



Contact Energy Update 2019

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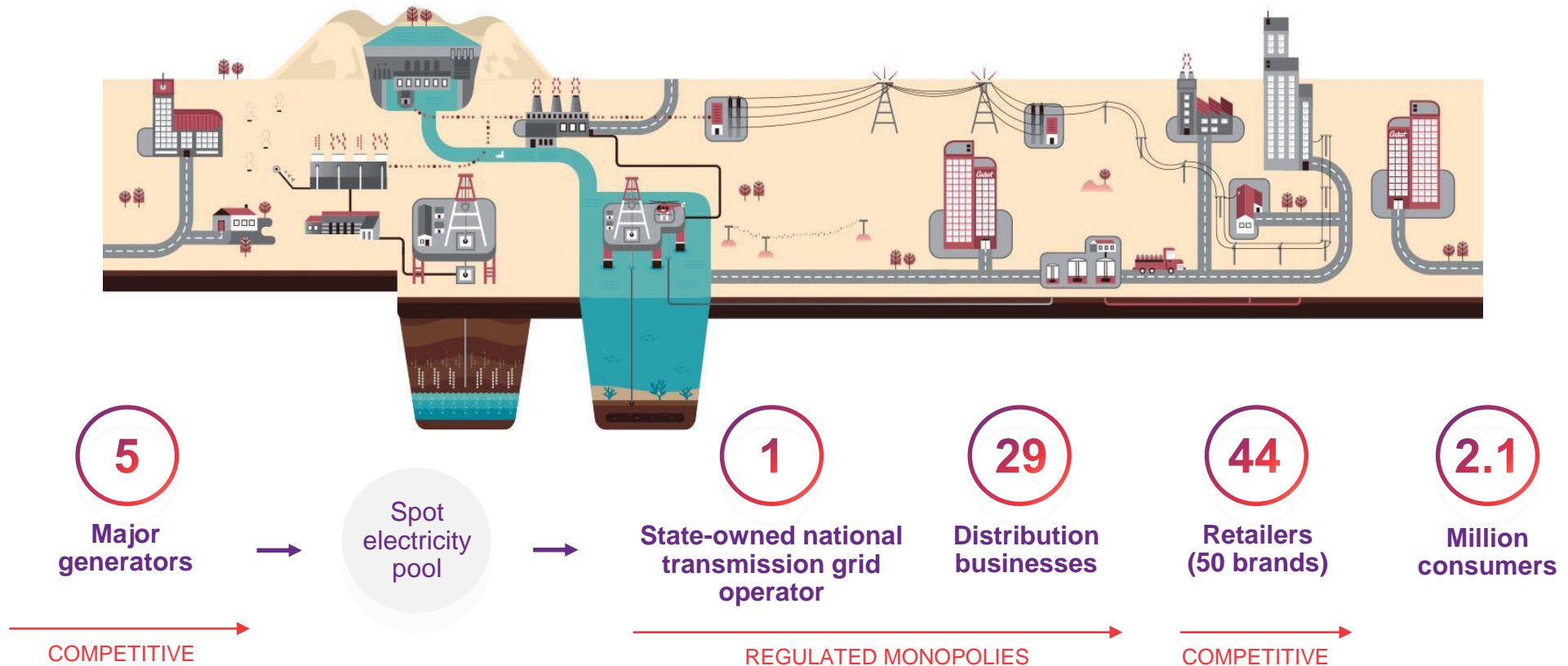
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All references to \$ are New Zealand dollars

New Zealand enjoys a reliable, affordable and environmentally sustainable electricity system.



“New Zealand serves as a model for effective energy markets and secure power system operation.”

International Energy Agency (IEA) New Zealand 2017 Review

Contact owns and operates thermal plant, which is used to manage hydro intermittency.

Contact is an owner and operator of low-cost, long-life renewable generation assets and is developing its consented geothermal development options.

