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Electricity Authority

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To the Electricity Authority

Promoting competition in the wholesale electricity market in the transition toward 100% renewable electricity

Wellington Electricity Lines Limited (**WELL**) welcomes the opportunity to make a submission in response to the Electricity Authority's (The Authority) "*Promoting competition in the wholesale electricity market in the transition toward 100% renewable electricity*" consultation paper published 12 October 2022.

A well-functioning electricity market has been essential in providing affordable electricity and will continue to be essential in encouraging new generation and flexibility services that are needed to deliver New Zealand's Emissions Reduction Plan (ERP).

WELL is a member of the BusinessNZ Energy Council and our views are represented in their submission – we will not repeat the submission points and the recommend changes that are needed to the Electricity Code to promote overseas investment in renewable generation and the development of capacity and flexibility markets which are needed to resolve dry year supply shortages.

This submission adds additional considerations to the BusinessNZ Energy Council submission point that flexibility services are needed to provide additional demand management capability for the System Operator and that a flexibility market is needed to trade those services.

A flexibility market will be needed to allow consumers to recognise the full value stack that can be generated from their controllable devices, and to ensure flexibility is available in grid and distribution network emergencies when those services are needed to 'keep the lights on'. The development of a flexibility market will need to consider:

1. The hierarchy of needs for flexibility buyers who will need to rely on flexibility services to maintain a secure electricity supply in times of supply shortages. The Transmission grid needs priority in a grid emergency. Distribution networks will also need to have priority access to

flexibility services that they don't directly operate (like ripple control) in an emergency response situation. Without some sort of hierarchy of needs or priority in emergency situations, grid and distribution network operators will not be able to rely on flexibility services and they will need to build expensive traditional capacity to ensure they meet their regulatory quality targets. Note, grid or distribution emergencies that would require priority access to flexibility services would be infrequent and wouldn't block a market from selling flexibility services to the highest price most of the time.

2. How to enable the full value stack of flexibility benefits to be recognised and passed through to consumers. This will require ensuring a buyer doesn't block other buyers from using the service when a new buyer could pay more to the consumer (their servicer is worth more) or both buyers can benefit from the service at the same time (the value stack).

While not directly related to this consultation, the Authority will also need to consider the least regrets regulation or building blocks that are needed to allow flexibility services to be developed to the scale needed to provide a meaningful alternative to building traditional capacity. The changes needed to enable flexibility services include:

1. Streamlined and centralised access to consumption data. Consumption data is needed across the entire flexibility supply chain. For example, flexibility providers need consumption data to test and develop services and to understand which customers can participate. Distribution networks need consumption data to know where constraints are about to occur and which smart devices are connected and available to ensure security and defer network investment.
2. Ensuring all EV chargers are smart and connected so they are visible and able to be managed by a flexibility provider. As shown in Concept Consulting *October 2021: Electricity supply arrangements for EVs* study¹, EVs will be one of the largest drivers of new demand in the future and are also the most well suited to participating in flexibility services (they can be managed with minimal impact on how their owners use them). Overseas experience² shows that retrofitting EV chargers so that they can be directly managed is expensive – the high cost creates a barrier to future participation in flexibility services. Unless its mandated or incentivised for chargers to be connected, many customers may not be able to afford to participate in flexibility services and we may not have those services at the scale needed to provide an effective alternative to expensive traditional new capacity.

¹ <https://www.concept.co.nz/updates.html>

² Our EV Connect project studied the South Australian electricity sector and the impact of rapid solar uptake. To protect the security of the network, limits are now put on solar exports unless the investors can be directly managed.

3. Ensuring all large customer devices like EV chargers are registered with the distribution networks to provide visibility of where new devices are being connected. This will allow distribution networks to assess whether a new device can be connected without affecting network security and to assess planning requirements for flexibility services or new capacity investment needs.
4. Ensuring very large devices can be directly managed. Low voltage distribution networks were not designed for large numbers of large devices to be connected. For example, some low voltage networks in Wellington will not be able to provide a secure electricity supply if multiple residential homes on a street connect 22kW EV chargers. To maintain a secure electricity supply, distribution network operators must be able to turn down large devices before the distribution transformer capacity and voltage limits are exceeded.

We look forward to discussing these ‘least regret’ changes with the Authority as part of the ‘*DER integration and investment*’ workstream.

Consideration will also need to be given to how system security and resilience is co-ordinated across the electricity supply chain. Early conversations with the Authority indicate that a whole of system approach is being considered – that an agent will manage system security down to the distribution low voltage network. We have concerns about the practicalities of this approach and how it could impact a networks ability to meet their quality targets set by the Commerce Commission. Specifically, consideration will need to be given to:

1. How will distribution networks maintain network stability when devices connected to the low voltage network are being used for flexibility services that respond to spot prices and reserves. Distribution network stability will be directly impacted by fluctuations in wind and solar generation and changes in system frequency. Distribution network operators will know how their networks are configured at a specific point in time and they will be best placed to understand what response they can provide from their networks. Consideration will need to be given to who is best placed to be accountable for distribution network security of supply.
2. How will a distribution network manage its quality performance within the bounds of the Commerce Act Part 4 quality framework if another entity is also managing security.

We look forward to discussing this further with the Authority as part of the ‘*System security and resilience*’ workstream.

Thank you for providing the opportunity to provide feedback to this “*Promoting competition in the wholesale electricity market in the transition toward 100% renewable electricity*” consultation. If you

have any questions or there are aspects you would like to discuss, please don't hesitate to contact Scott Scrimgeour, Commercial and Regulatory Manager, at scott.scrimgeour@welectricity.co.nz .

Yours sincerely

Greg Skelton

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