

BUSINESS NZ ENERGY COUNCIL

THE ADAPTION OF NEW TECHNOLOGY
INTO THE ELECTRICITY SECTOR

Simon Mackenzie



CREATING
A NEW ENERGY
FUTURE

OUR DIVERSE PORTFOLIO INCLUDES



Electricity networks in the greater Auckland area



Gas treatment and processing plants in Taranaki



LPG sales, distribution and reticulated networks



Natural gas wholesale, trading and industrial retail business



A leading arboriculture and vegetation management organisation



Energy metering services



Investment in the sustainable generation of electricity from wind turbines



Fibre optic communications network



Solar, battery, storage and home energy management technology



Network of electric vehicle charging stations throughout Auckland

THE WORLD'S FASTEST GROWING CITIES (ANNUAL GROWTH %)



Suzhou, China

5.57%

Population: 5.25 m*



Tianjin, China

3.09%

Population: 10.92 m*



Auckland, New Zealand

3.05%

Population: 1,42 m



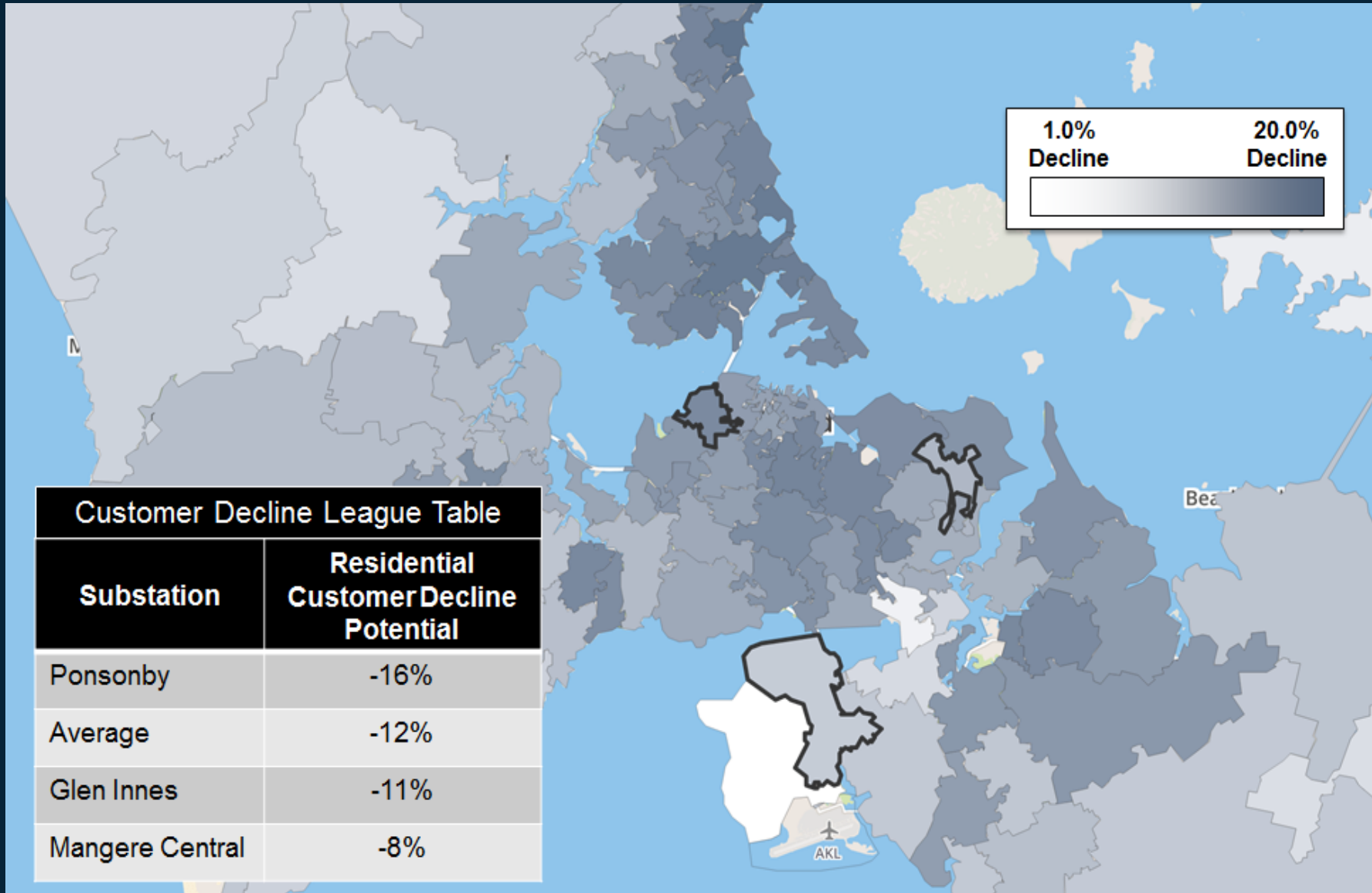
World average

1.13%

Population: 7,46 b

Auckland is a fast growing city – prompt, efficient, flexible and sustainable solutions are required

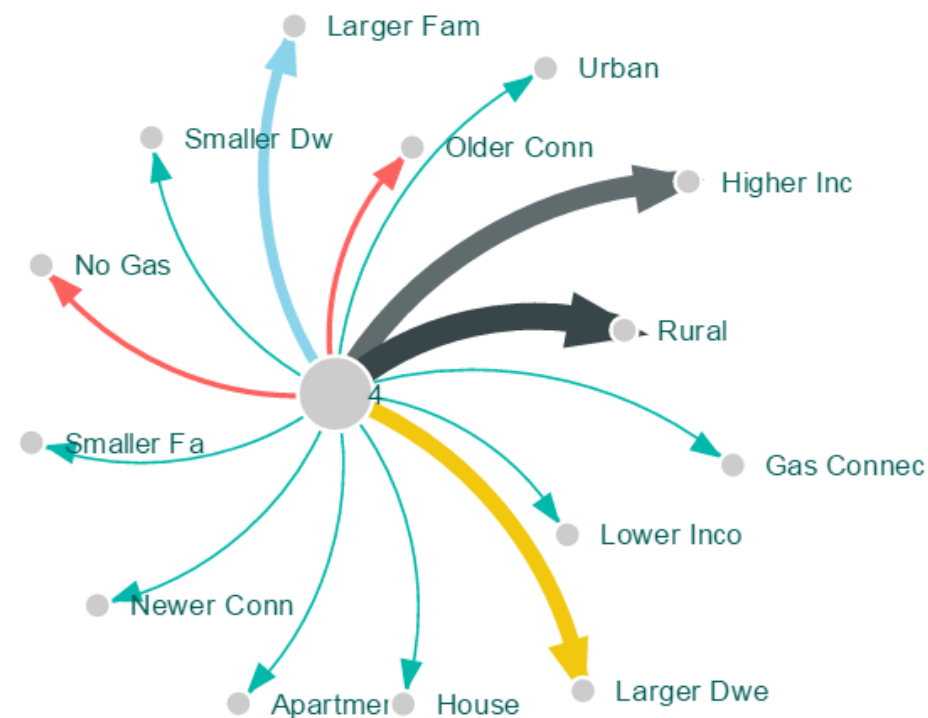
CUSTOMER PEAK DECLINE POTENTIAL



CUSTOMERS' ENERGY NEEDS ARE CHANGING

- Historically products and services driven by twin peak load profile – but our research has identified nine variations on the traditional load profile
- However underlying profiles quite different for different customer segments and customer preferences within each segment
- Differences can be explained by characteristics such as:
 - Home insulation
 - House size
 - Dwelling type
 - Demographic and socioeconomic
 - Availability of gas

Example customer segment with correlations



Electricity consumption in homes has reduced by up to 11% over the past decade

WE HAVE NOT YET SEEN THE FULL IMPACT OF HOME INSULATION

Opportunity:

3 IN 10

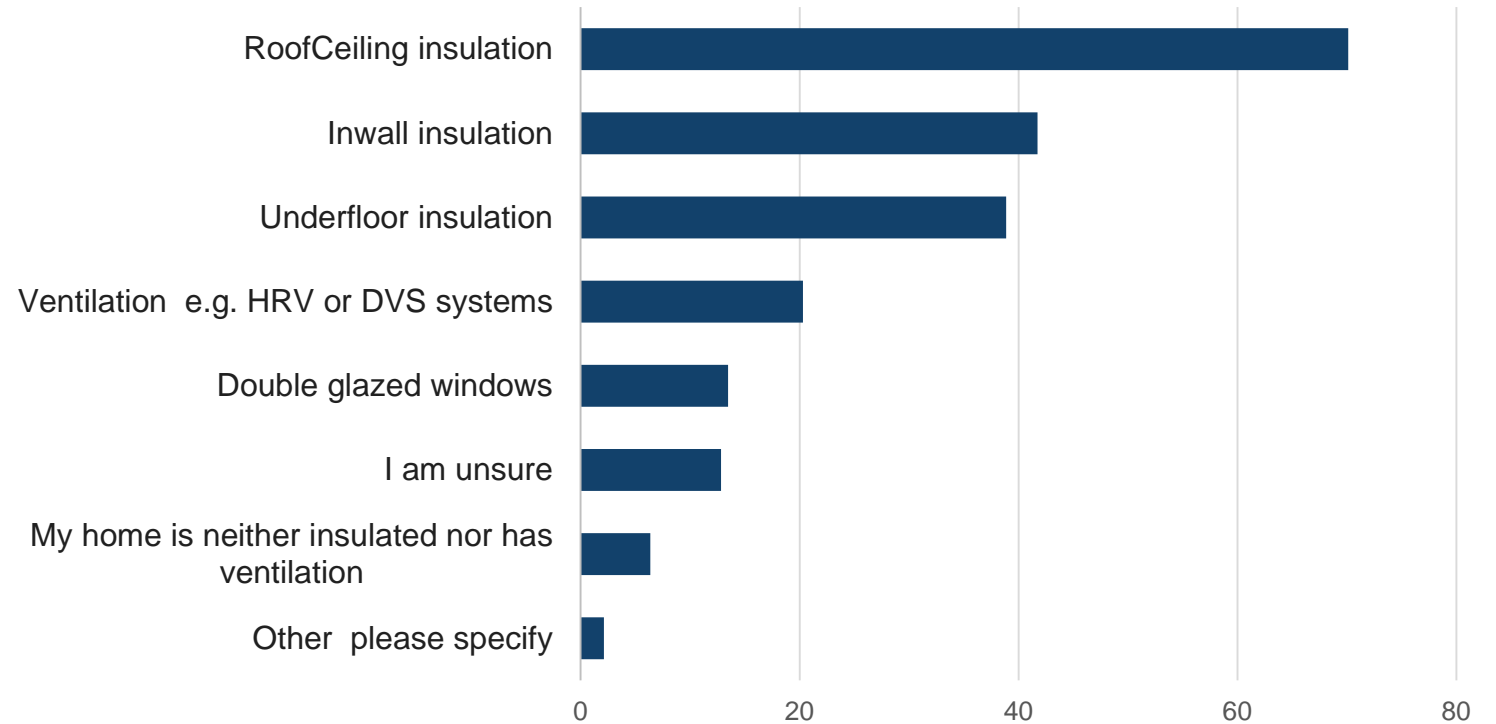
respondents have no roof ceiling insulation.

