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Submissions' Administrator
Electricity Authority
By email to: WholesaleConsultation@ea.govt.nz

To whom it may concern

Options to reduce operational coordination risk – consultation paper

"Consumers have a role to play in making the network more resilient, as technology changes will allow them to better manage their own power consumption." [1]

This consumer welcomes the opportunity to contribute to the discussion reducing winter 2023/24 operational risks. My feedback focuses on residential consumers' desire to participate and collaborate in Demand Response (DR), for compensation.

1. Simply buying cheap oversupply and avoiding undersupply, consumers can assist in eliminating expensive peaks, contributing to grid stability and reducing their bills.

"Flexible demand (such as demand response) provides another layer in supporting energy security as it allows for electricity consumption to flex (either up or down) in line with available supply. This dynamic potential is particularly useful at times when energy supply is tight. Flexible demand can be deployed to help avoid outages in the electricity system by preventing demand from exceeding supply line limits." [2]

The Distributed System Operator (DSO) can act as an aggregator of a community of consumers, orchestrating demand and load using dynamic price signalling based on real-time voltage excursions.

It will be in consumers' interests to add autonomous Home Energy Management Systems (HEMS) to control the electrical devices inside their homes. An obvious first step is retrofitting smart thermostats to existing HW heaters. [3]

Adding clothes dryers, heat pumps and EV's are logical next steps.

2. EA's concern to *"Clarify availability and use of 'discretionary demand' control (such as ripple control)"*, can be met by enabling grid visibility. Monitoring of the LV grid by the DSO plus two-way communications providing the status of HEMS inside meters.

The results presented on phone apps providing live public visibility, transitioning consumers from "mushrooms" to informed participants thus advancing engagement. Democratisation gives consumers ownership.

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[1] Deborah Hart, Chair of the Consumer Advocacy Council, CAC website
[2] Whakamana I TeMauri Hiko Monitoring Report, September 2022, p.13
[3] Smart Thermostat Proposal, Bryan Leyland, Consulting Engineer, Vector presentation 12 July 2017

3. *"Require retailers to compensate their consumers for any forced curtailment caused by insufficient generation"* is imperative if we are to avoid the divisive use of NZ/AS4777 presently unfolding in Australia.[4] Consumers respond well to monetary incentives. So long as they are afforded the dignity of reacting autonomously via their HEMS, consumer-centric criteria will encourage mass adoption.

4. "One potentially very significant source of DER is electric vehicles (EVs). EVs can be used to provide flexible demand response through smart charging. In the future, EVs may also provide energy back into the grid through technology known as Vehicle-to-grid (V2G)." [5]

As the number of EVs plugged into the grid increase, they can provide valuable services to the grid. Responding more quickly than existing power sources. Providing instantaneous reserve and stability to the LV grid.

By aggregating or pooling together multiple EVs we can create a 'virtual battery that can deliver these grid services on a larger, nationwide scale. By winter 2024, 100,000 EVs plugged into the LV network could represent 6,000 MWh of potential instantaneous reserve, FCAS and security.

5. *"the Authority could consider making an urgent Code amendment under section 40 of the Electricity Industry Act."*
Adjusting the regulations will give certainty to developers of devices that support HEMS. "build the motorway and the cars will come"

Firstly, a smart HW immersion heater to replace the dumb thermostat that often turns ON in the middle of a peak, contributing to the estimated 300 MW that may not need to be ON in the first place. [6]

"We will need to do things differently if we are to create a sustainable energy system for generations to come." [7]

Yours Sincerely

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[4] https://reneweconomy.com.au/theres-a-smarter-way-of-solving-the-problem-of-dumb-legacy-solar-inverters/
[5] Whakamana I TeMauri Hiko Monitoring Report, P.13.
[6] Transpower estimated it was around 300 MW on 23 June 2022
[7] MBIE, TERMS OF REFERENCE NEW ZEALAND ENERGY STRATEGY, October 2022