84% Renewable generation

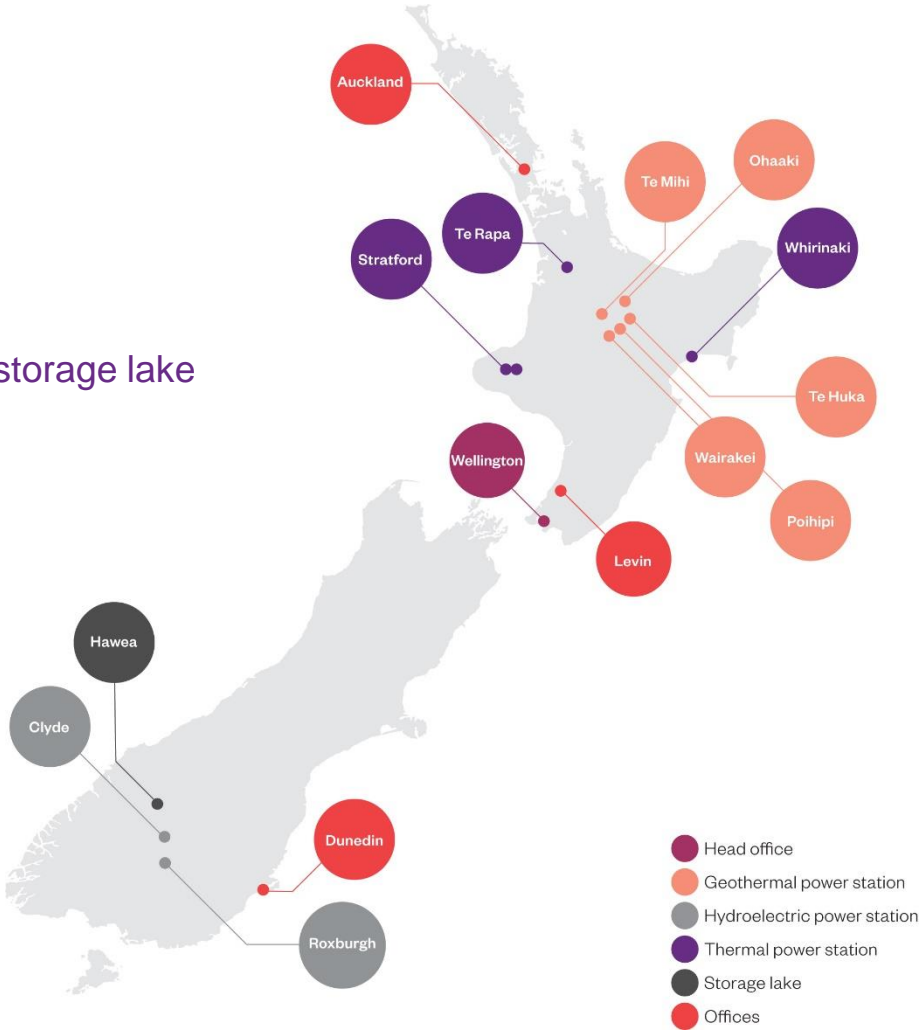
5 Geothermal stations

2 Hydro stations / 1 controlled storage lake

4 Thermal stations

8.9TWh FY19 generation

15 year contract for gas storage

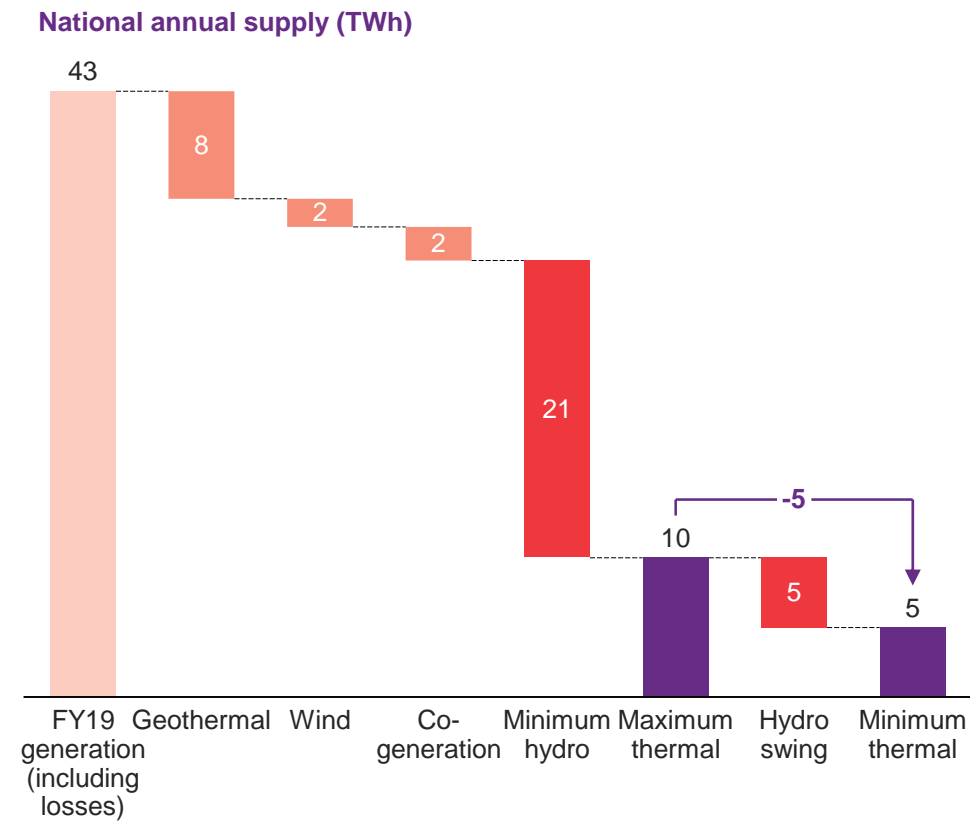


Thermal generation sets the opportunity cost of renewables, this includes stored water.

Flexible thermal production is required

5TWh to 10TWh

per annum of seasonal renewables firming required



Major thermal generators	Sources of flexibility
Contact: gas and diesel with 15 year (extendable) contract for gas storage	“Dry year”: Genesis’s coal stock pile
Genesis: coal and gas	Daily and seasonal: Gas storage
Nova/Todd Energy: gas	“Wet year”: Gas storage
	Winter peaks/ outages: Diesel
	Contingent/ emergency hydro storage

Thermal generation is currently the most economic swing fuel to manage the seasonal supply and demand mismatch.

