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## Submission on Updating the Regulatory Settings for Distribution Networks

### Introduction

1. This is Vector Technology Services' (**VTS**) submission on the Electricity Authority's (the Authority) discussion paper on *Updating the Regulatory Settings for Distribution Networks* (the Discussion Paper), published in July 2021.
2. VTS is a services business that forms part of the Vector Group. It was established to take to market solutions that we have developed as part of our own digital transformation journey. We are exploring global opportunities for our key priority solutions, including:
  - the New Energy Platform (NEP) created through our strategic alliance with Amazon Web Services (AWS);
  - our Distributed Energy Resource Management System (DERMS);
  - our strategic collaboration with X, the moonshot factory (formerly Google [x]) – announced on 28 September 2021 – which includes network virtualisation and simulation technology. This is part of our shared vision to reimagine the design, management and operation of electricity networks, get ahead of increasing demands for clean energy, and transform the network in order to support decarbonisation;
  - cyber security; and
  - other services.
3. VTS supports the Authority's objectives of promoting market competition, enabling access to the low-voltage (LV) network, and supporting the transition to a net zero emissions economy by 2050.
4. In this submission, we identify the conditions and requirements we believe would enable a market for flexibility services to emerge and develop and that would satisfy the above objectives.

### The baseline conditions for the development of flexibility services

5. VTS believes the Authority should focus on creating the conditions for a competitive market where demand side flexibility services can emerge and develop.
6. In our view, the baseline conditions for the development of a competitive flexibility services market in New Zealand include:

- Open access to data related to hosting capacity and network constraints, enabled by smart meter data providing LV network visibility;
  - Minimum service standards for the connection of distributed energy resources (DER) to the LV network which can be overridden by bilateral arrangements, if warranted; and
  - Default standard (non-price) arrangements for the connection of DER to the LV network which can be overridden by bilateral arrangements, if warranted.
7. We discuss the above baseline conditions under the various themes below, as set out in the Discussion Paper.

### **Theme 1: Information on power flows and hosting capacity**

8. VTS supports the principle of open access to data for all market participants, consumers and their agents (service providers) based on fair and reasonable terms.
9. We believe this open access principle should be applied to:
- Smart meter consumption data;
  - Smart meter power quality data; and
  - Network constraints and hosting capacity.
10. Open access can be delivered by standard Application Programming Interfaces (APIs) through a B2B hub. We do not consider a central meter data store – an option identified in the Discussion Paper – to be necessary.
11. Open access can be enabled by developing arrangements wherein the party who has the data makes it available via standard APIs (i.e. not through a central meter data store), subject to fair and reasonable terms.
12. Open access is not intended to imply access is free of charge. Participants seeking access to this data must see value in the data and therefore should make a contribution to reflect the costs of providing access.

### **Theme 2: Electricity supply standards**

13. VTS supports the establishment of minimum connection non-price requirements (i.e. service standards) for the connection of DER to the LV network. These minimum technology-agnostic connection requirements (service standards) will define the minimum capability required for each type of DER, for example:
- EV chargers with inbuilt connectivity that enables them to be communicated with and managed remotely, e.g. to manage charging times or load on the network or grid (such as during emergency events);
  - Solar inverters that can be managed remotely, e.g. rate limited or export disabled; and
  - Battery inverters that can be managed remotely, e.g. to control charging and discharging of batteries.
14. The minimum service standards should be accompanied by an obligation on a “registered agent” to make the services available to the distribution network to be able to invoke each of the services remotely (via API) under appropriate circumstances.

15. The above requirements can be established via a roadmap that gives the relevant parties the necessary time to comply with those requirements.
16. The minimum connection requirements for DER should be supported by default standard arrangements which should be able to be overridden by bilateral arrangements, if required (see our response to Theme 4).
17. We note that electricity supply standards along these lines and a supporting registered agent role have been established in South Australia for residential solar PV. This is in response to the oversupply of solar energy and minimum demand conditions that threaten security of supply in the state.

### **Theme 3: Market settings for equal access**

18. VTS believes the above baseline conditions and service standards will make it conducive for a competitive market for flexibility services to emerge and develop. Such a market could deliver:
  - Consumer driven take-up of new technology without barriers or constraints;
  - Network-led flexibility services to manage network constraints and defer capital investment;
  - Retail/market-driven flexibility services to offset generation based on market pricing; and
  - Security of supply emergency services.
19. VTS also proposes a mechanism that would allow smaller scale innovation projects to be established on a trial basis, with permission to operate outside of standard or default market arrangements for a period of time. These could be linked to New Zealand specific decarbonisation efforts. Such projects could be subject to an application process and government funding, if appropriate.

### **Theme 4: Operating agreements**

20. VTS supports the establishment of default standard arrangements for the connection of DER to the LV network, akin to the approach recently adopted by the Australian Energy Market Commission. These arrangements should be able to be overridden by bilateral arrangements, if warranted.
21. We envisage the above arrangements to:
  - Include rights for distributors to control DER under certain conditions;
  - Include obligations that the DER installation meets the minimum connection requirements and service levels; and
  - Likely be subject to the application of default operating conditions, for example, maximum size for solar PV (e.g. 5kW), maximum size for batteries, and maximum capacity for EV chargers.
22. DER that are intended to be operated outside of the default operating conditions should be subject to an application process for a non-standard connection agreement.

## Theme 5: Capability and capacity

23. VTS believes that if the appropriate minimum service standards and obligations on the relevant parties are created to deliver the above market conditions, solutions will emerge to meet anticipated challenges.
24. We are already seeing evidence of collaboration between distributors that involves the sharing of best practices and avoidance of duplicate investment. For example, VTS is now providing cyber security services to other New Zealand distributors, leveraging Vector's 24/7 security operations centre, and has been in collaborative discussions with many others.
25. VTS could be one party available to help any New Zealand distributors accelerate their ability to meet DER-related capability requirements. VTS can do this by leveraging learnings from the deployment and operation of digital platforms that deliver these capabilities on Vector's network.
26. These platforms will be a key enabler of accelerated and affordable electrification – as well as the emergence of new competitive flexibility markets that can optimise consumer value. The absence of digital and data-based platforms that can support the dynamic management of new demand and increasing complexity would result in avoidable consumer cost and potentially lower reliability and system security. Locally controlled and scalable platforms can work together across multiple participants; it is not efficient to build 29 platforms.
27. Engaging in frontier innovation projects in New Zealand, such as those being advanced by VTS, is a further opportunity to strengthen New Zealand's innovation economy and high-value job creation. For example, our partnership with AWS has resulted in the creation of 40 new data-based roles in Auckland. And on 23 September 2021, AWS announced they will spend \$7.5 billion establishing a centre for cloud computing in Auckland – exciting news for the tech sector in New Zealand. To continue leveraging off the potential of these partnerships, it is critical that the Authority pursue a considered path of 'no regrets' to enable new platforms and markets to flourish in a 21<sup>st</sup> century technological environment. These markets are different to those envisioned by regulators in the 1990s. We look forward to continuing to engage with the Authority to drive these outcomes.

## Concluding comments

28. We are happy for the Authority to publish this submission in full.
29. We are also happy to further discuss VTS and our views with the Authority as part of this consultation. Please contact me at [Dean.VanGerrevink@vector.co.nz](mailto:Dean.VanGerrevink@vector.co.nz).

Yours sincerely

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