

Meeting Date: 16 March 2023

CONTACT ENERGY PAPER ON DEMAND RESPONSE

SECURITY AND RELIABILITY COUNCIL

This paper introduces a presentation from Contact Energy, on the role of Demand Response in the New Zealand power system, as New Zealand transitions to a low emissions economy with increased renewable and intermittent generation.

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.

Demand Response

- 1.1.1 The SRC has arranged for Contact Energy (Contact) to present at this meeting on the theme of demand response.
- 1.1.2 The presentation notes a range of demand response initiatives and services Contact is involved in since it began its demand flex programme in 2019. Contact includes demand flex provisions in its commercial electricity contracts and has been exploring options with New Zealand Steel at its Glenbrook Mill that maximise the site's existing scale and transmission infrastructure.
- 1.1.3 The presentation also notes Contact's approach to targeting both reserves and energy markets and how it is supporting its customers to electrify. Members may wish to ask about how Contact is engaging with consumers to assess what retail options to offer and predict levels of uptake necessary to ensure an appropriate level of demand response from industrial through to household level.
- 1.1.4 Wellington Electricity are presenting to the SRC later this meeting. Wellington Electricity's presentation mentions a trial with Contact Energy on a highly loaded feeder. The solar/battery systems were charged during off-peak periods and used to discharge into the network's peak demand period to lower the feeder demand. Wellington Electricity state Contact discontinued the trial as it was not economic.
- 1.1.5 The SRC may want to ask Contact why the trial was not economic, and what changes would be needed to make such use of solar/battery systems economic.
- 1.1.6 Contact's perception is consumers are receiving low value from demand response currently. Members may wish to ask about how Contact demonstrates the value to consumers to change perceptions and support the level increased demand response necessary for security and reliability during the transition.
- 1.1.7 Members may wish to ask for Contact's views about the role of industry regulators in supporting demand response initiatives, and the risk areas if regulatory change is not at the pace required.
- 1.1.8 Contact's view is some distributors are not taking the opportunity for more demand response as a network alternative. Members may wish to ask about the impediments, particularly regulatory and how these may be addressed.
- 1.1.9 Contact's presentation refers to CEO Forum recommendations for winter 2023, noting concerns about long-term reliability impacts on generation of solutions proposed in that CEO Forum paper. For context, members may wish to read the CEO Forum submission (cover letter outlines the concerns), available [here](#).
- 1.1.10 Representatives from Contact Energy will present and be available for questions.

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?**
- Q2. What advice, if any, does the SRC wish to provide to the Authority?**

Appendix A: Contact Energy presentation – Demand Response

Contact Energy Submission on Demand Flex

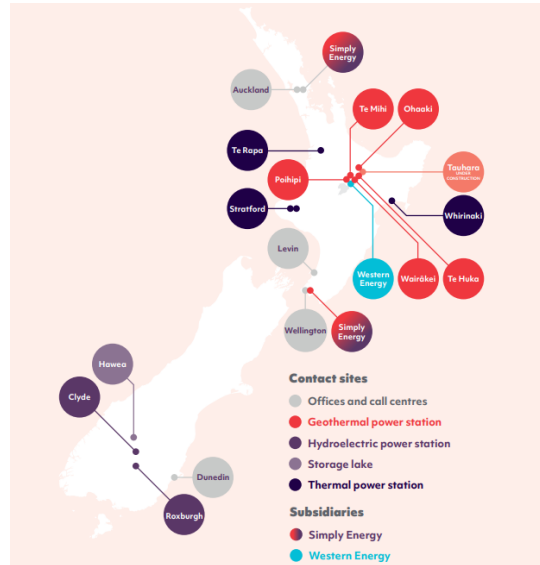
To Security and Reliability Council
March 2023



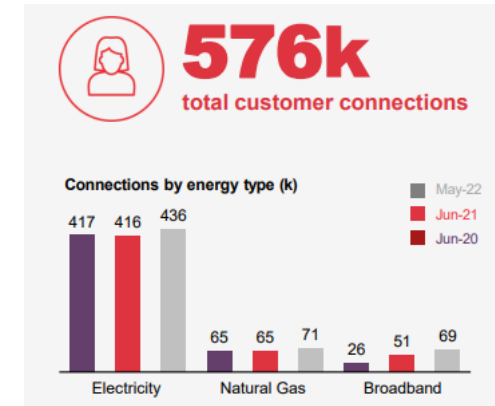
Introduction to Contact Energy

Contact Energy has a diverse range of assets across the country

- 752MW of South Island hydro
- 425MW of geothermal in the Taupo region
- 786MW of thermal across North Island including last reserve diesel plant
- Developed and maintains access to NZ's only gas storage facility



Our customers represent 20% of the electricity market, as well as gas and a growing broadband offer

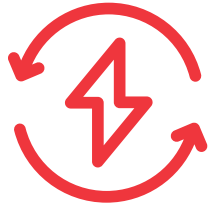


We have a development pipeline of 6TWh

- 3 TWh is planned and consented geothermal expansions
- A further 3TWh is either being consented, or we have land access secured. This capacity comes from wind, solar and geothermal expansions.