**This transformation
is being driven by
macro-economic
fundamentals.**



Government policy



Quality, long-life renewable assets



Historically low cost of capital

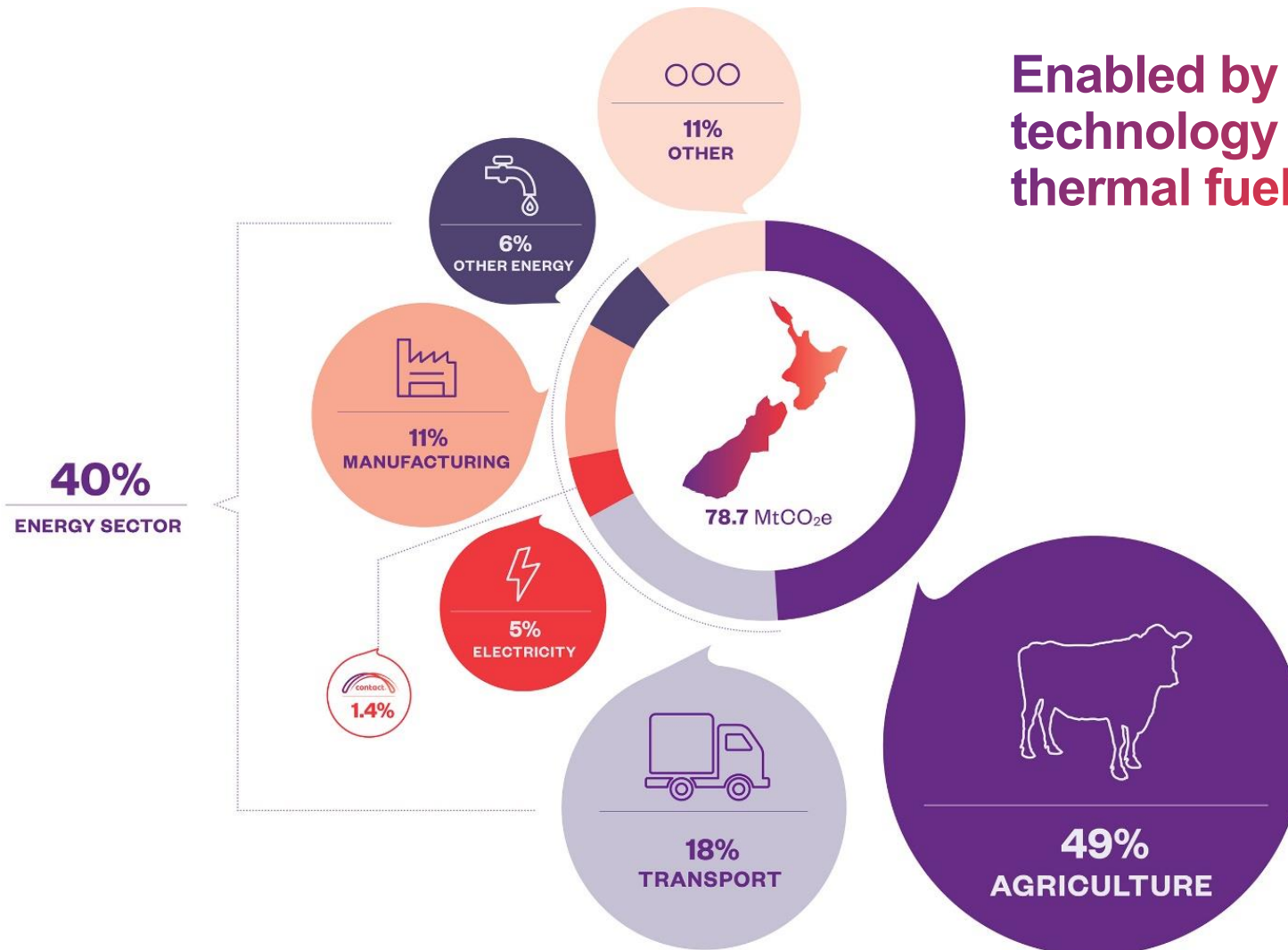


Climate change

New Zealand is
in the early stages
of a decades-long
transformation from
reliance on fossil
fuels to renewable
electricity.

CARBON REDUCTION OPPORTUNITY

