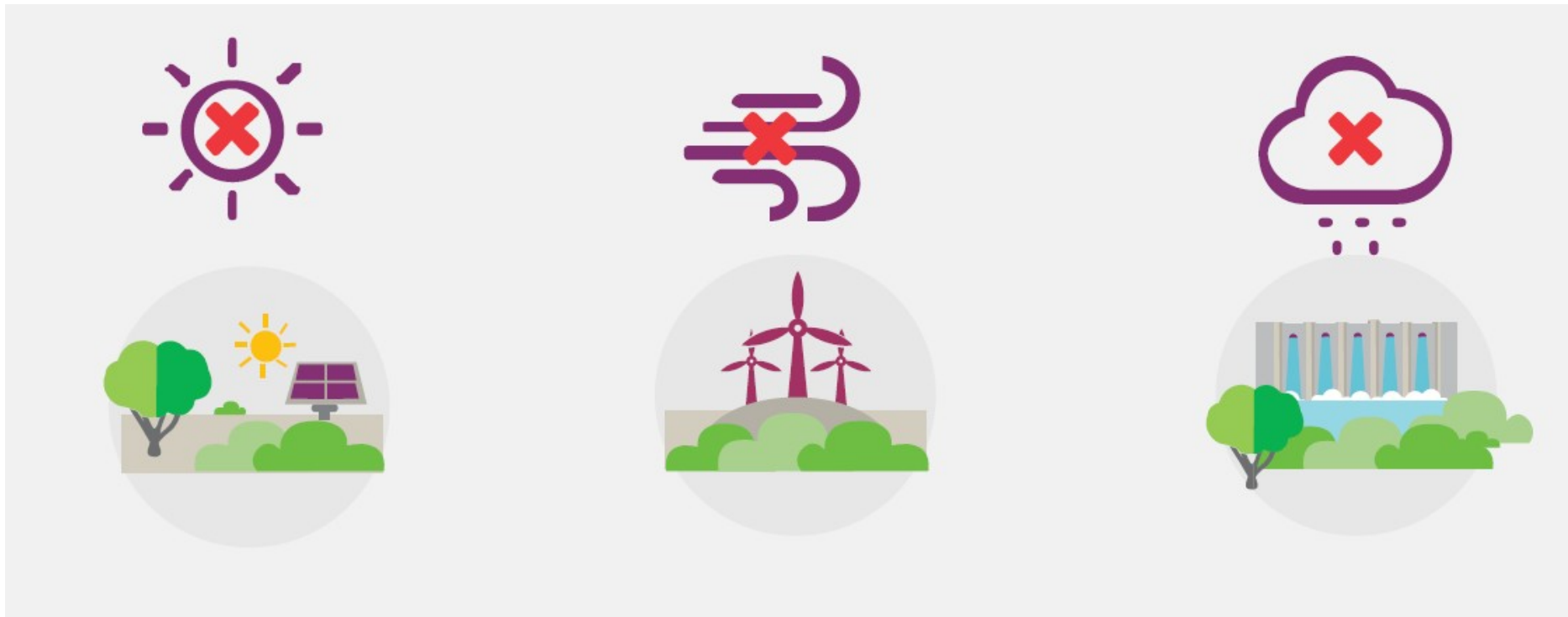
However, the sector has a bad track record of accurately forecasting demand growth, investment discipline is key



- » Consensus demand growth is approximately 3 - 7 TWh by 2030,
- » Geothermal and Wind expected to provide this growth
- » Annual growth rate of approximately 0.7– 1.5%

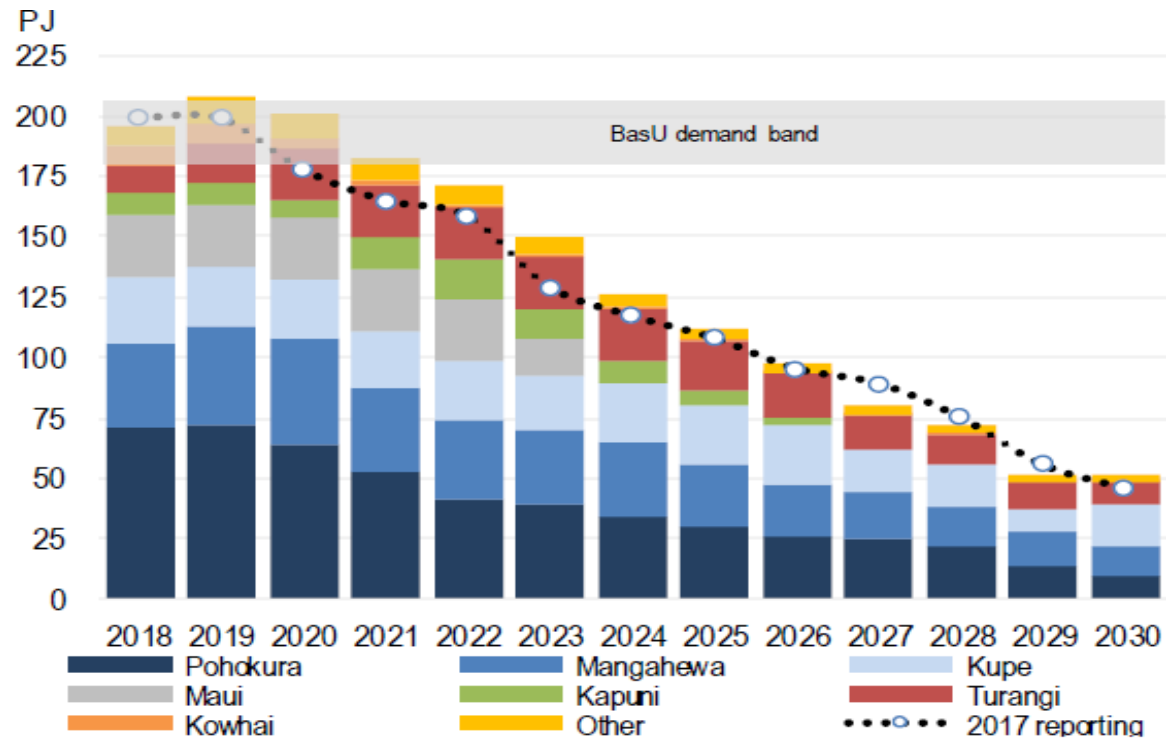
Many sources of lower carbon generation will be intermittent

Thermal generation will be needed for some time



Gas outlook

2018 gas production forecasts (2P)

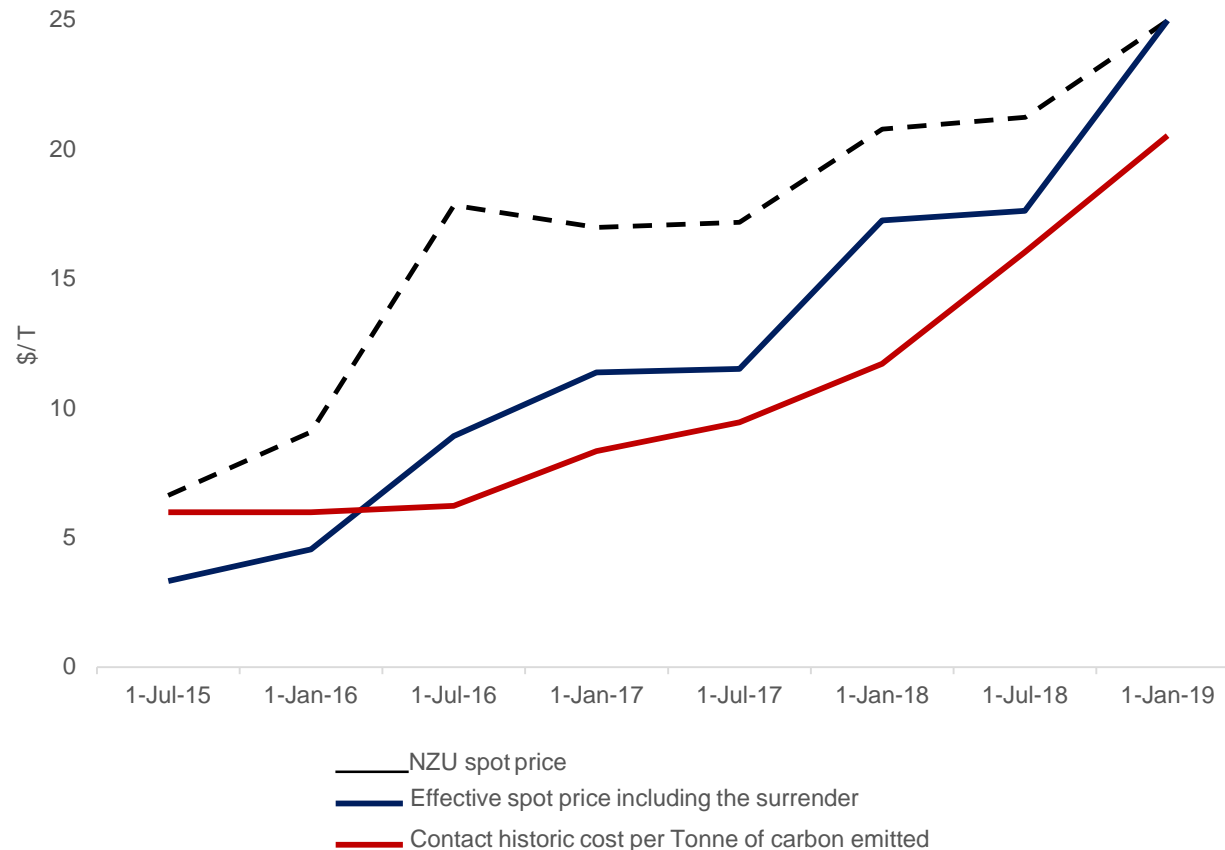


Source: MBIE, Woodward Partners

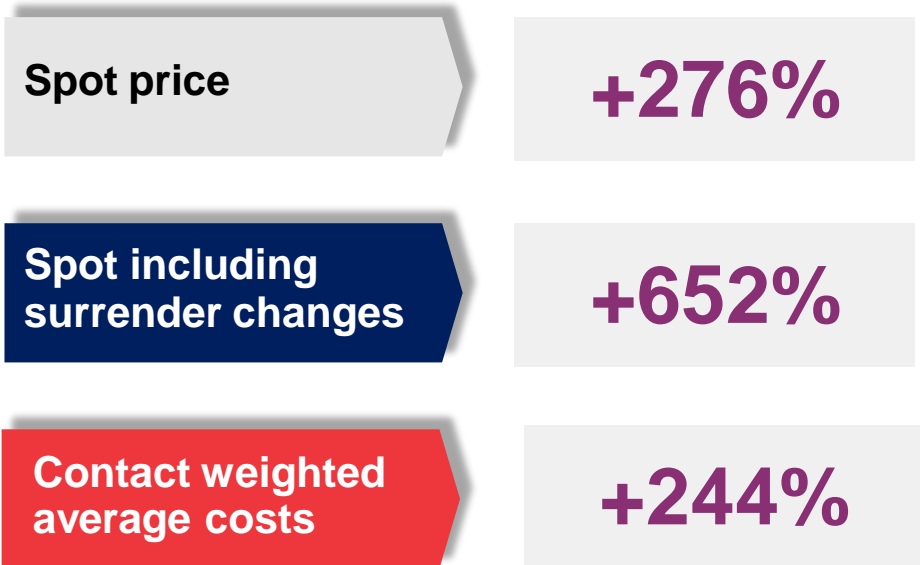
- » NZ has 10 years of reserves, further investment needed to firm
- » Recent deliverability and reliability has been a concern
- » Short term deliverability issues have resulted in increasing coal imports

