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Response to the Commerce Commission's open letter on emerging technologies

Orion New Zealand Limited (Orion) welcomes the opportunity to comment on the Commerce Commission's (the Commission) open letter "Our intention to gather information relating to emerging technologies", 9 May 2018.

Information gathering

The Commission has asked EDBs interested in sharing their experience with emerging technologies to register their interest when responding to the open letter. Orion wishes to register its interest in doing so and would welcome the chance to meet with the Commission to discuss the impacts of emerging technologies.

We can assist the Commission by providing information about our deployment of public electric vehicle charging infrastructure and our approach to electric vehicles (EVs) in general. We can also assist by discussing our approach to connection of distributed generation and our understanding of new inverter technology, and our trial of clustered residential solar/battery technology.

Orion has seen and supports the submission of the Electricity Networks Association. In particular, we echo the ENA's caution against using formal compulsory information gathering powers in this context.

The current regulatory framework for emerging technology investment

Orion was and remains supportive of the Commission's overall approach to definition and interpretation of the regulated service as developed in the 2016 IM review.

In the 2016 review, the Commission indicated that in assessing whether a particular asset or expenditure is regulated under Part 4 and the input methodologies:

- the first limb of the test is the definition of the regulated service – here, the conveyance of electricity by line, and

- the second limb is whether the particular asset or expenditure— be it a line, battery, or office chair — is used in a way which relates to the provision of the regulated lines service.¹

The Commission underlined that it was taking a technology-agnostic approach to the delivery of the regulated service. Any type of assets (whether lines, vehicles, batteries, or office furniture) could appropriately be included in the RAB if an EDB concluded that their use related to or supported the regulated service, to the extent that it did so. The final reasons paper in the 2016 review clarified that the role of the IMs in the emerging technology context is “to ensure they provide an appropriate balance of incentives which facilitates efficient industry response, benefiting consumers in the long term.”

As became clear in the course of that review, any attempt to specify lines service technologies, or to ring-fence particular activities, is contrary to the statutory scheme and was also likely to be unworkable under Part 4 and/or to harm investment incentives in emerging technologies.

What we are doing

The principal focus of our financial investment in emerging technologies has been on EV charging facilities. We also have experience with connection of distributed generation, new inverter technology, and clustered residential solar/battery technology.

A description of our investment in EV charging facilities is include in the **appendix** to this letter. In brief overview, Orion:

- is partnering with local councils, other EDBs, supermarkets and private parties;
- has installed 25 charging facilities in public locations, and made a further 18 chargers at our head office site normally intended for staff use also available to the public. Our first public EV charger installation was in November 2016; and
- in response to positive community feedback, we are planning to install around 10 to 15 more facilities in the current financial year with many of these in rural areas.

On the basis of Orion concluding public EV chargers are related to and support our regulated service, and are an innovation that is for the long term benefit of consumers of line services (as explained below), we have to date included our limited rollout of EV chargers on our RAB.

One of our objectives has been to seed the EV market and, supported by our limited roll-out, allow the environment to move to a situation where the ‘competitive market’ can take the reins. To date, spend of just over \$1m on EV chargers has been included in our RAB –around 0.1% of our total RAB.

¹ See, for example, the summary of conclusions in Commerce Commission, IM Review decisions *Topic paper 3: the future impact of emerging technologies in the energy sector*, 20 December 2016 at [239] to [247].

Our reasons for deploying EV chargers

Orion has approached the investment in EV charging facilities as part of its responsibility as an EDB.

For several years experts and industry participants have been highlighting the benefits to consumers and society of a transition to electric vehicles. This has achieved recent prominence and urgency with the government's commitment to the Paris Accord and a goal of net zero emissions by 2050.

In April 2017, NZTA set a nationwide vision of "fast" DC chargers installed at every 75km of state highway and "standard" AC chargers installed every 50km of highway and collector routes.

The Productivity Commission's recent draft report on the transition to a low carbon economy is clear that an important feature of New Zealand's pathway in response to the threat of climate change is mass uptake of electric vehicles. This was further supported by modelling recently released by Transpower (Energy Future / Te Mauri Hiko report).

The Productivity Commission draft report on a low emissions economy stated:

"the electrification of transport has the potential to play a large role in supporting New Zealand's emissions reduction objectives. With the country's current comparatively emissions intensive vehicle fleet and its low-emissions electricity system, a move to electric vehicles (EVs) could deliver significant and rapid reductions in emissions. Yet the tendency of New Zealanders to keep their vehicles on the road for up to 20 years or more works against this if no additional measures are put in place."²

Aside from emissions benefits, EVs also open the door for future line services efficiencies, while also having direct impacts on demand and network usage patterns. They will also have synergies and cause usage changes that are difficult to predict – for example, Vehicle to Grid (V2G) innovations and demand management technologies. It is imperative that Orion understands how these technologies will emerge, when that might happen, what impacts their uptake can have on our network, and to stimulate the demand.