Enabled by falling renewable technology costs and rising thermal fuel costs.

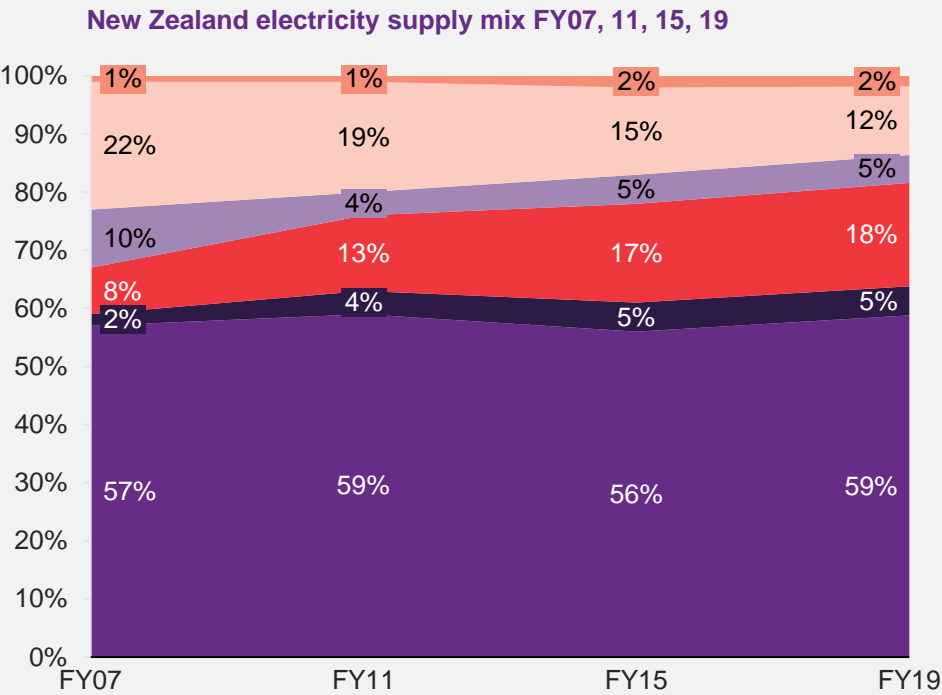


With high renewable penetration, electricity is the solution to reducing carbon emissions, not the problem.

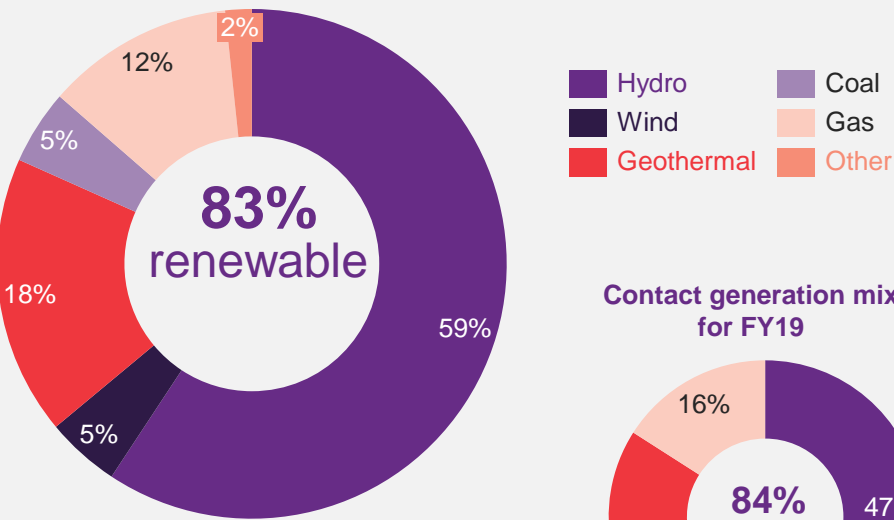
Meaningful reductions in carbon emissions are possible with renewable electricity displacing carbon intensive fuels.