Carbon outlook

Carbon costs starting to send stronger price signals



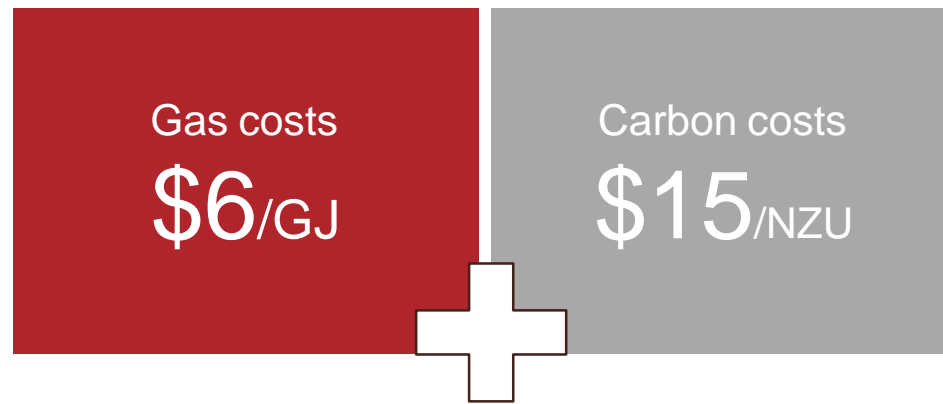
Change since 2015



What does that mean for thermal generation

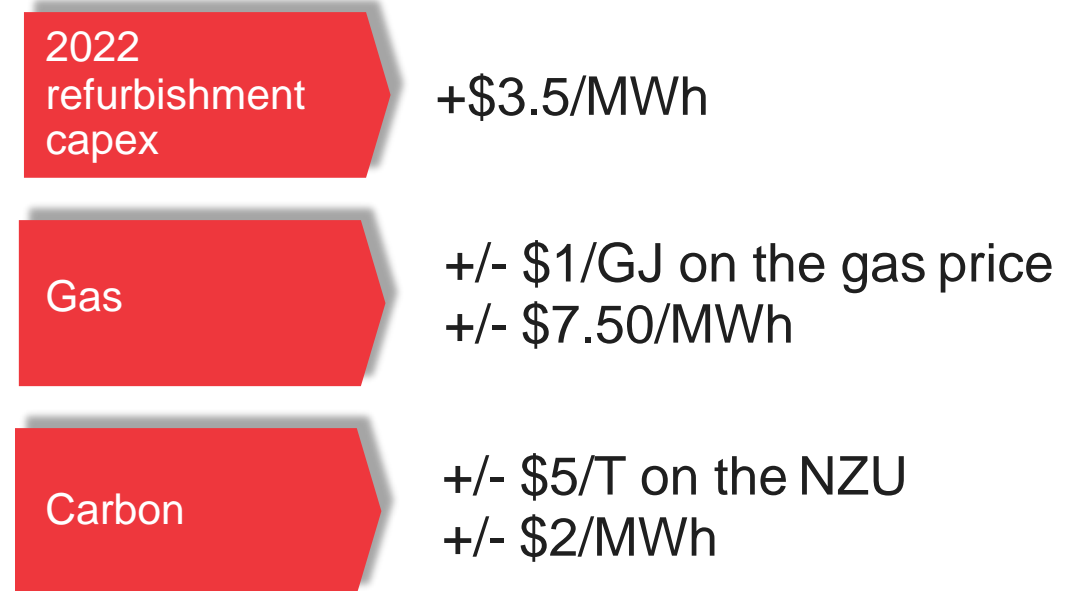
Economics of the Taranaki combined cycle (TCC)

Current economics

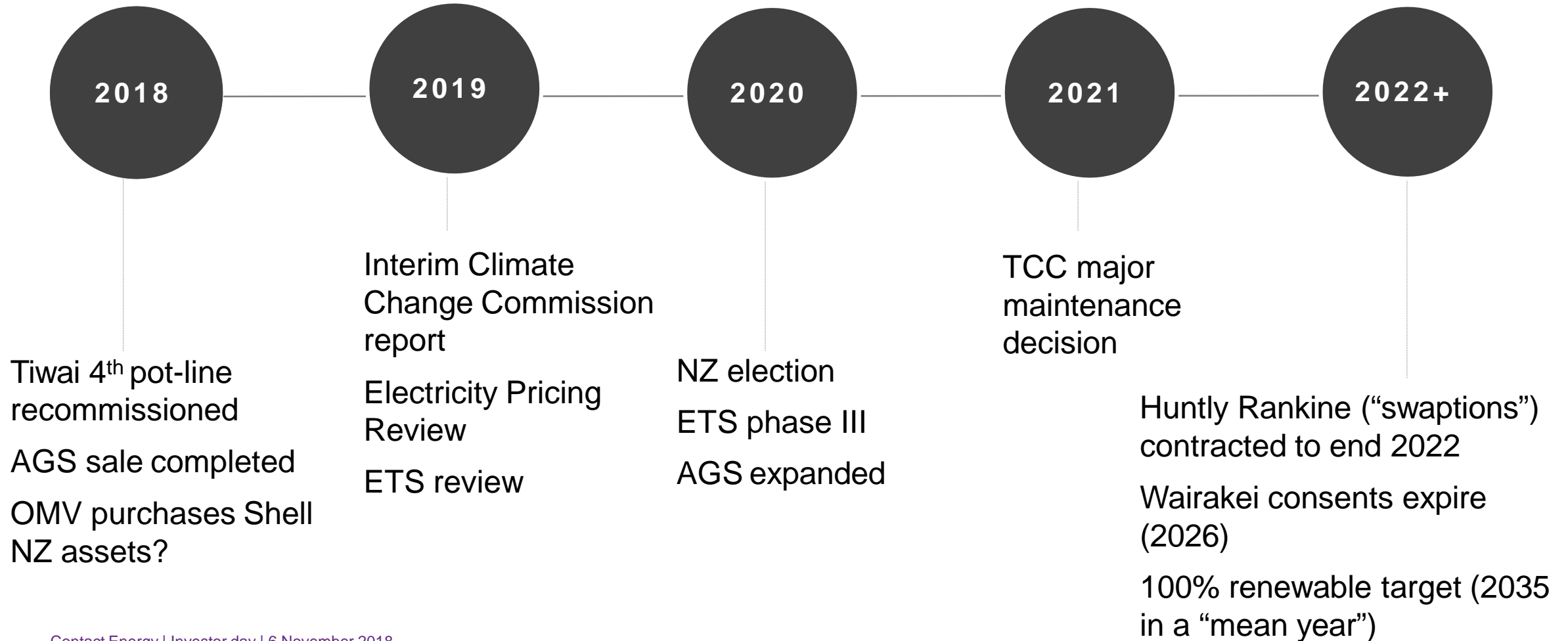


+\$10/MWh for operating costs and refurbishment capex (sunk)

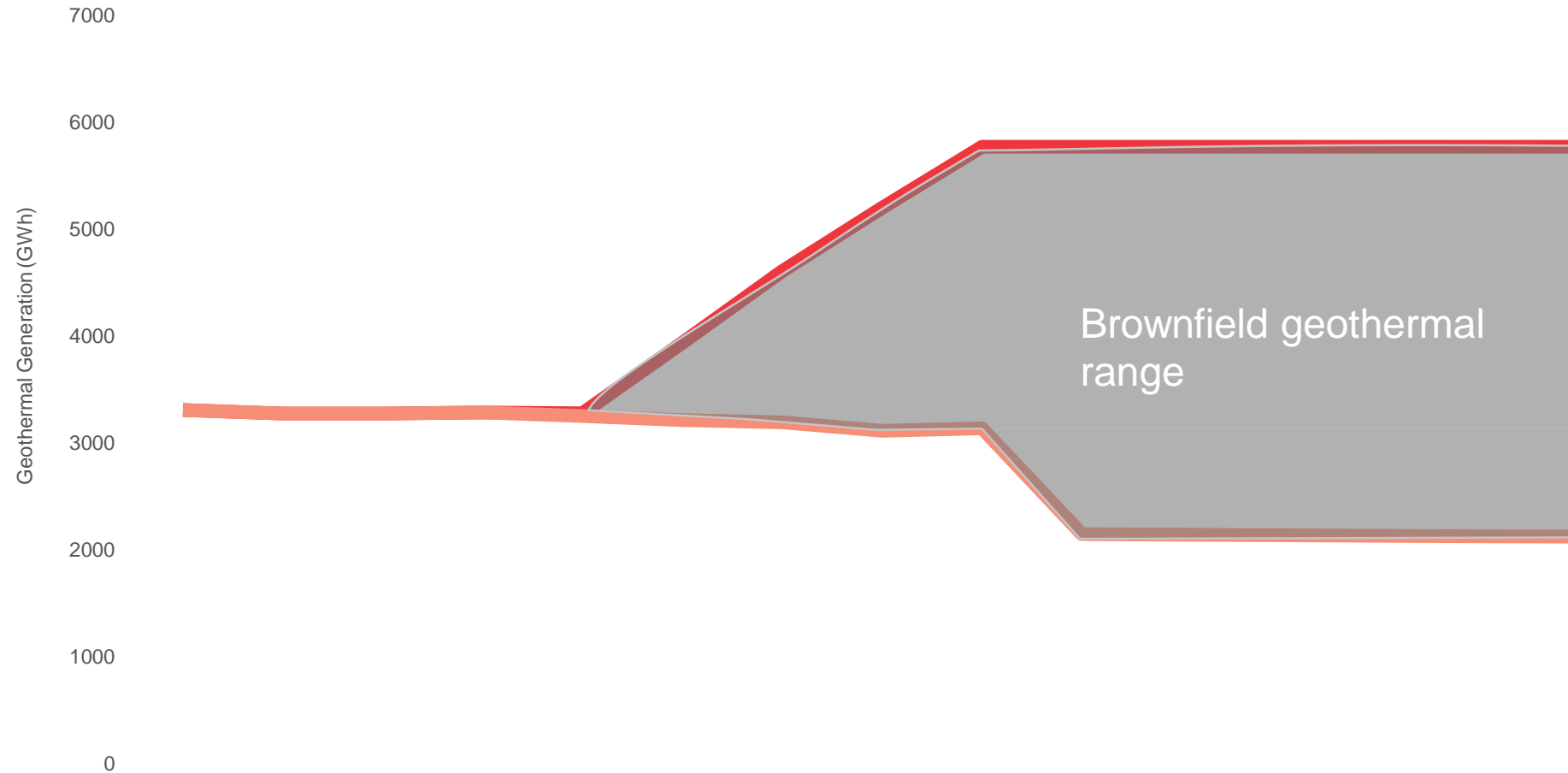
Next major investment (2022) sensitivities



Market developments, some of which we control, will also impact renewable development timing



Our renewable development programme can be executed in stages as market conditions demand