Around

6 IN 10

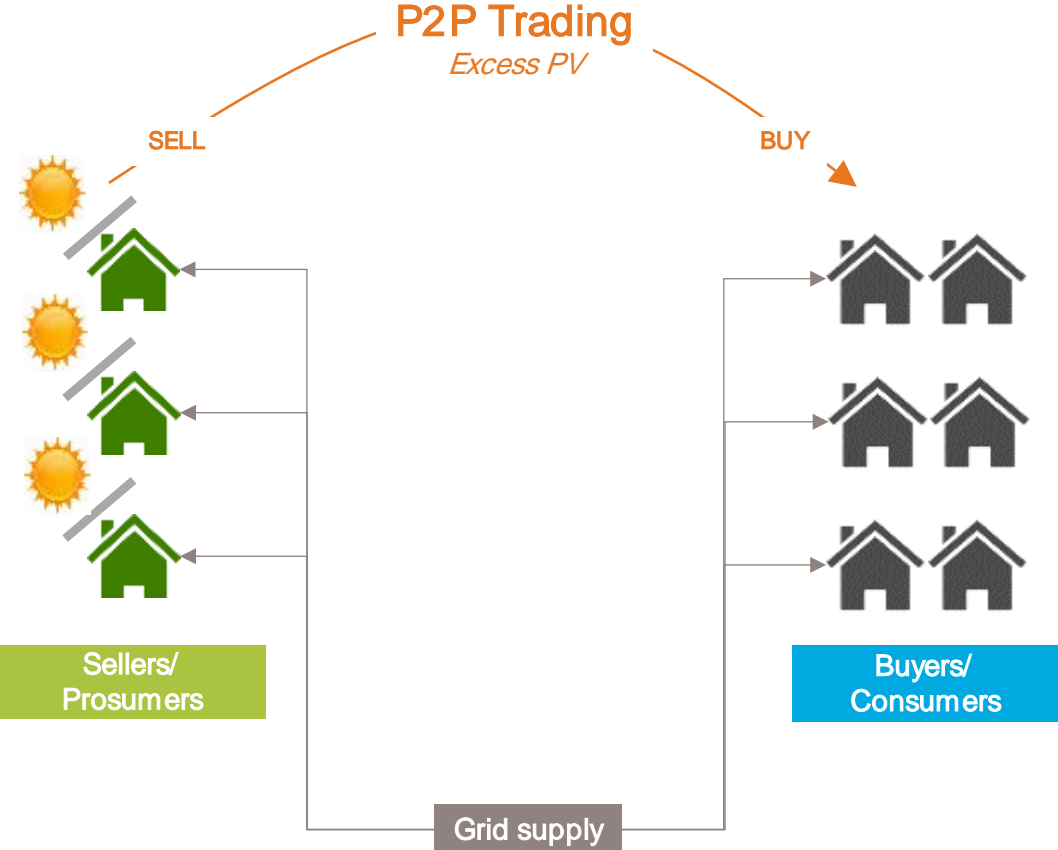
respondents have no in-wall insulation or underfloor insulation.

INSULATION VENTILATION (%)