Sources: Productivity Commission's Low Emissions Economy Issues Paper, August 2017 and New Zealand's Action on Climate Change, September 2016

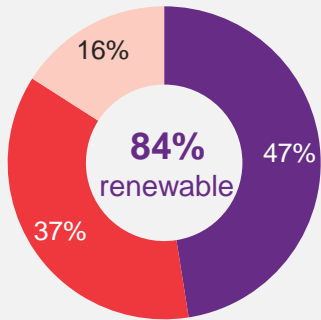
New Zealand has added subsidy-free renewable generation in a period of flat demand, displacing fossil fuels. World-class geothermal and wind resources are consented for development.



New Zealand electricity generation mix for FY19



Contact generation mix for FY19



Source: MBIE electricity statistics

Proactive initiatives driving gains in operational and capital efficiency.

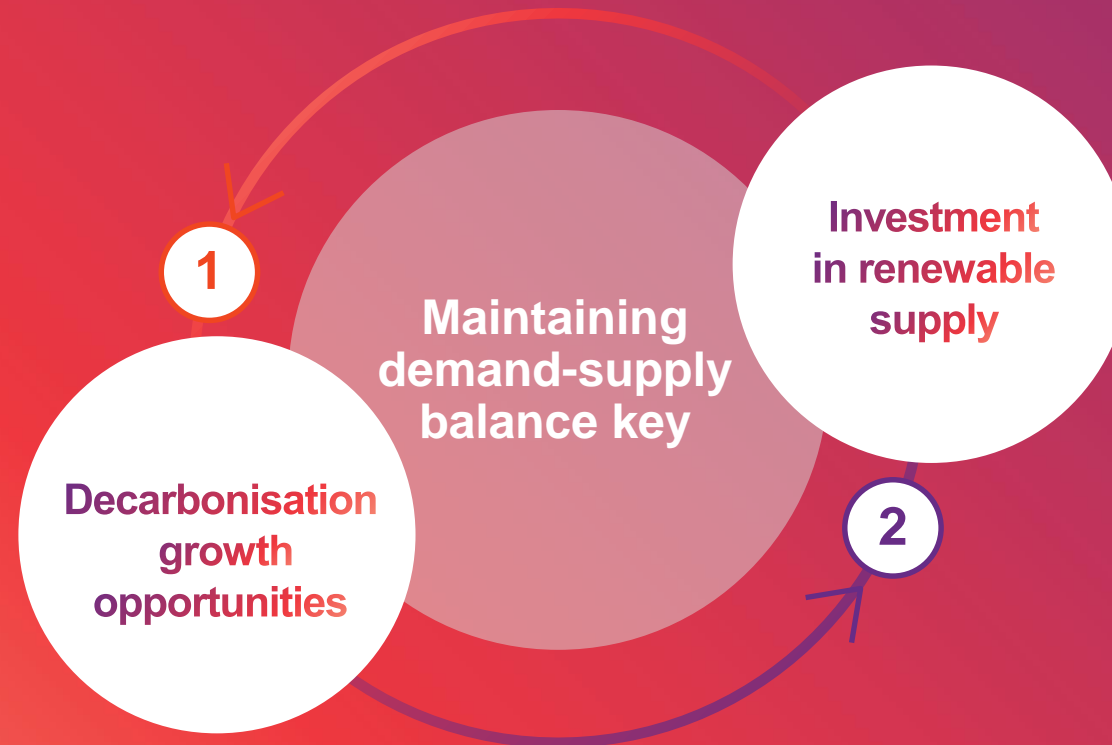
- » Connection of Natures Flame as a new direct heat customer in Tauhara
- » Further development of CTU methods in well workovers, now in regular use on large diameter deep wells
- » Licensing the use of our proprietary workover technology, developed with Western Energy, to other operators
- » Chemical well interventions and anti-scalant systems giving good results in reinjection and production wells
- » Silica extraction at Ohaaki – with Geo40 and Ngati Tahu, achieved PGF funding and is moving to commercial scale
- » Recovered reinjection capacity at Ohaaki, including the drilling of one new well
- » Cash costs below \$20/MWh on average across geothermal
- » Staff engagement continues an upward trend