Geothermal advantage – Dr Mike Dunstall

Geothermal advantage

Dr Mike Dunstall – GM Geothermal Resources and Development

1

Geothermal 101

2

Our geothermal resources

3

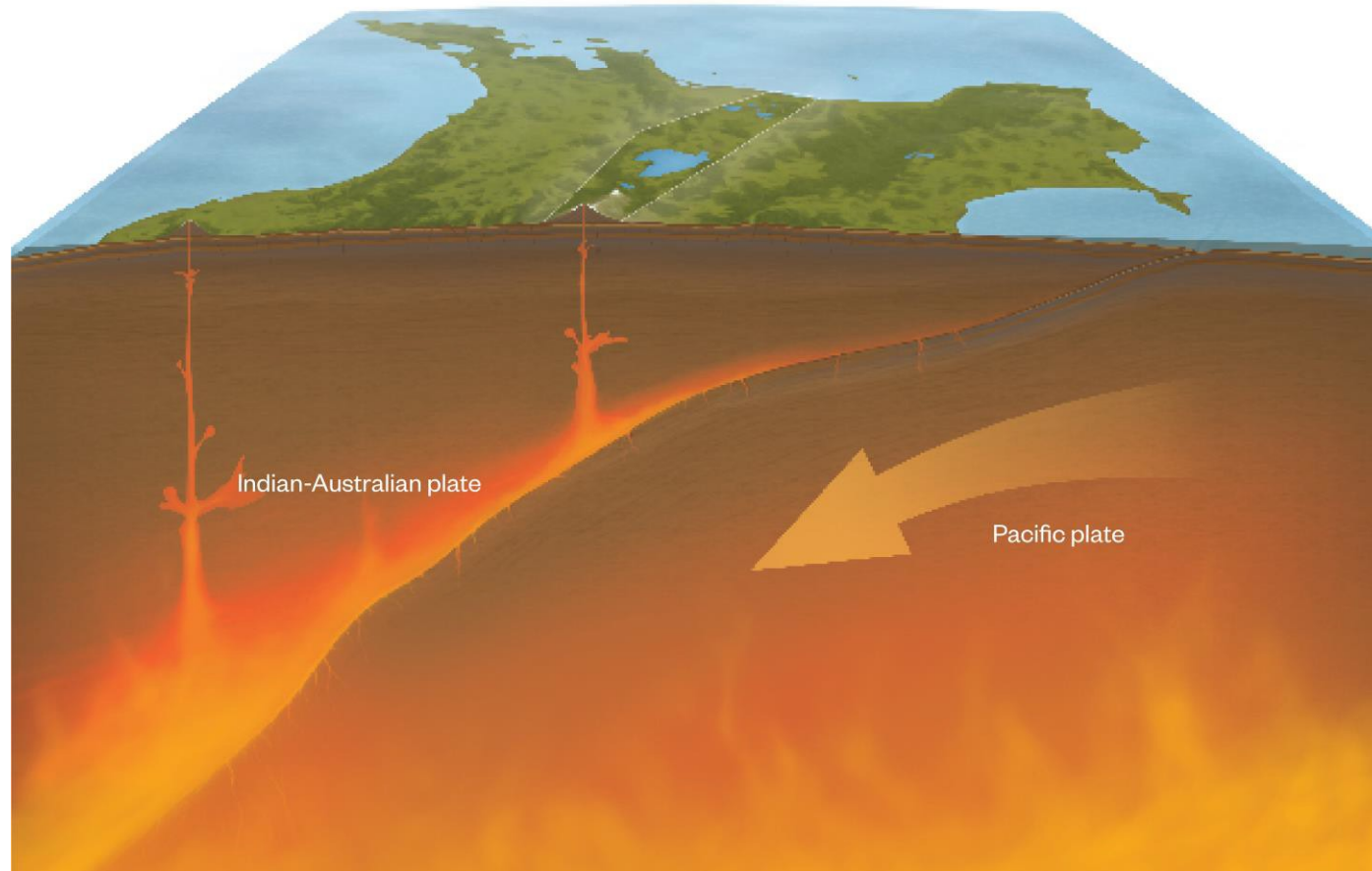
Critical to creating value

4

Sharing our successes

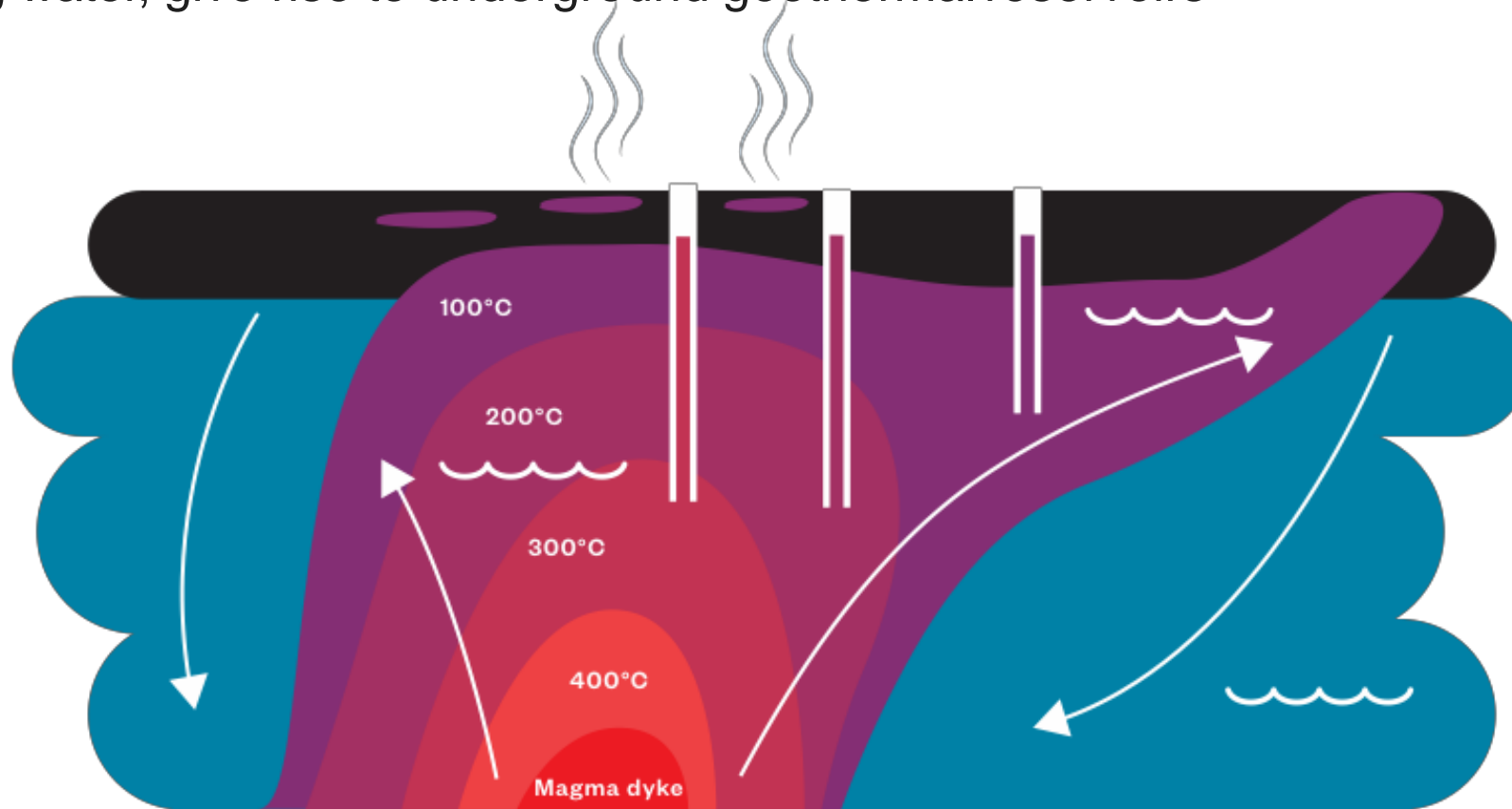
Geothermal systems are formed at plate boundaries

The Taupo Volcanic Zone is formed by the subduction of the Pacific plate beneath the Indo-Australian plate

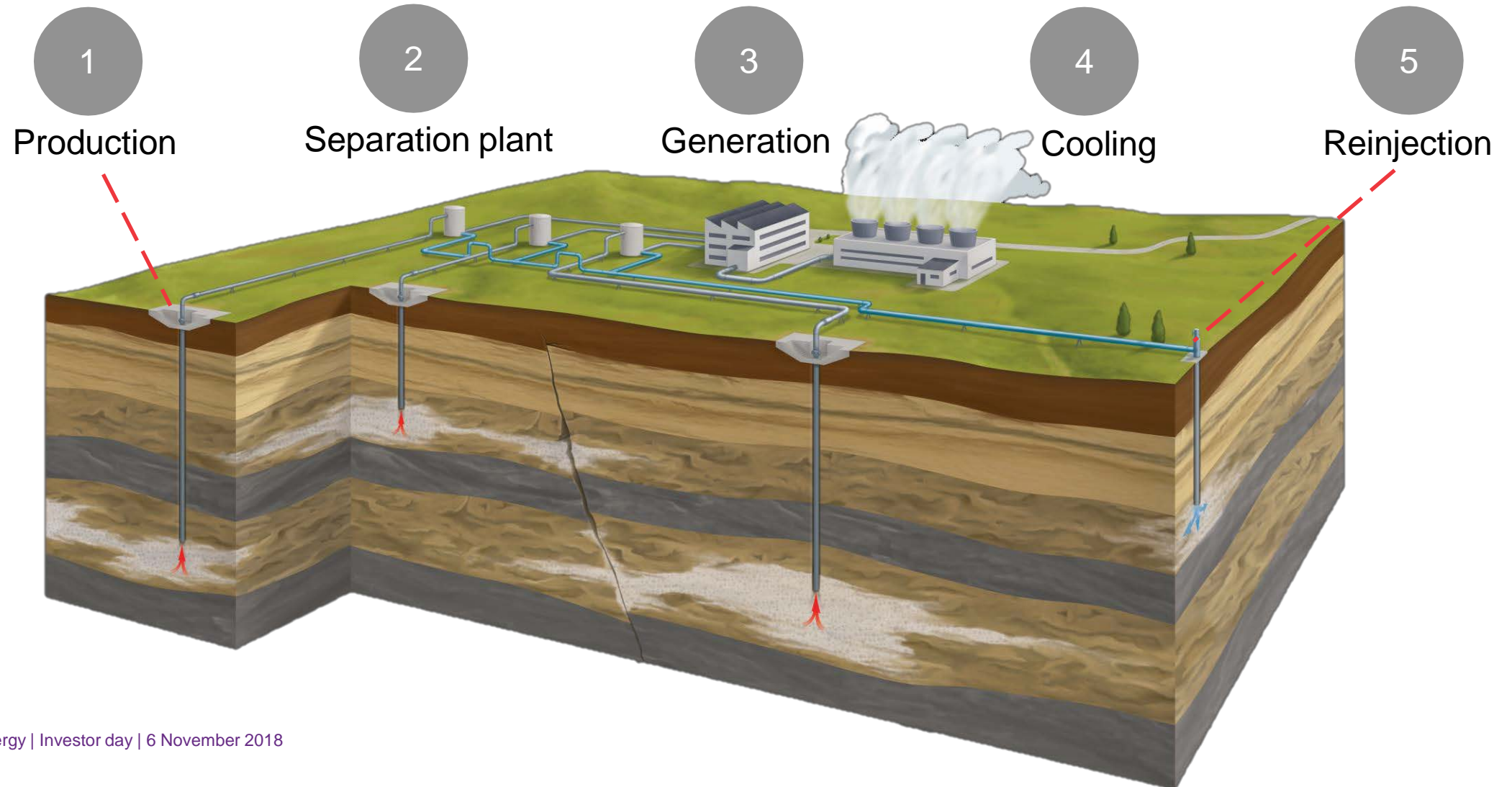


In localised areas the heat reaches shallow depths

Specific natural upflows of heat from the plate interaction, when charged with large volumes of recharging water, give rise to underground geothermal reservoirs