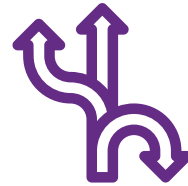


Simply Energy



efficiency

- Working with customers to avoid energy waste, including choice of appliances, lighting, etc.
- Formed partnership with US tech company Sapien to deliver a smart plug energy management solution for commercial buildings



flexibility

- Demand flex program began offering services to customers in 2019
- 70 largely industrial NI sites – 17MW
- Targeting equipment consuming >1GWh pa
- Covering a range of industry sectors – Refrigeration, pulp and paper, timber drying kilns, metal and glass furnaces, manufacturing plants, water supply, wastewater, swimming pools, HVAC.
- Targeting both the reserves markets and energy markets.



electrification

- Supporting customers to electrify
- For example, electrification of Open Country Dairy 13MW boiler.

Retail Demand Response

We are ambitious about the future of retail level demand response

- We want to see a future with more appliances on smart control, more customer engagement, and greater options from retailers.

Encouraging signs that joined-up thinking is starting to happen

- e.g. Flex Forum, CEO Forum, etc.

Market settings should place consumers at the center of demand response

- Consumers should be able to gain value from actively managing their usage, or be able to contract to others to manage on their behalf.
- Right now customers are getting little value from demand response, both from the wholesale market, but also from avoided distribution costs.

Commercial and Industrial Demand Response

Conditions are emerging for an acceleration in price reflective demand response

- Demand response already happening for very large bespoke long-term agreements.
- Increased wholesale price volatility provides the signals for controllable load to switch off. New sources of generation will increase supply in certain areas versus current market
- Assumed thermal exit in response will lead to tighter margins on capacity in key demand spikes.
- By in large the regulatory settings are there for our own customers. RTP provides a lot of opportunities along with the improved dispatchable demand scheme.

Work to be done to get distribution settings right

- The market is ready to offer more demand response as a network alternative, but some EDBs are not taking this opportunity
- Applies to interconnection assets as well as connection assets

Settings make it difficult to compete for demand response independent of retail

- Currently no easy way to access market value of demand response unless we are also the retailer.
- Market settings and typical arrangements have no way of rewarding all interested parties in demand response – peak costs, reserves, avoided distribution assets.
- Retail supply terms are generally far too short to justify demand flex setup costs (aside from large long term supply contracts). No real opportunity for the aggregator role. With the lack of multi-party arrangements (network, generation, transmission, customer, aggregator / technology supplier) very little available DR is participating in the market.
- Net result is investment in building wholesale DR is very challenged regardless of whether we are the retailer or not
- Development of wholesale DR requires market settings which enable both retailers and independent flexibility providers to easily access market value. Market value should not be constrained to the wholesale market but should include network and transmission incentives.

Maintaining incentives to invest

Transpower needs to create certainty about scarcity pricing post RCPD

- Following the removal of RCPD Transpower have issued a large number of grid emergencies rather than relying on scarcity pricing to drive a market outcome
- Transpower may also be calling on ripple control too often, dampening market signals.
- This can harm incentives to invest for generation at the top of the stack, eg Whirinaki and batteries along with incentives for technology providers to manage demand and participate in market
- Tariff and pricing signals we expect will mature to reflect shape and cost of load.

We support the CEO forum's recommendations for winter 2023, but...

- It recognized the role of aggregation and provided incentive for DR to be established and provide both visibility of load and incentives to managed
- We were very concerned about the potential long-term impact if the proposed solution became enduring.
- Critically we think it would have had an adverse impact on generation at the top of the stack. Could Whirinaki become stranded, and what does security of supply look like without it.
- To us a better solution is to facilitate mature multi-party arrangements – generator, distributor, technology providers, transmission, and customer, to benefit from DR.
- RTP enables this but joined up thinking is needed which recognizes and shares costs + benefit.

Thank you