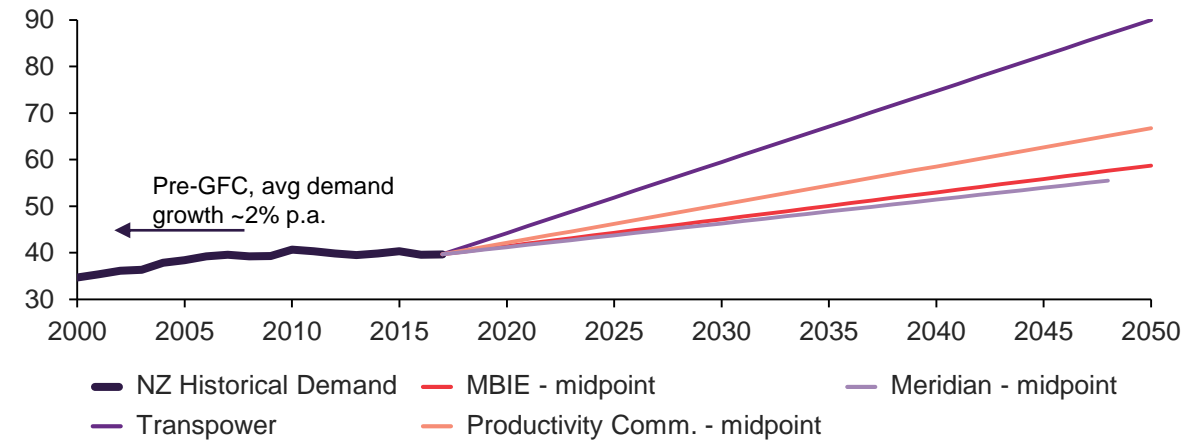
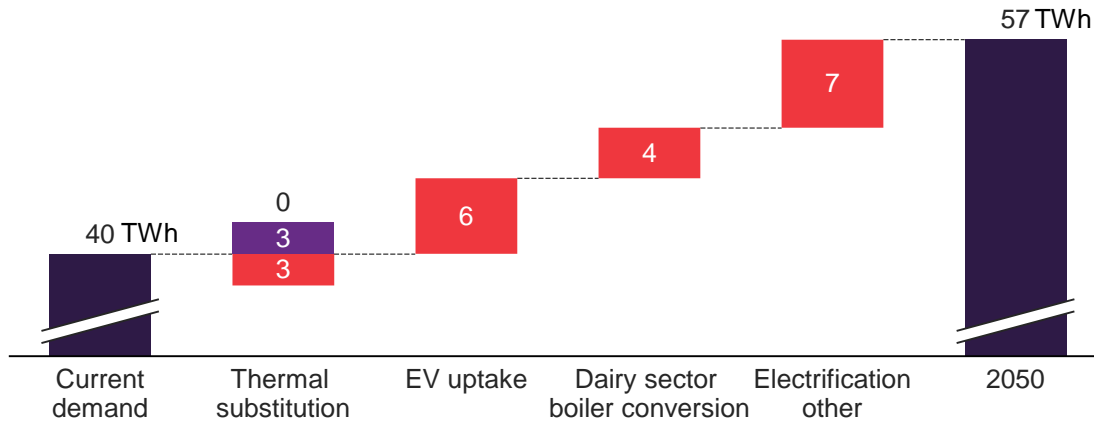
	FY10 – FY14	FY15 – FY19	Outlook
» SIB wells drilled – major rig	37	0	➡
» SIB wells drilled – minor rig	0	1*	⬆
» Rig workovers / broaching	16 / 21	0 / 3	⬇
» Coil tube workovers	2	10	⬇
» Contact proprietary technology workovers	0	11	⬆
» Chemical anti-scalant systems	0	9	⬆
» Chemical interventions	7	20	⬆
» Current fuelling cost	>\$20/MWh ¹	~\$2.50/MWh ¹	⬆

¹ – cash cost incurred in workovers, scale prevention, connection costs and wells drilled
* - shallow reinjection well BR68 drilled at Ohaaki during November 2018

**Contact sees a clear pathway
to long-term value creation.**



The continued substitution of fossil fuels with renewable electricity will drive demand for renewable generation development.