We are able to harness the geothermal resource from depths of up to 3,000m



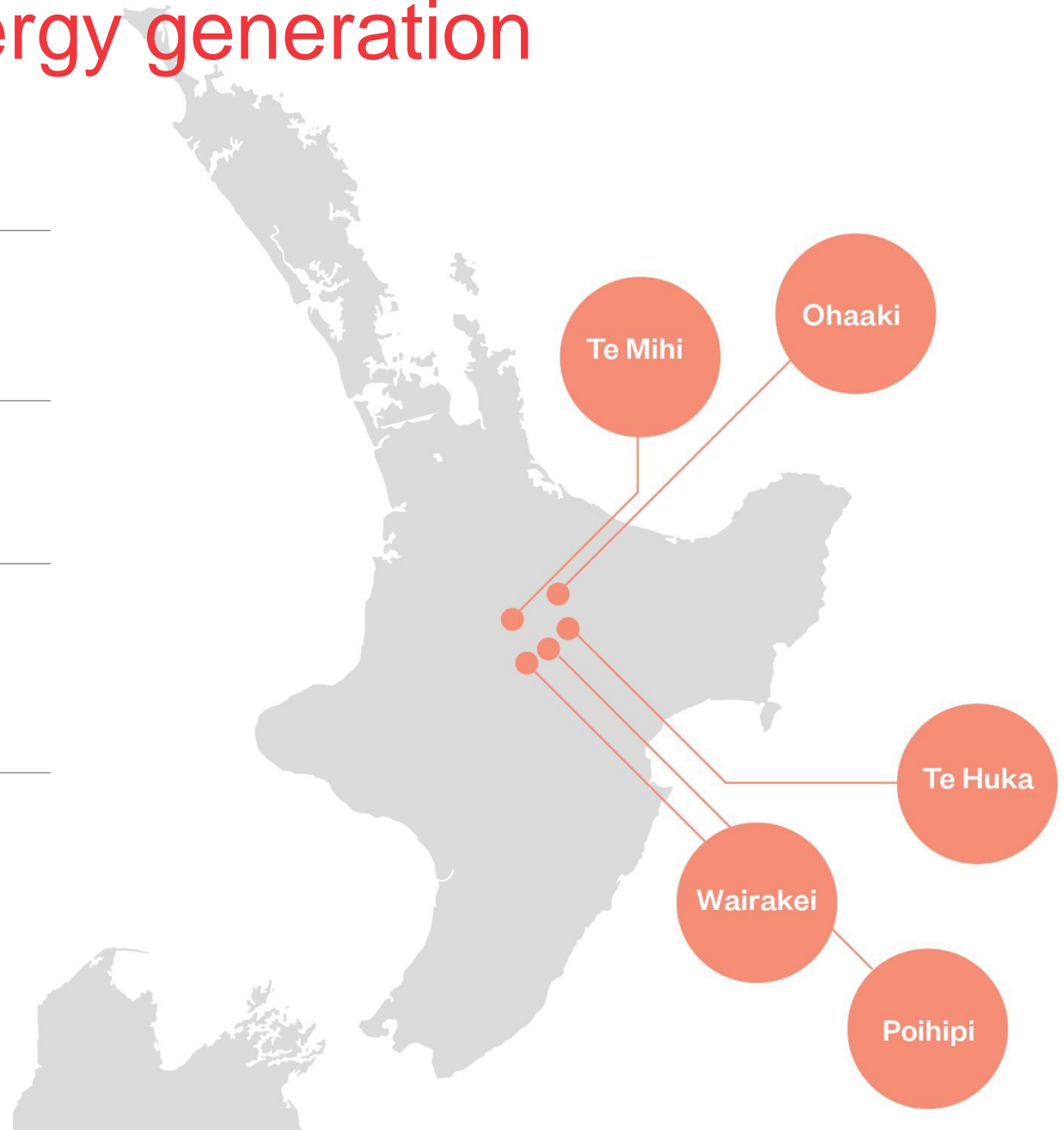
Contact's geothermal energy generation

3323 GWh FY18 generation

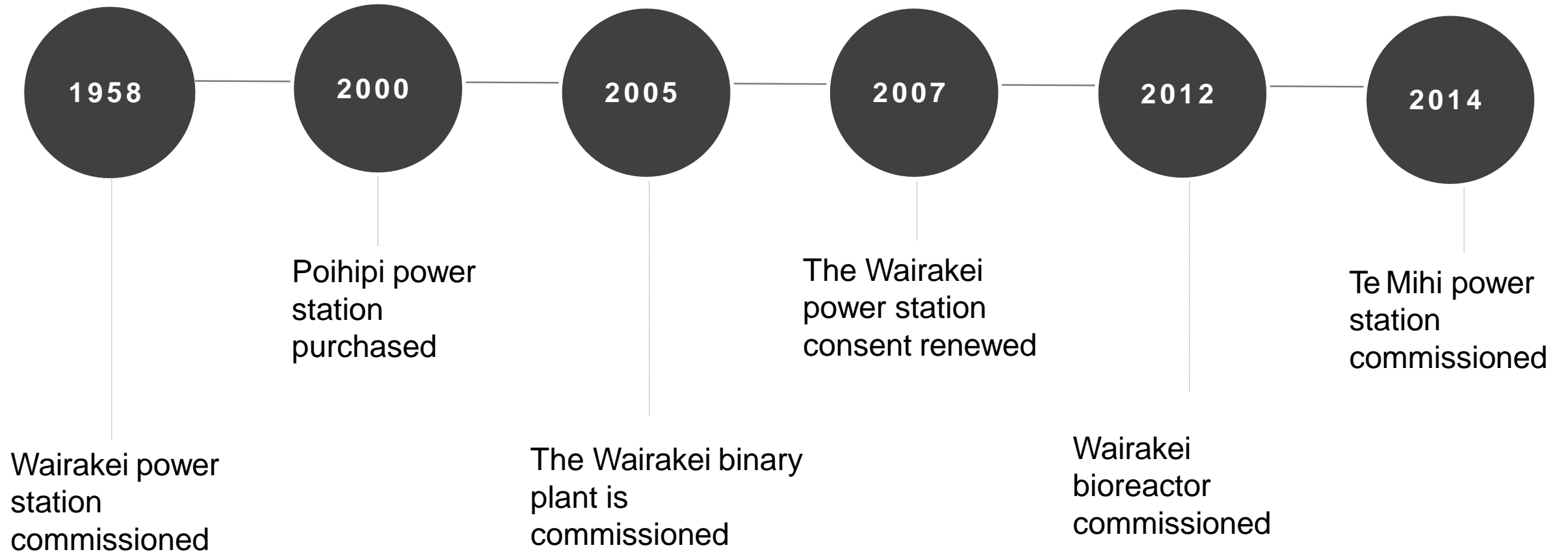
430 MW Station capacity

8% of New Zealand's annual electricity supply

122 in service wells,
90 production,
32 injection



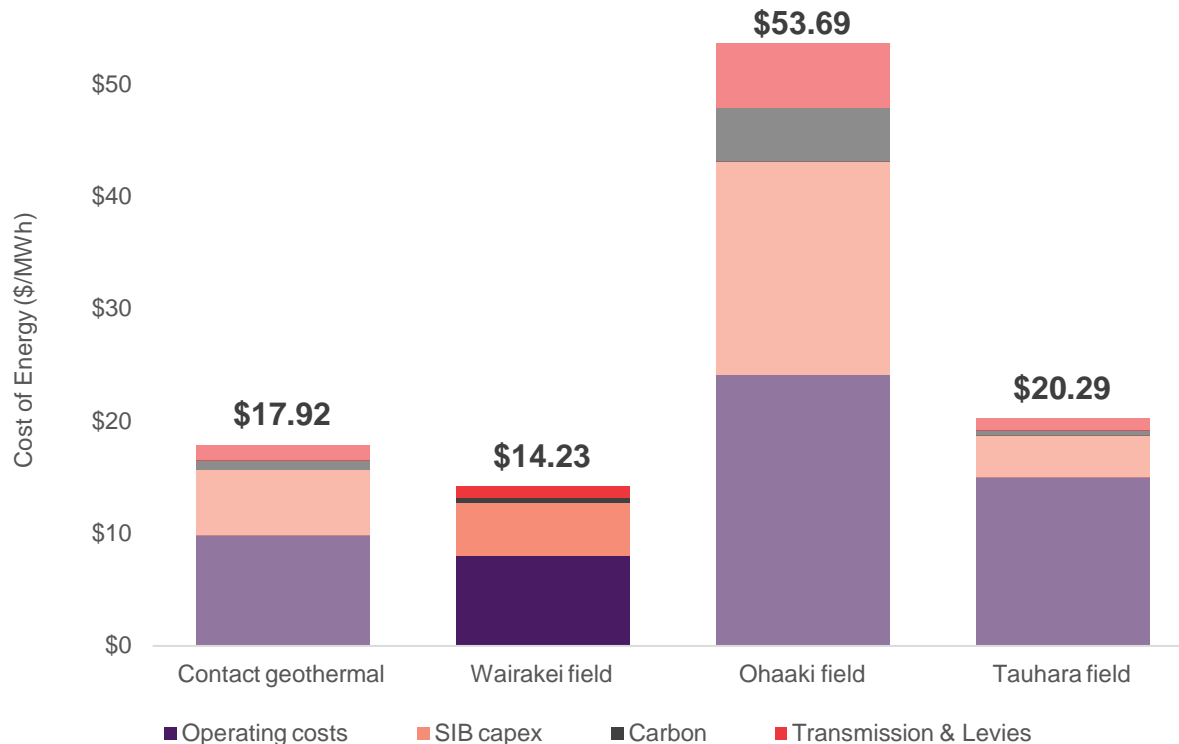
Wairakei field was the first of its kind in the world



Wairakei - New Zealand's largest geothermal field

Wairakei extraction via four interconnected power stations delivering 85% of Contact's total geothermal generation

Contact geothermal cash costs by field



- » Consented until 2026
- » Options to add 3rd unit at Te Mihi Unit 3 as well as further exploring Wairakei
- » Significant value for interconnection and consent variation

