4 September 2015

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Regulation Branch
Commerce Commission
Wellington

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CROSS-SUBMISSION ON THE IM REVIEW

1 Orion New Zealand Limited (**Orion**) welcomes the opportunity to provide a cross-submission in response to submissions made on the Commerce Commission's (the **Commission**) consultation paper "Input Methodology review, Invitation to contribute to the problem definition" (the **paper**) and the decision-making frameworks for considering changes to the input methodologies (the **draft frameworks**).

2 Orion has reviewed and supports the cross-submission by the Electricity Networks Association (the **ENA**) on the IM review problem definition.

3 This cross-submission responds to certain issues raised by New Zealand Institute of Economic Research's (**NZIER**) submission, on behalf of the Major Electricity User's Group (**MEUG**).

General comments

4 NZIER's submission states:

> *"It appears that not all EDB's are in the same place in this regard. Some, such as Orion seem to be saying that they believe that the future will be very much like the past and that they can accommodate change regardless. Other such as Vector are actively embracing technical change and have lines of business that sell and install PV systems including Tesla storage batteries. Transpower is actively looking to demand side response as a technique to manage network investment but many*

EDB's appear to be not especially engaged or have different stages of technical and demand side developments in progress."

Clarification of Orion's perspective on the potential implications of emerging technologies for Orion

5 NZIER appears to have misunderstood Orion's position on emerging technology. In this cross-submission we reiterate that position and that a key objective of ours is to make sure our network accommodates emerging technologies. We also take this opportunity to provide some detail behind the extensive demand side response that Orion has been actively engaged in for many years to manage network investment.

6 The differences (some perceived only) in approaches by distributors (including and beyond Vector and Orion) reflect the complexity and uncertainty associated with emerging technologies and the impact to networks, markets and new business models alike.

7 A key, but not exclusive area of focus for us is the potential impacts of emerging technologies on our network. We want to understand the potential of new technologies to further improve the efficiency and utilisation of our network. Particularly given the level of DSM success that we and our customers currently enjoy – outlined below.

8 We emphasise that the impact of emerging technologies on different networks, with different architecture and customer demographics and geographic location, may vary. It is also important to recognise that different solutions and strategies to address emerging technology may be appropriate for different EDBs.

9 We recognise that change is not going to happen overnight and it is important not to lose sight of the short term expectations of consumers and what this means for the network. We acknowledge that utilisation patterns of our network may change, but note that the pace of that change is still unclear, as is the overall impact.

10 To work through this uncertainty, as Orion presented at the IM review forum, we undertook some preliminary analysis on the potential impacts of known emerging technologies (solar photovoltaics (PV), electric vehicles and battery storage) on our network. We are also actively involved in workstreams in NZ and overseas considering these issues. We want to ensure that we invest efficiently in our network (or alternatives) to accommodate solar, EVs and storage or some new technology.

11 Our analysis indicates that the low voltage network is most likely to require additional investment to mitigate the introduction of solar PV, unless export

is managed. Electric vehicle charging could create new LV peaks leading to thermal or voltage constraints requiring reinforcement of the low voltage network.

12 Whether new technologies deliver efficiency gains or drive reinforcement will largely be dependent on successful management of distributed generation and demand-side management initiatives.

13 There is significant industry work (Green Grid), which we are involved in being undertaken to develop PV connection guidelines to manage this (at the time of connection application) and reduce the risk of significant PV induced LV network investment such as diverting excess generation to hot water storage or battery storage systems.

14 While EVs will drive up demand, our analysis shows battery technology (charging from the network) could more than mitigate the effect of electric vehicle charging at peak times. However, it does introduce significant losses (greater than 8% battery losses plus 4% converter/inverter losses).

15 We consider that there is an opportunity to increase the utilisation of the existing network through co-ordinated management of load, distributed generation and storage. Regulatory settings need to support this to ensure it can happen and acknowledge the role of distribution networks in facilitating efficient outcomes.

16 We consider the real uncertainty isn't with the known existing technologies but with the potential for currently unknown technologies to emerge that may be "game changers".

Demand side management

17 Orion and its predecessors have been advocates of DSM for a long time. This has translated to specific initiatives such as ripple relays managing hot water cylinders, signalling peak pricing periods. Following re-regulation of the industry in 1998 we have continued to upgrade our ripple generation system and improve our control systems. In conjunction with other distributors and Transpower we developed the upper South Island load management system which coordinates the management of the load of a number of upper South Island distributors.

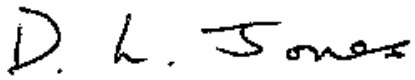
18 Over 30 years ago we introduced half hour metering to our major customers along with peak and time of use pricing signals. We have continued to develop these pricing structures for our major customers which has led to the use of significant amounts of standby generation (25MW) to assist in managing network load and reducing network investment.

19 For general customers (residential and commercial) we encourage the retention of load control relays by retailers for load management through our pricing signals. We continue to see very significant demand response (up to 60MW out of a network peak of around 600MW) when we manage load on cold winter days, and a further approximately 75MW (of peak load) has been permanently shifted to the night-time primarily in the form of night-rate hot water heating.

Concluding remarks

20 Thank you for the opportunity to make this submission. Orion does not consider that any part of this submission is confidential. If you have any questions please contact Dennis Jones (Industry Developments Manager), DDI 03 363 9526, email dennis.jones@oriongroup.co.nz.

Yours sincerely



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