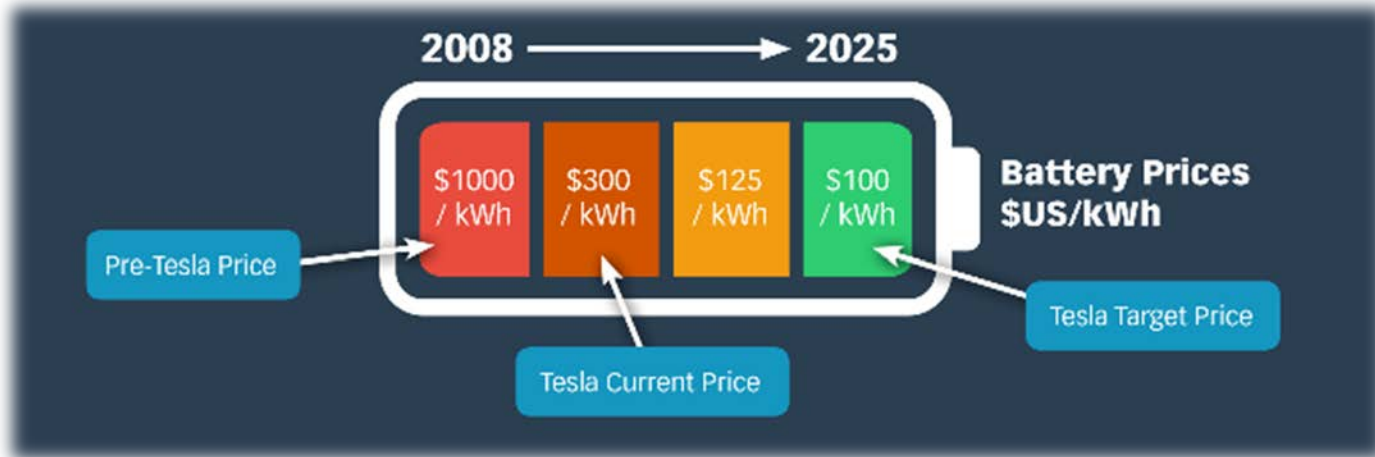


Electricity consumption in homes has reduced by up to 11% over the past decade

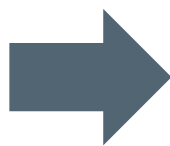
PEER-TO-PEER ENERGY TRADING



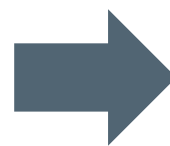
MASS PRODUCTION OF ELECTRIC VEHICLES IS CHANGING THE BATTERY TECHNOLOGY LANDSCAPE