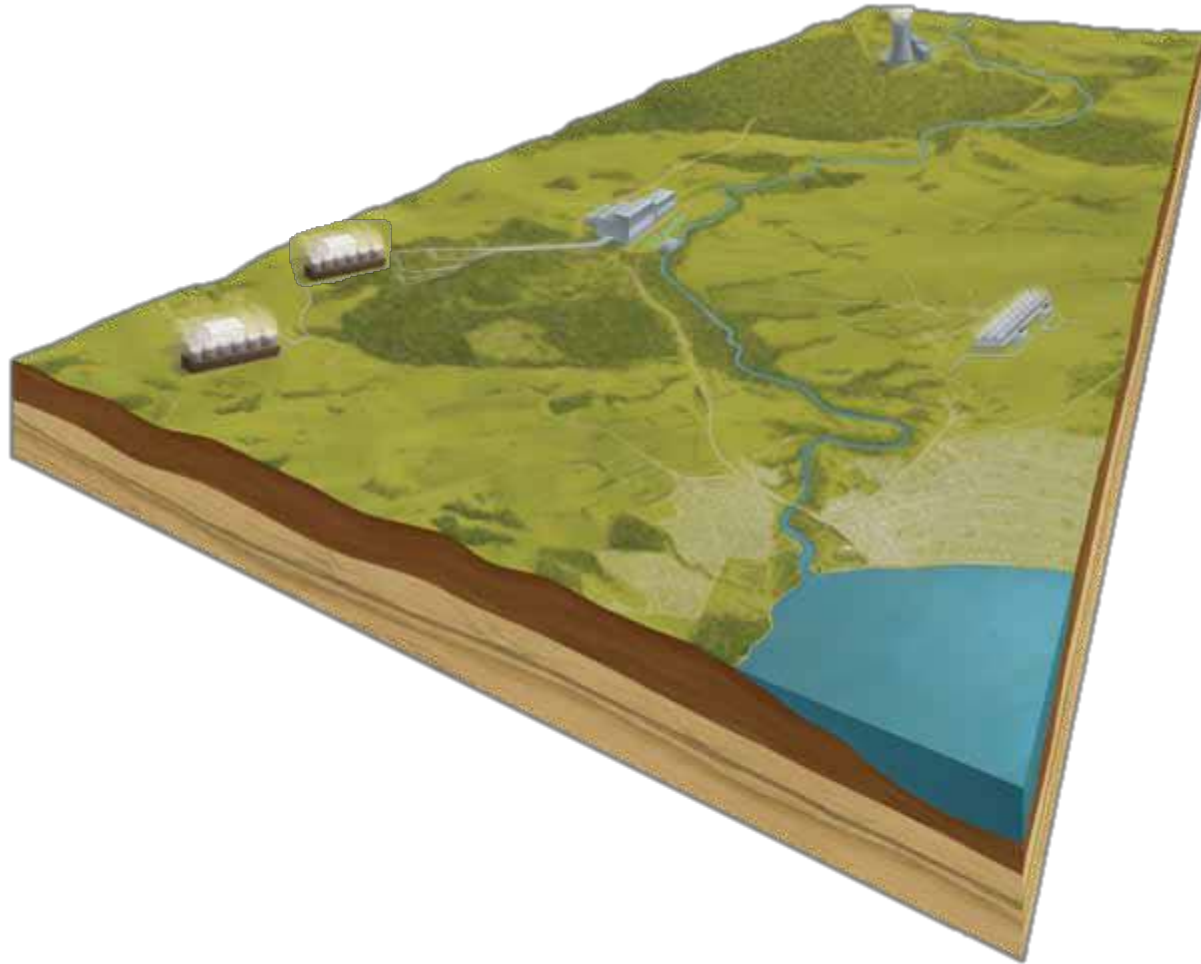
35.6 tCO₂e / GWh across the field

91 in service wells

2,837 GWh FY18 generation

70.7 TWh of baseload renewable generation since 1958

Rethinking our Wairakei geothermal operations



Redesigning Geo Metrics

1368 GWh FY18 Te Mihi generation

99.6% Poihipi FY18 availability

82.6% Wairakei A&B Station capacity factor

245,428 t/day average consumption in FY18

Resource consent efficiency

30.4
GWh/mt

FY15

31.46
GWh/mt

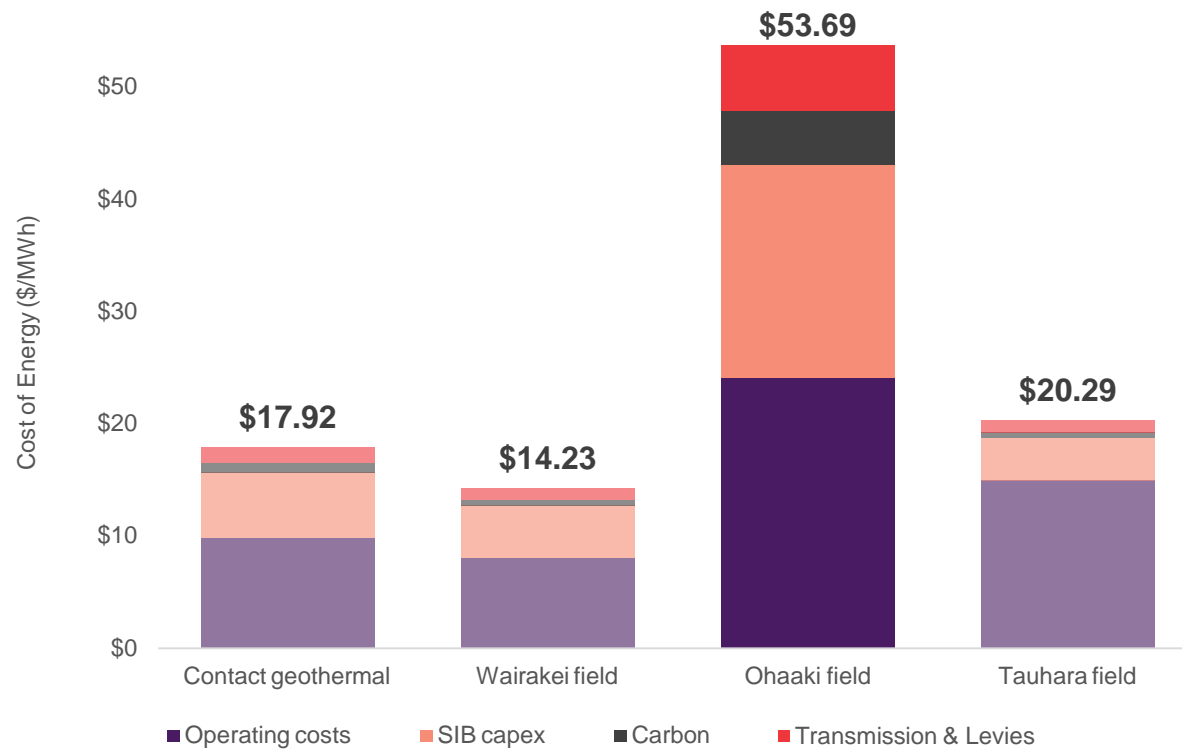
FY18

32.56
GWh/mt¹

FY19 YTD

The Ohaaki field will soon celebrate its 30th anniversary of production

Contact geothermal cash costs by field



- » Consented until 2048
- » Higher cost field, higher carbon emissions intensity
- » Improving injection constraints
- » Geo40 silica extraction creating diversified resource use

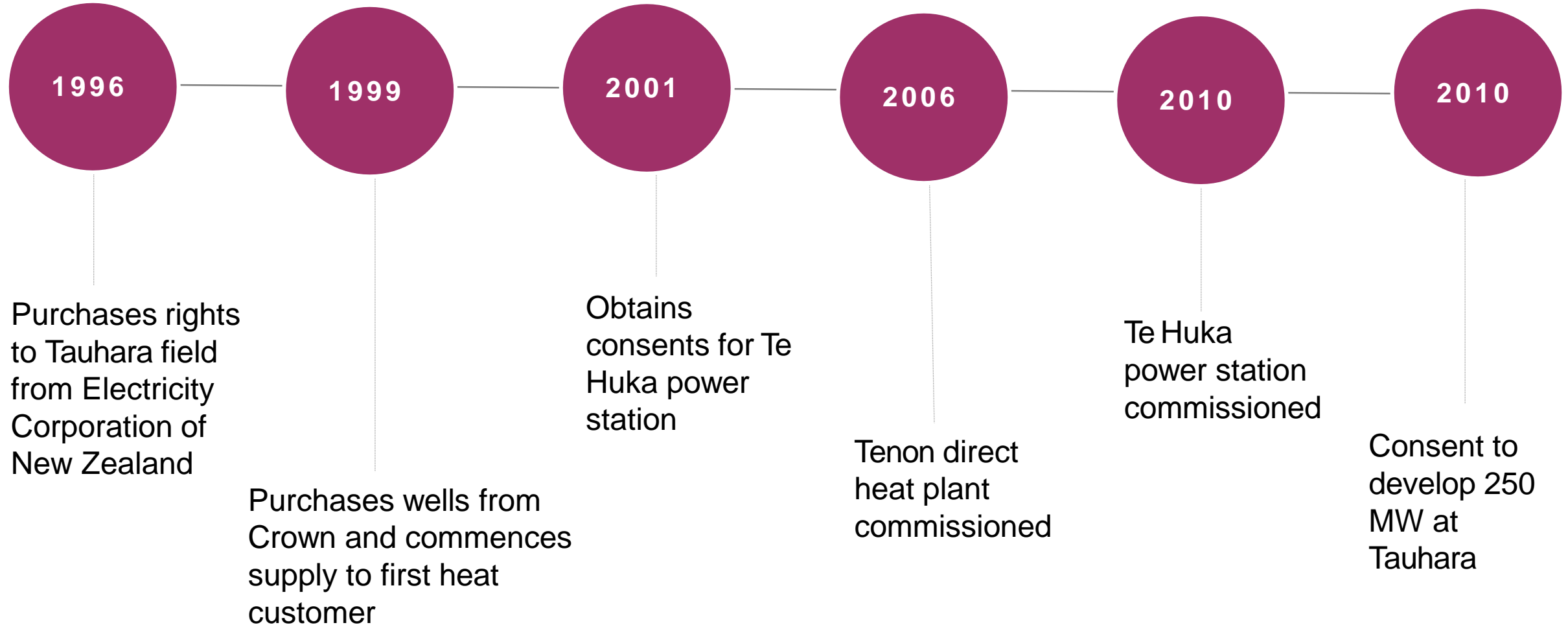
385 tCO₂e / GWh across the field
FY 2018

23 in service wells

280 GWh FY18 generation

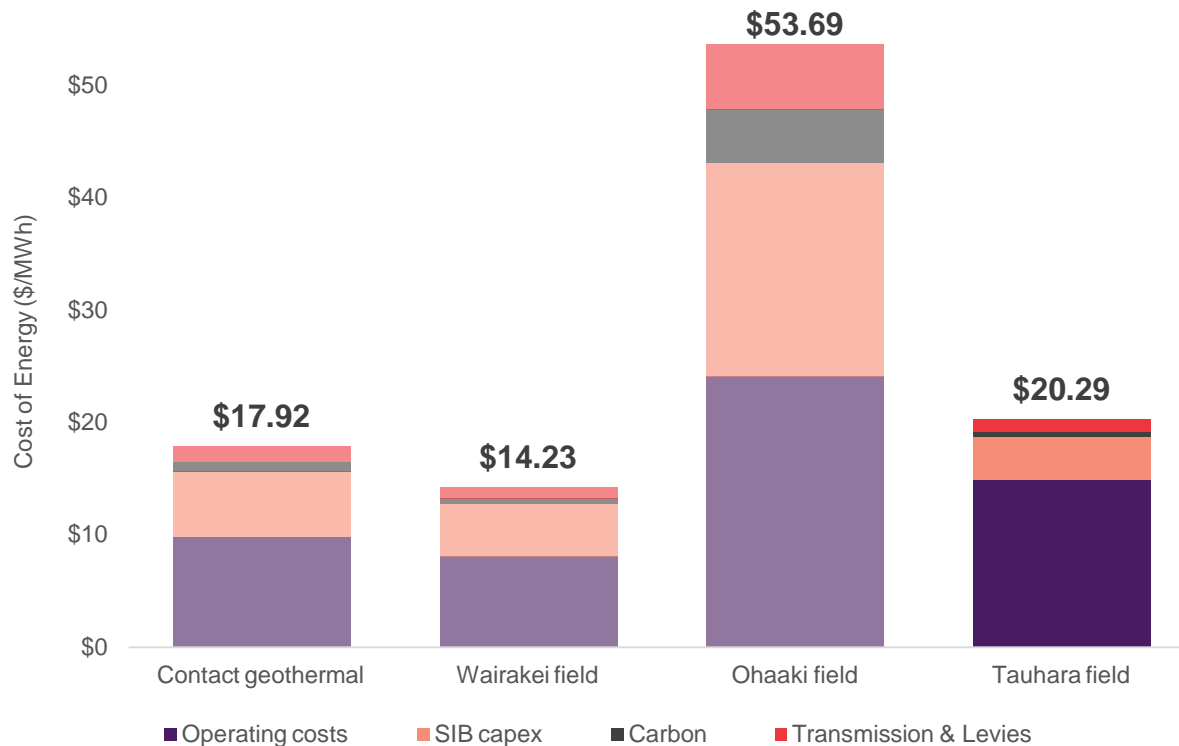
40 MW October 2018 generation, back to sustainable capacity

At Tauhara we have had a presence since 1996



With a decade of operational experience through the Tenon and Te Huka plants

Contact geothermal cash costs by field



- » Consented until 2045
- » Brownfield geothermal – Te Huka and Tenon operating
- » Consents for significant electricity or heat supply expansion

38 tCO₂e / GWh across the field
FY 2018

6 in service wells

196 GWh FY18 generation

250 MW of consented expansion capacity

Underpinning these operations is world class geothermal capability

Geothermal capabilities	Identify resources	Manage resources	Cost effective	Project development	Commercial execution	Value engineering	Safety	Reliable operations	Low cost maintenance	Contact capability assessment
Geology and geochemistry	✓	✓	✓	✓				✓		
Drilling execution		✓	✓	✓	✓	✓	✓			
Reservoir engineering	✓	✓	✓	✓		✓		✓		
Plant design				✓	✓	✓	✓	✓	✓	
Operation and maintenance		✓	✓	✓		✓	✓	✓	✓	
Project management				✓	✓	✓	✓		✓	

Without new development, the geothermal team have been focused on innovation

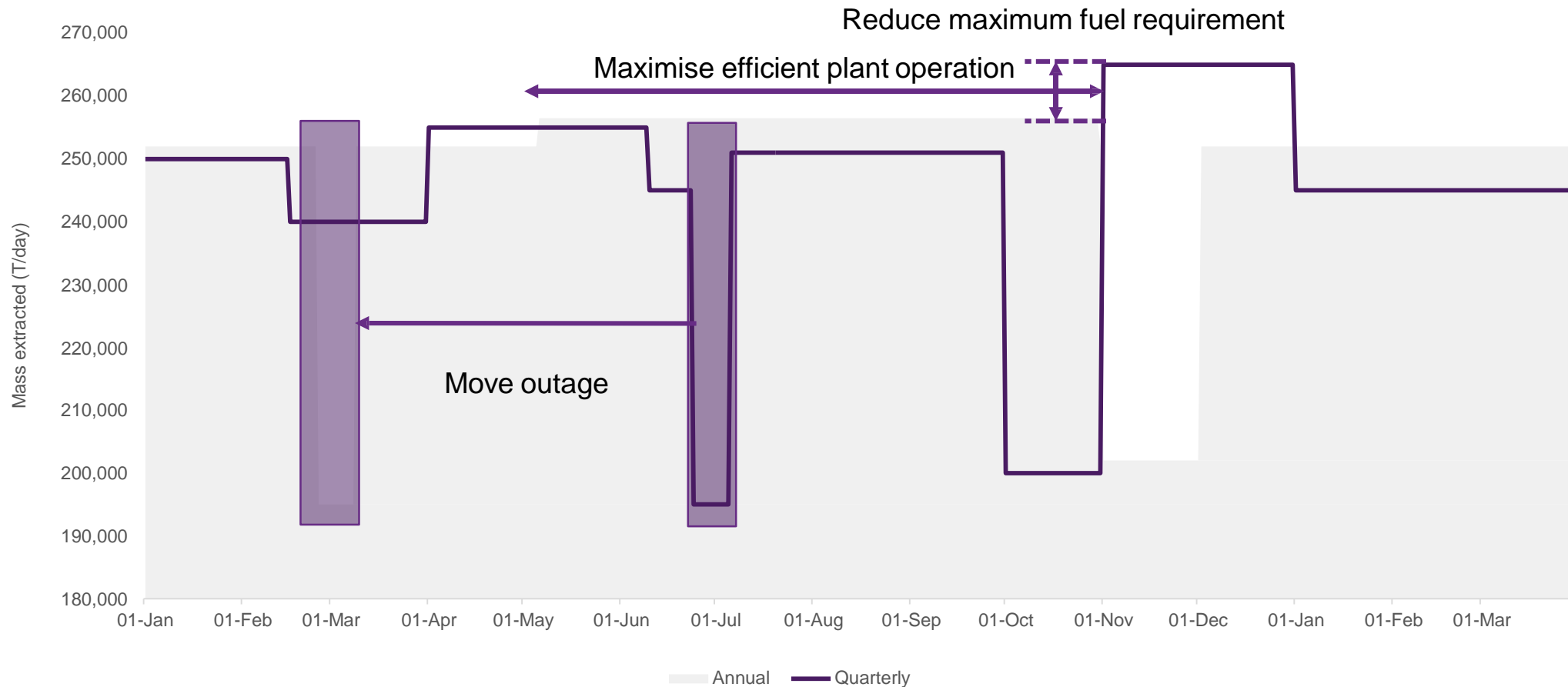
	FY10 – FY14	FY15 – FY19	Outlook
» SIB wells drilled – major rig	37	0	↓
» SIB wells drilled – minor rig	0	2*	↑
» Rig workovers / broaching	16 / 21	0 / 3	↓
» Coil tube workovers	2	10	↓
» Contact proprietary technology workovers	0	11	↑
» Chemical anti-scalant systems	0	9	↑
» Chemical interventions	7	20	↑
» Current fuelling cost		~\$2.50/MWh¹	