Thermal plant substitution

- New renewable generation will continue to displace base-load thermal generation.
- Rising carbon prices – cap of \$25/tCO₂ to be reviewed prior to the end of 2022.
- Uncertainty about the price and availability of base-load gas will accelerate this substitution.
- Gas peaking to provide firming.
- Base-load thermal shifting to winter-only role.

Electric vehicle uptake

- There are currently 16k EVs, 0.4% of total light vehicles in NZ.
- The Government's new EV "feebate" scheme starts in 2021.
- EV demand growth is likely to be off-peak.
- Conservative forecast, fleet proportion (2050): ~50 – 75%
- EV fleet size (2050): 1.7m – 2.7m

Electrification of process heat

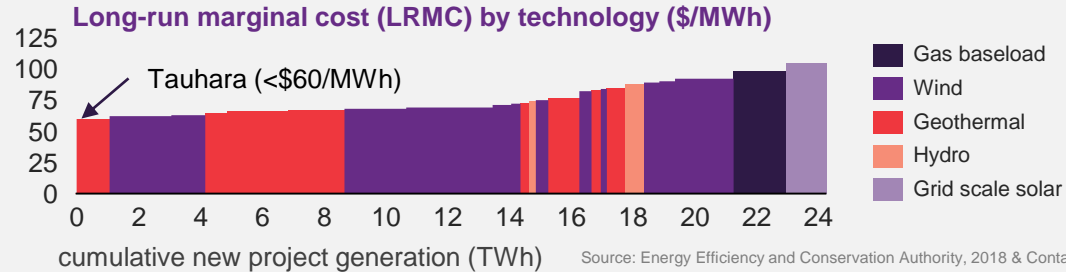
- All major dairy sector participants have started conversion process.
- Contact is working with a customer on a 13MW boiler.
- Converting all South Island dairy factories from coal to electricity will increase peak demand by 600MW; equivalent to NZAS's demand.
- Multi-year, periodic capex and maintenance cycles with upcoming renewals.
- Food processing sector utilises cool storage, an effective use of our "demand flex" platform.
- Emissions Trading Scheme expected to incentivise electrification.

INVESTMENT IN RENEWABLE ENERGY

Contact continues to leverage its portfolio.

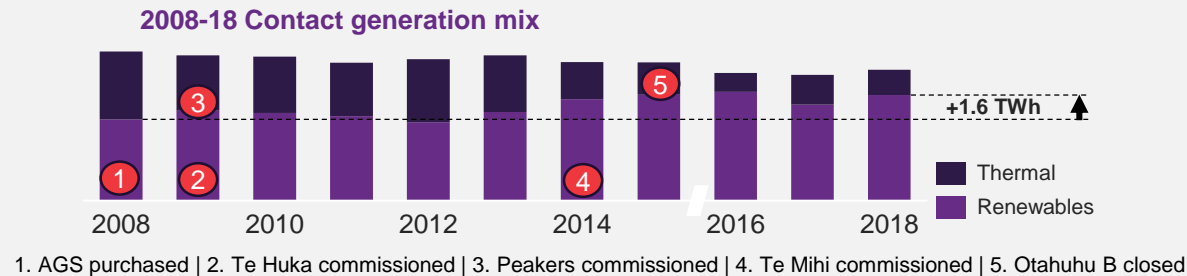
Managing supply and demand balance, whilst building highest-quality renewable generation, increasing asset performance and fuel certainty.