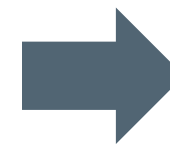
Li-ion cell



Tesla S
7 10 4 cells



Powerwall
800 cells



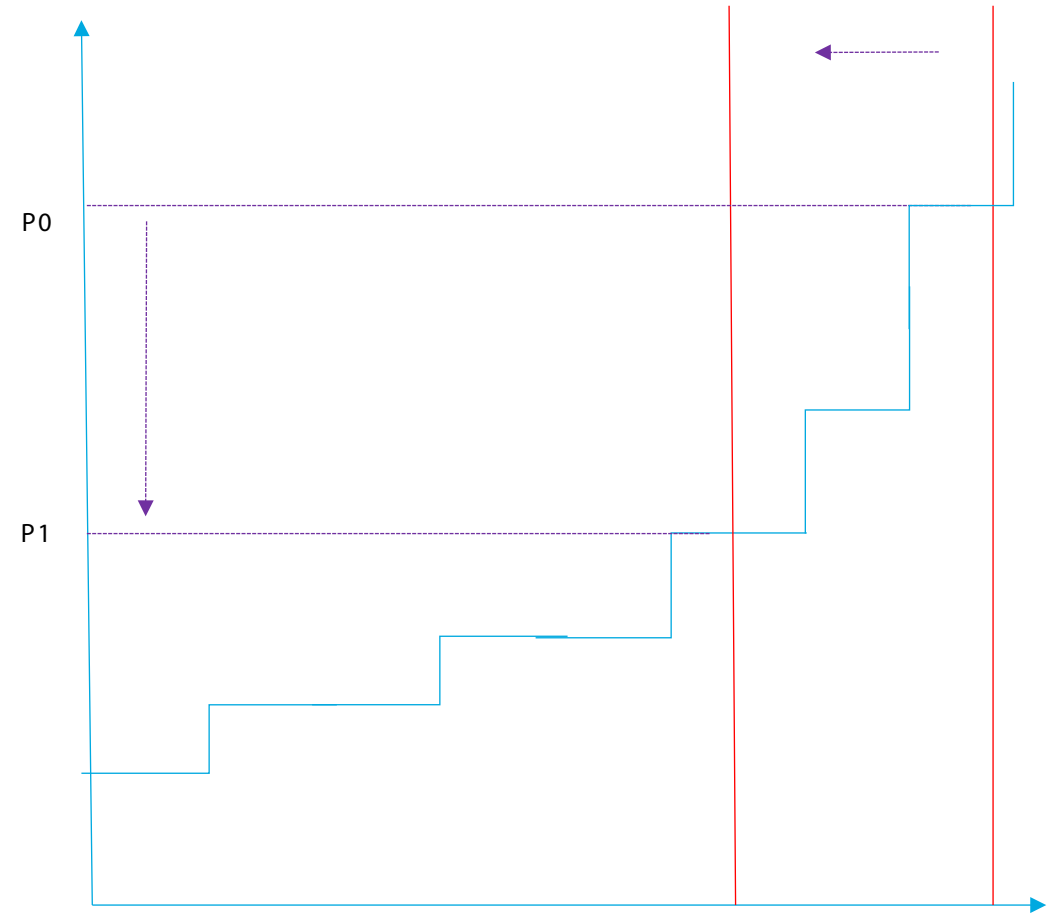
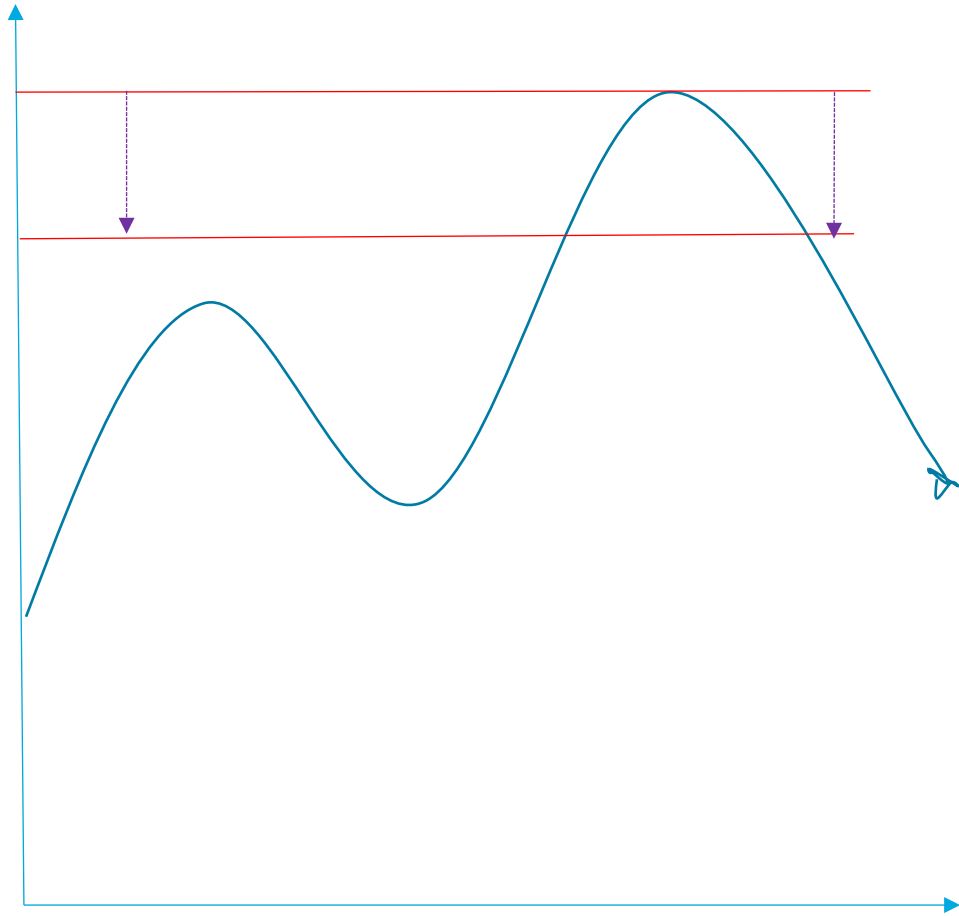
Powerpack
12,800 cells (16 Powerwalls)

GIGAFACTORY VIDEO

[Download Attachment](#)