¹ – cost incurred in workovers, scale prevention, connection costs and wells drilled

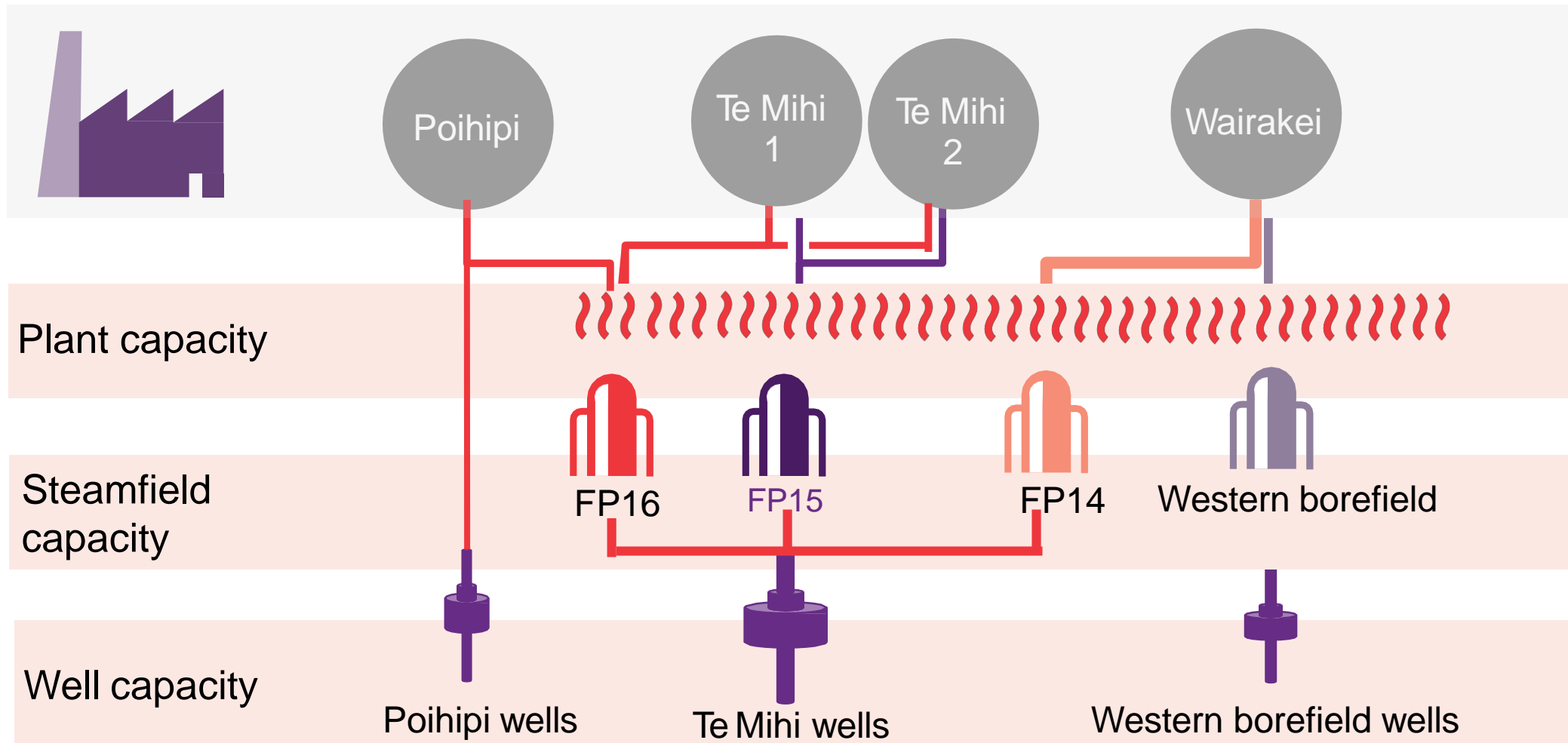
* - shallow reinjection wells BR68 and BR69 being drilled at Ohaaki during November / December

Out of the box consenting and revised resource optimisation is delivering value

Illustrative resource consent use of the Wairakei field

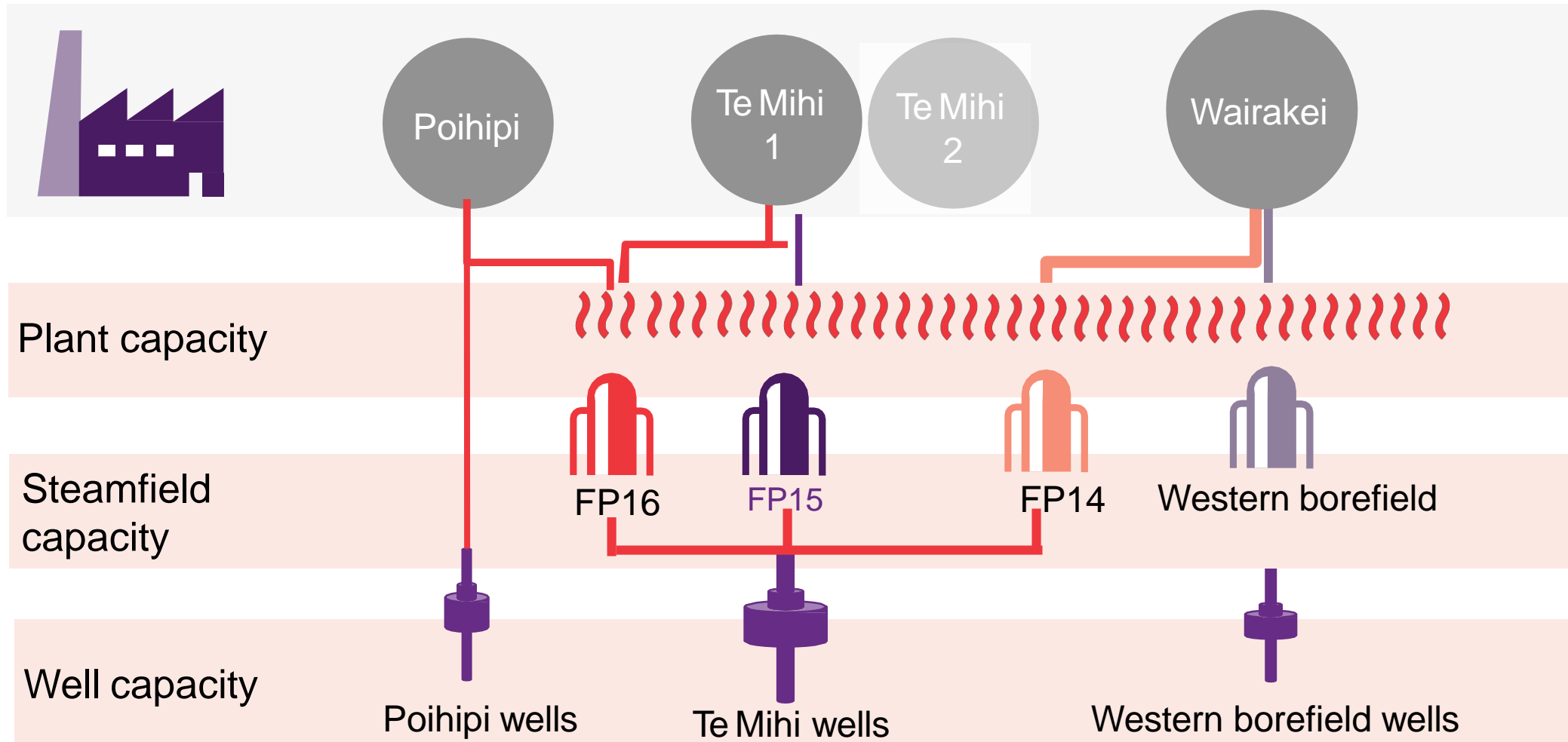


Our steamfield system enables this flexibility



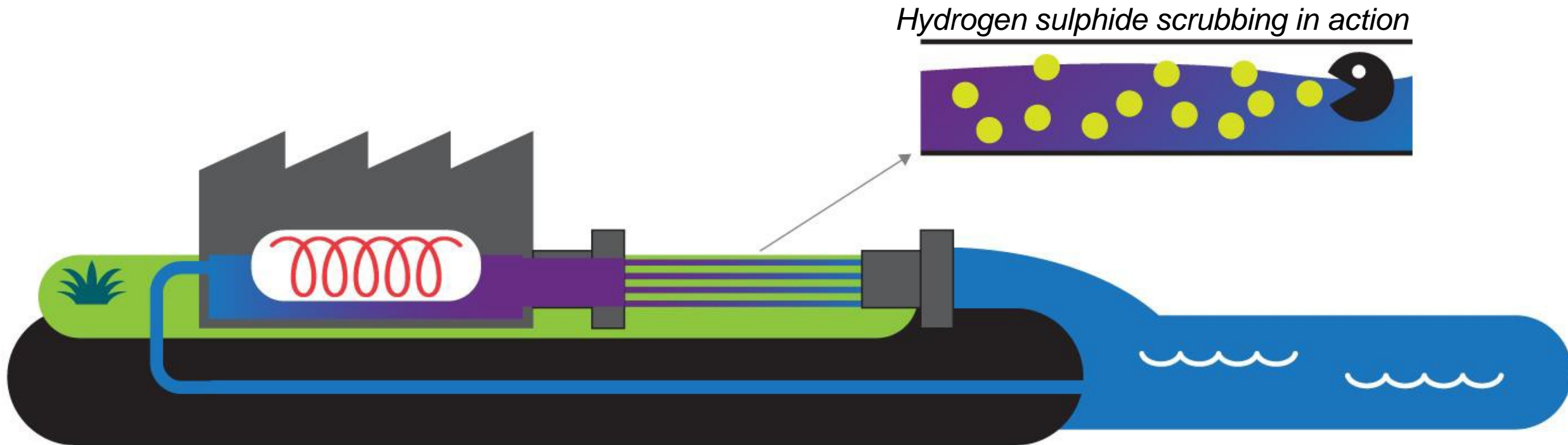
We can flex our steam to different plants

When a Te Mihi unit comes out of service we can reduce mass and increase generation