Competitive
base load
Geothermal



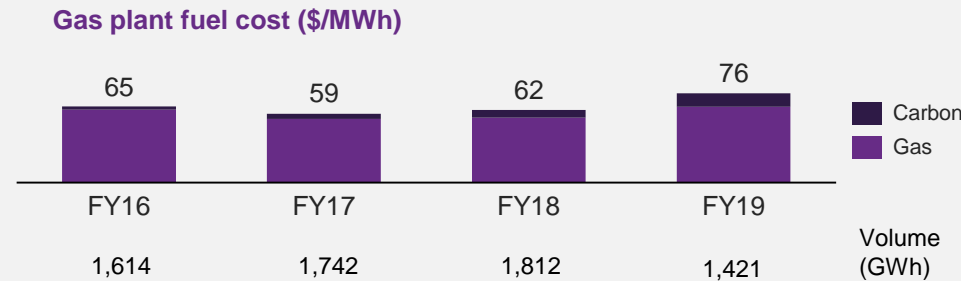
Geothermal isn't weather dependent

Space and
ability to
substitute gas



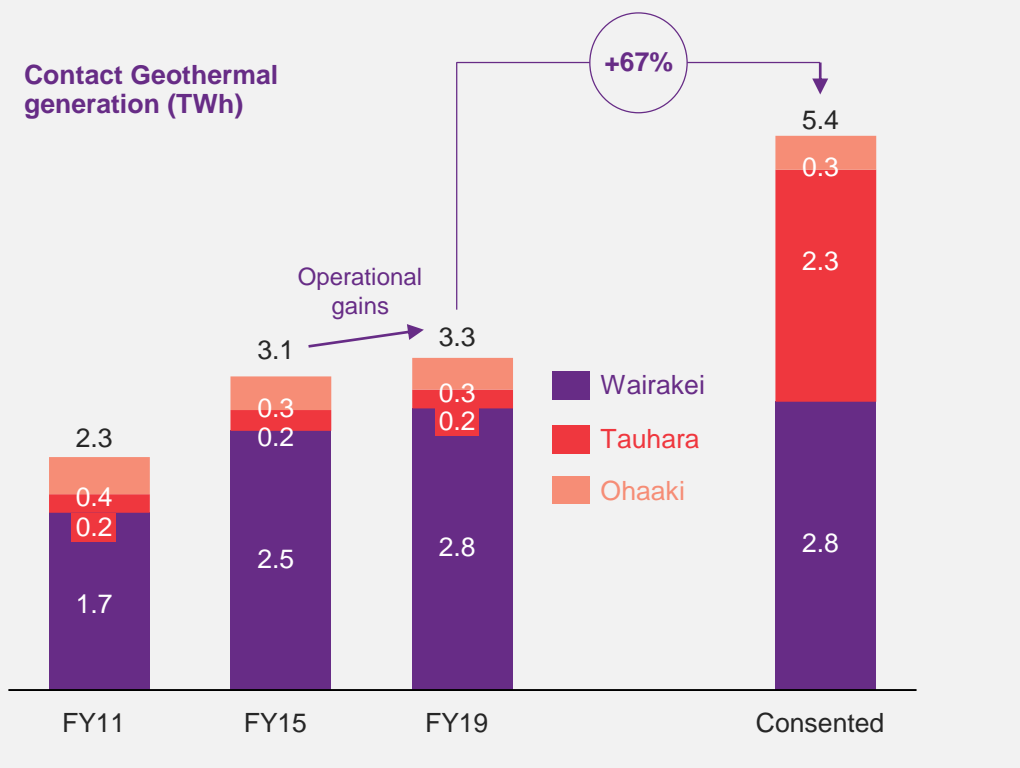
Geothermal cheaper and more
reliable than our combined cycle gas
plant (TCC)

Increasing
cost of
thermal
generation



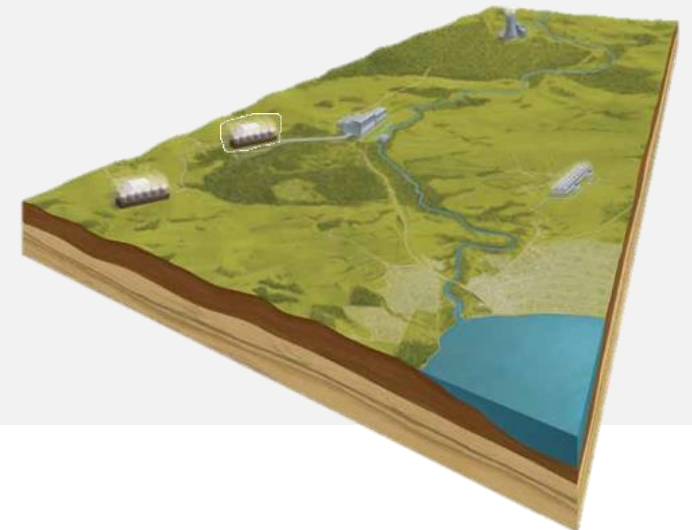
TCC life extension decision due early
2020 (~\$80m)

Contact is a world-leading geothermal operator, operating Wairakei for 60 years. Current consenting provides Contact the option to increase geothermal generation by at least two thirds.



Tauhara – >250MW consented

- New Zealand's pre-eminent scale renewable development
- Baseload renewable generation option
- Close proximity to the transmission grid
- \$30m investment in pre-FID drilling (August 2019 - February 2020)
- FID early 2020



Thank you