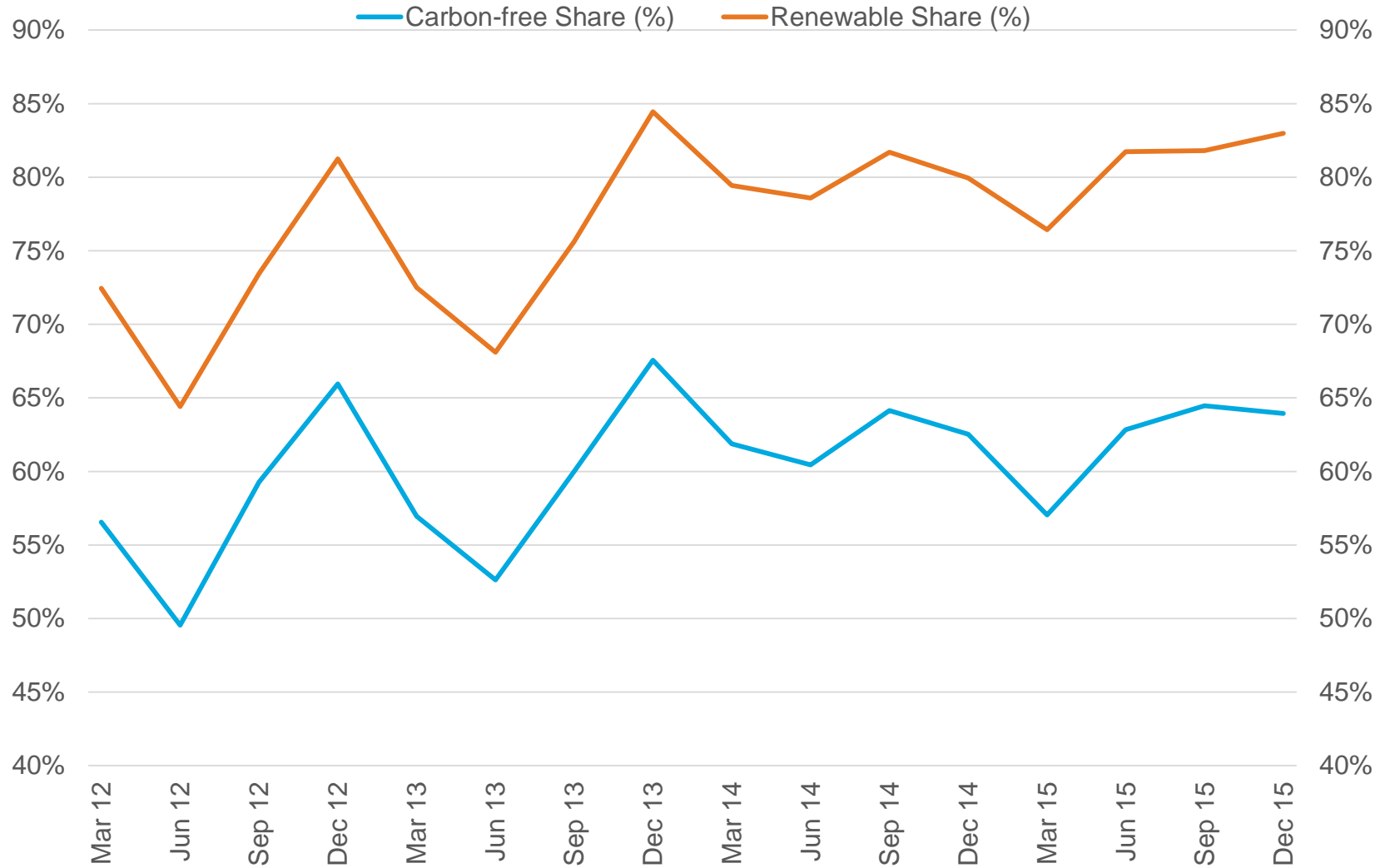
[Available until 7/12/2016](#)

CAPPING THE PEAKS MOVES NZ DOWN THE GENERATION STACK



RENEWABLE GENERATION V CARBON FREE GENERATION

source: MBIE





TECHNOLOGY ENABLED SAFETY INSPECTIONS – LIDAR/DRONES



Pole top inspections



Vegetation clearance
safety inspections



Line clearance safety inspections

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