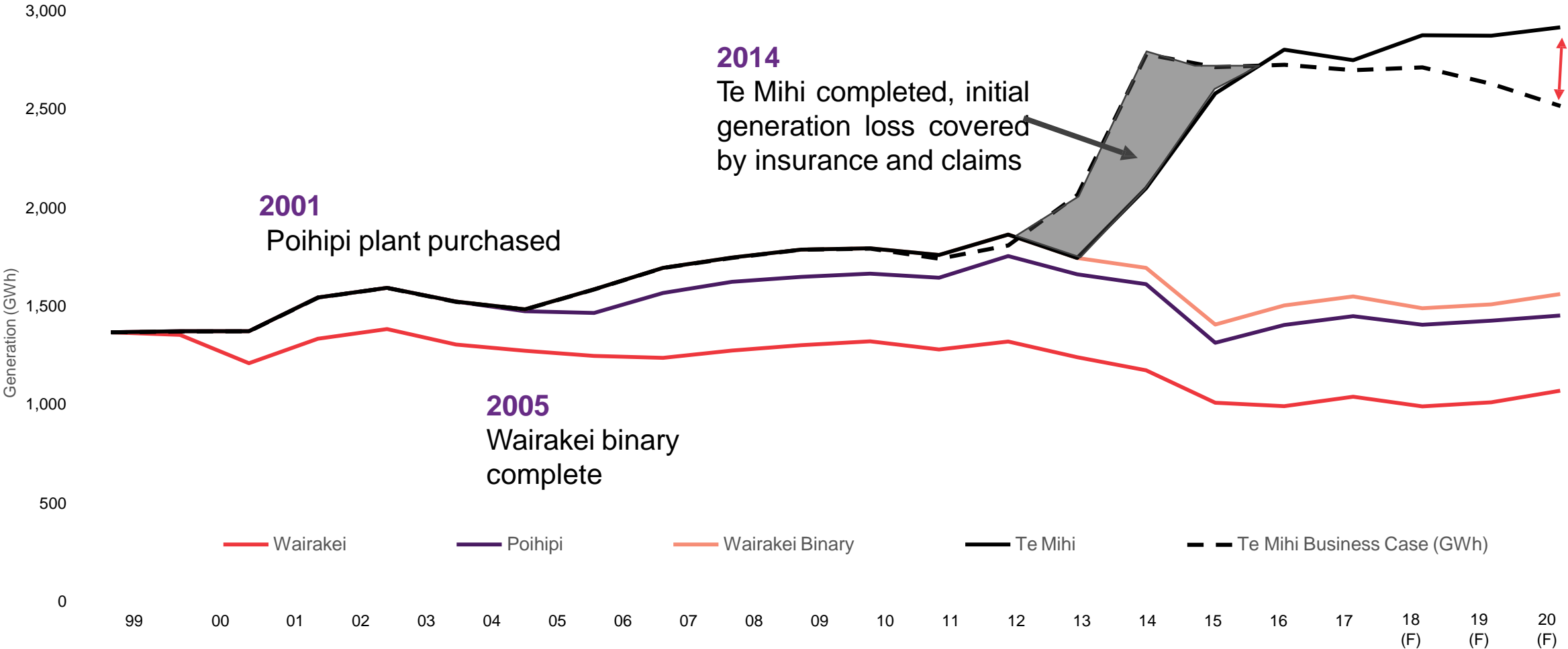
We have history of environmental upgrades at Wairakei previously

The world's first geothermal Bioreactor completed in 2012 now removes over 99.5% of all Hydrogen Sulphide present in the Wairakei discharge stream



We have demonstrated our proficiency and capability over many decades

Wairakei field generation, 1999-2020(f) vs the Te Mihi business case





Geothermal options – James Kilty

Geothermal options

James Kilty – Chief Generation and Development Officer

1

Wairakei 2026

2

Tauhara development options



Wairakei post 2026 – charting a sustainable path



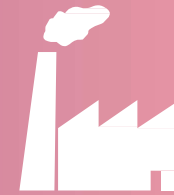
Consenting and community

- » Several consents on the Wairakei Field expire in 2026 – with the geothermal fluid take, water use and discharge consents being key
- » All stakeholder groups need to be considered – this includes national as well as local issues



Reservoir trends

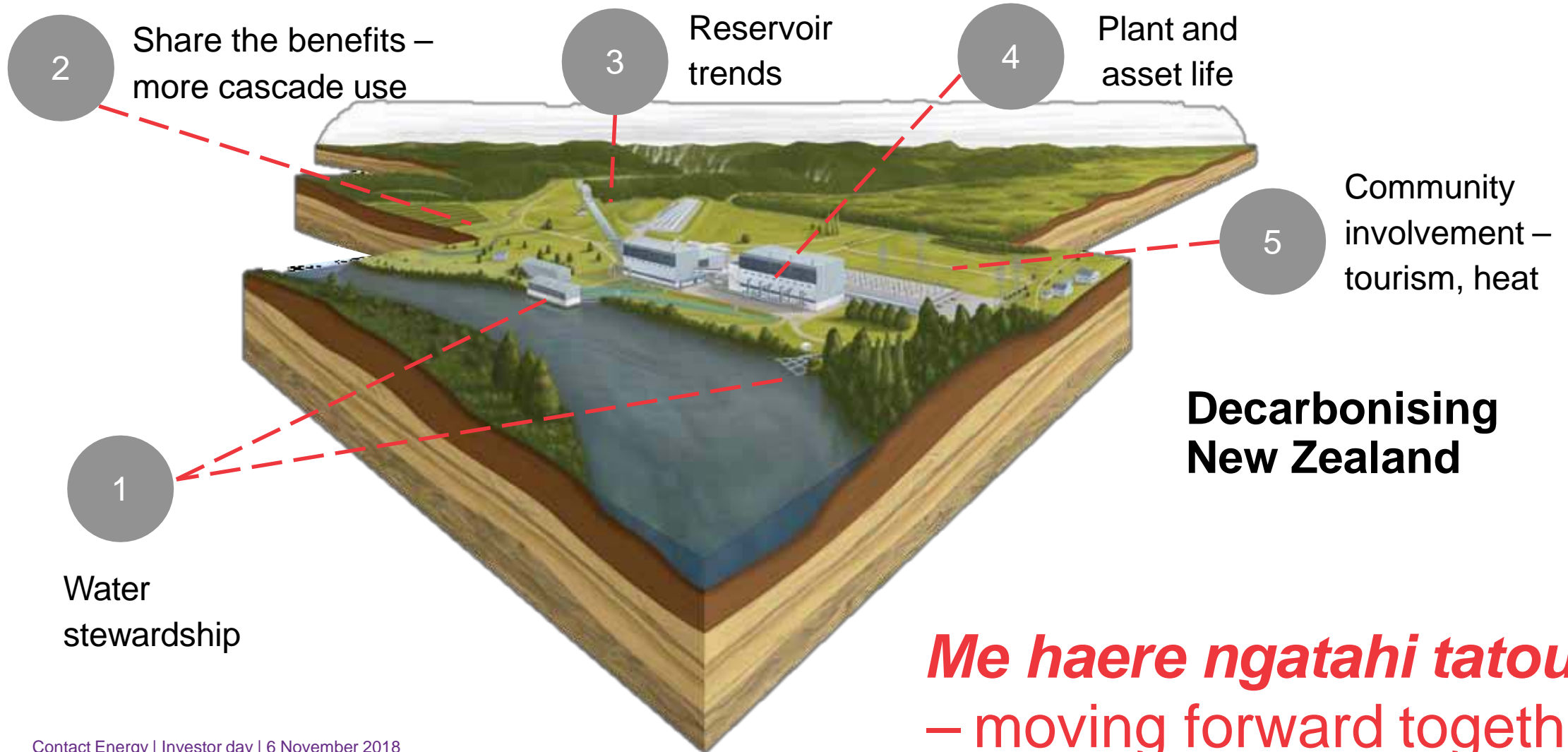
- » We must understand the trends of the reservoir over time, the sustainable fluid take and how to make best use of the energy available
- » The resource is performing better than expected



Surface facilities

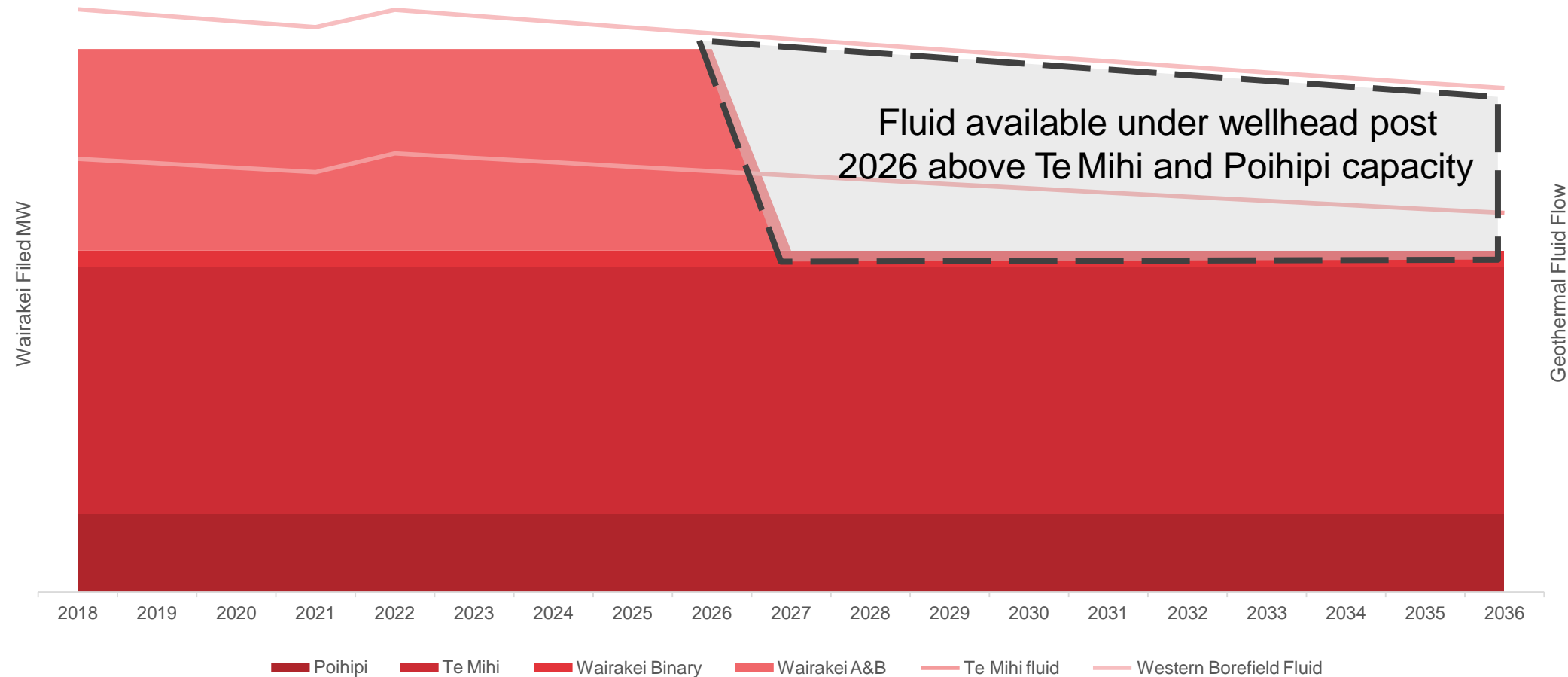
- » The Te Mihi and Poihipi plants utilise modern technology including cooling towers. The Wairakei plant (A and B Stations) rely on the Waikato River for cooling water supply and is 60 years old
- » Some modifications to the plant are likely required to manage discharges and to extend asset lifetimes

Scenarios integrate resource, plant and stakeholder opportunities



















Post 2026 we expect the field will have significant fluid supply under wellhead

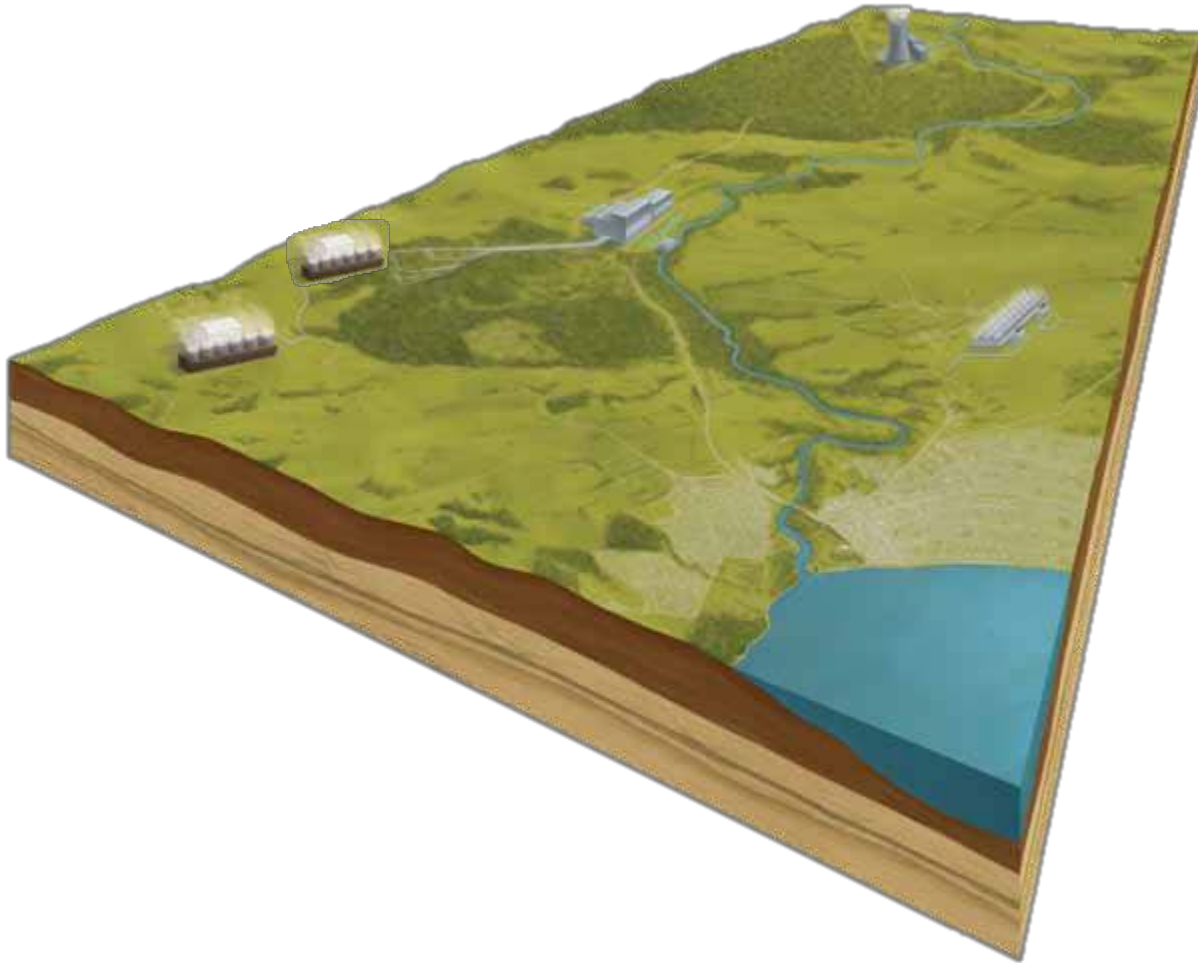
Future generation on the Wairakei field is compelling



Wairakei options post 2026

Option	Description	CAPEX ¹	Future cash cost ²	Complexity	Outage duration	Plant efficiency	Flexibility
Maintain Wairakei A&B	Maintain similar to current operations	\$	\$	L  H			
Repower Wairakei A&B	Station elements remain, but main generating plant replaced	\$	\$	L  H			
Greenfield Wairakei	Greenfield construction of effective replacement plant at Wairakei	\$	\$	L  H			
Te Mihi Unit 3	Greenfield construction of Te Mihi unit 3	\$	\$	L  H			

Tauhara development



213,000 t/day of consent
geothermal fluid take

250 MW consented capacity

9 years of generation
history on the field
(1,757 GWh)

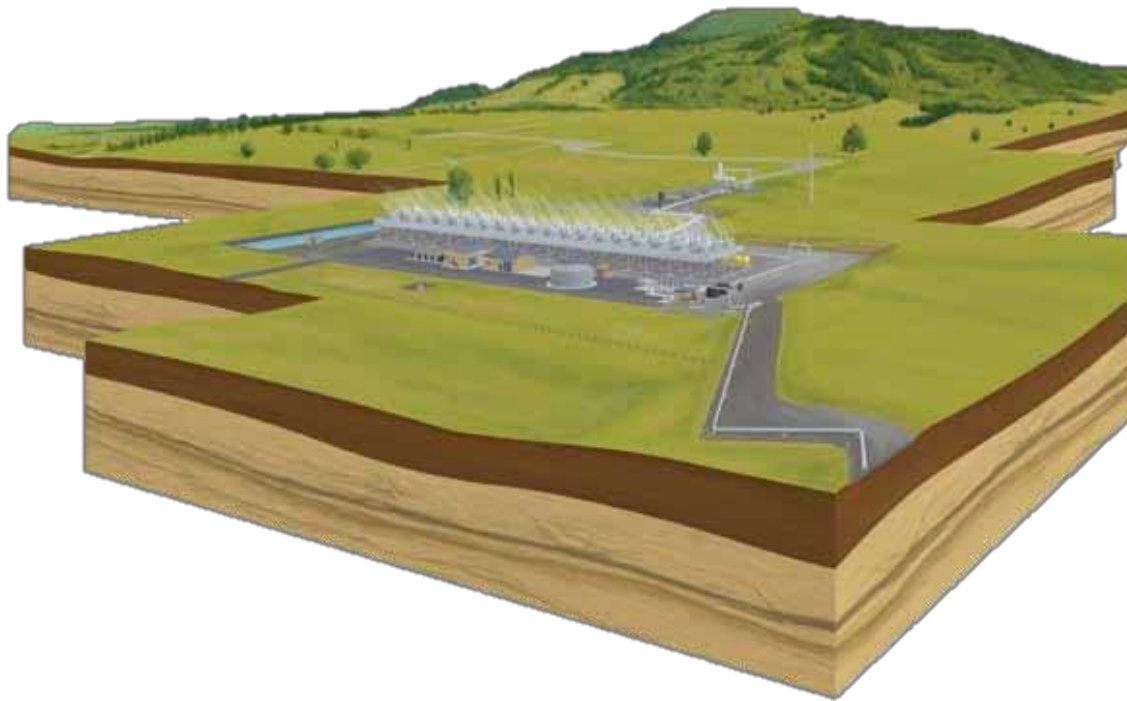
4 completed
production wells
available for new
project

Tauhara field supports staged development



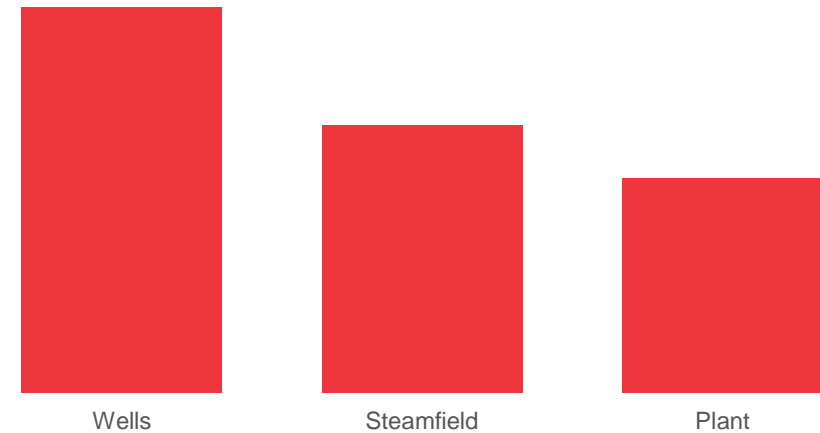
- » New Zealand's pre-eminent renewable development
- » Close proximity to 220 kV transmission grid
- » Compact development eastern field fringe likely
- » Emerging lower cost technology options in 30-80 MW range with increased scale at larger plants
- » Later phases to extend reach to west and south
- » Long run marginal cost mid \$60's/MWh

A brownfield expansion of Te Huka is attractive

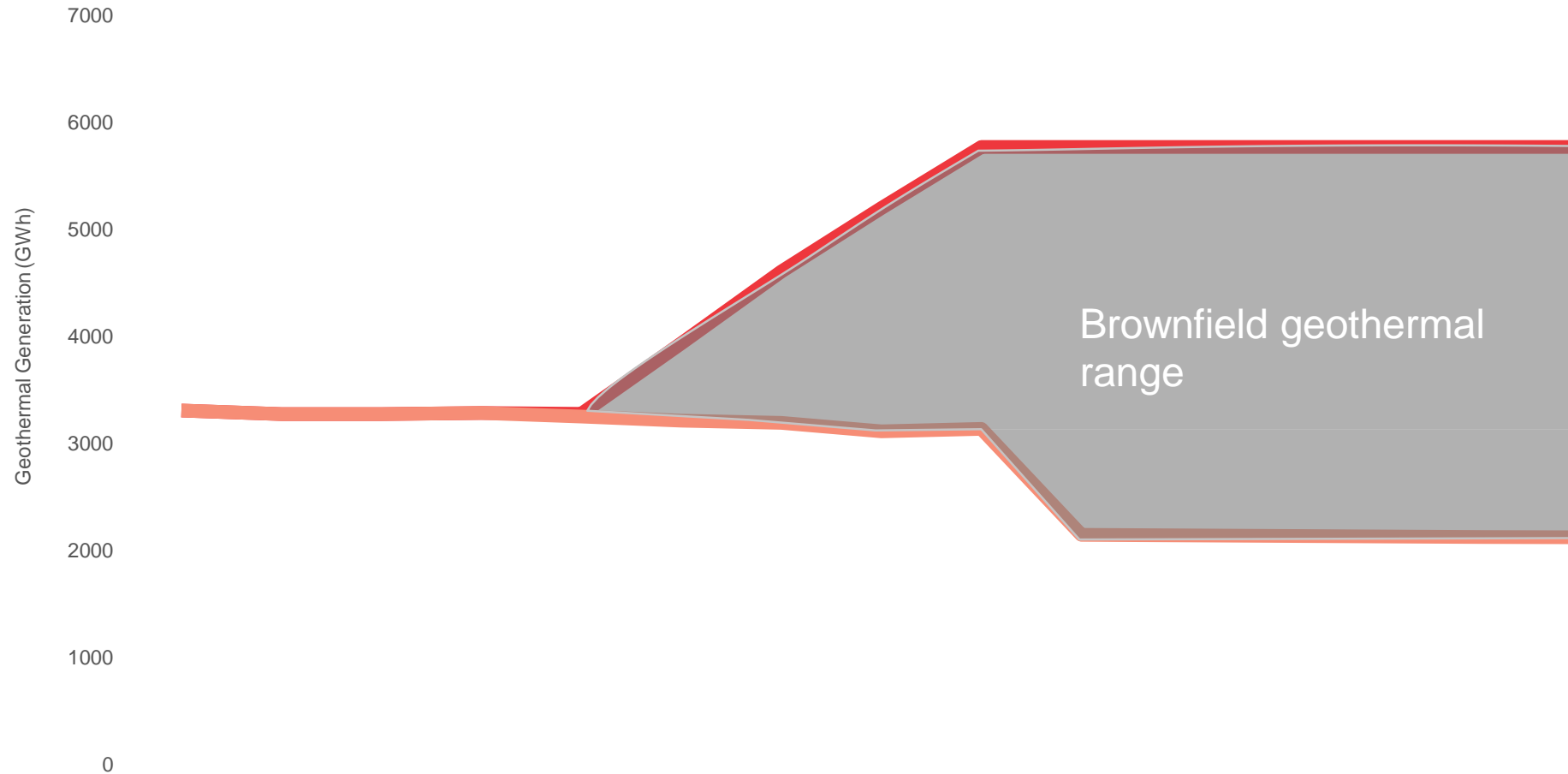


- » Significant excess of production and injection fluid above plant capacity
- » Unlocked via transmission connection point at Tauhara
- » Also low cost generation options – under assessment

Te Huka indicative current capacity (t/hr equivalent)



Our renewable development programme can be executed in stages as market conditions demand





Closing remarks and Q&A – Dennis Barnes

Summary

- » Sustainability is the way we do things
- » Contact is preparing for a lower carbon future – the thermal transition will be well managed
- » Contact is a world class operator of geothermal assets and continues to lower the cost of geothermal
- » We have high quality and low cost geothermal operations
- » Evaluating all options for future operations at Wairakei post 2026– alternatives are lower capex than a 3rd Te Mihi unit
- » A rich set of brownfield development opportunities that will only be developed backed by observable and sustainable demand growth or contract

Question and answer panel

Dennis Barnes

Chief Executive Officer

James Kilty

Chief Generation and Development Officer

Dr Mike Dunstall

GM Geothermal Resources and Development