In Orion's view, we have a responsibility to understand what a mass uptake of EVs will mean for the operation of and investment in our distribution network. It would be reckless for us to simply wait until a generational change in demand and usage was upon us - particularly because emerging technologies may be rapidly adopted at scale and will have complex interrelated effects.³

² Productivity Commission, Low emissions economy draft report, page 46

³ The stark difference between medium and high EV uptake curves, and associated electricity demand, is crisply summarised in this recent MBIE report on *Projections of the Electric Vehicle Fleet Size*: <http://www.mbie.govt.nz/info-services/sectors-industries/energy/energy-data-modelling/modelling/electricity-demand-and-generation-scenarios/documents-image-library/electric-vehicle-model.pdf>

We also believe we have a responsibility to seed and stimulate the transition to electric vehicles. We consider that it is in the best interests of our customers for us to “seed the market” so we understand what the impact of EVs will be on our network as well as having the broader objective of promoting uptake by alleviating the range anxiety issue. The national and international literature on EV roll-out shows that range anxiety is one of the primary factors prohibiting EV uptake. EVs present a classic “chicken and egg” situation: which comes first - the EVs or the EV chargers? When the economic and environmental benefits to customers of a fast take up of EVs are clear, a proportional response by EDBs to assist seeding the market by installing otherwise uneconomic EV chargers is reasonable.

Given these dual responsibilities, Orion has partnered with other enterprises like local Councils, other EDBs, Foodstuffs and ChargeNet to make a viable platform of chargers available in Canterbury. We are doing so to boost public awareness of EV viability in the context of electrification of the transport system being a key lever to meeting national low carbon economy targets, to benefit our customers, and to better understand the network effects of EV demand and usage patterns.

Long term benefits to customers resulting from a faster uptake of EVs include:

- lower total energy costs for customers. It is estimated that switching to driving an EV rather than a petrol/diesel vehicle will save customers around \$2,500 in total cost per annum. This annual saving is significantly greater than the additional cost of any proportionate response we take to seeding the market and speeding the uptake of EVs. Such additional cost per customer is between \$1 and \$2 per annum.
- lower customer average electricity cost per kWh consumed. EVs are likely to improve the utilisation of the electricity system given EVs are a relatively stable year round load and there is scope to time-shift charging to low demand periods (e.g. overnight in a garage).
- reductions of emissions from fossil fuelled vehicles supports our region’s clean air objectives and improved health outcomes for residents. This is supported by the Productivity Commission draft report on low emissions economy.⁴
- positively impacting the local/national/international climate and environment.

Orion has invested in EV chargers in parallel with related activities such as network analysis to determine potential constraint areas in the event of clustered distributed generation such as solar/battery, and our street trial with Contact of clustered residential solar/battery.

⁴ Low emissions economy draft report Productivity Commission page 107 “Any area that has co-benefits from reducing GHGs calls for policy coherence. For example, the electrification of the transport will reduce emissions and improve air quality, with benefits for human health.”

Our investments are in line with the expectations of our main shareholder, the Christchurch City Council, and indeed the Christchurch Transport Strategic Plan encourages EV use to reduce carbon emissions to enhance the environment. To that end, the Council has committed to support the installation of privately and publicly available EV chargers throughout Christchurch.⁵ Our other shareholder, the Selwyn District Council, has also been supportive of our EV efforts.

Investments like Orion's EV chargers generate public awareness, and EDBs gain an understanding of, the network effects of widespread rollout – for example on demand profile – of such innovations, which again are network technologies with interrelated effects and cannot be treated as isolated developments.

It has been notable that deployment of EV charging infrastructure has facilitated the building of relationships with suppliers and users. We now have a direct link with the EV community, what's happening and what their thinking is on EVs. These are important relationships for moving forward into the future emerging technology environment to ensure all parties understand benefits and consequences of technology uptake.

Overall, we have approached emerging technology investments, including EV chargers, as part of our core responsibility as a distribution business intending to deliver the regulated service over the next couple of decades in a manner that benefits our customers, is in line with Government priorities and our shareholders' commitments to support EV uptake.

Our treatment of EV charger investment

Orion has been allocating its investment in EV charging facilities as an addition to its RAB. The costs of electricity used are being recorded as an operational expense by Orion. Currently, we receive no direct revenue from these facilities, and so no revenue is recorded.

We see EV charging facilities investment as directly related to our core business and responsibilities as an EDB.⁶ We have been proceeding on the basis that our approach to EV chargers, and inclusion of capital costs on our RAB, is consistent with the framework explained by the Commission in the IM Review, and the emerging technologies consultation in 2015. We have engaged in this activity as an essential part of being a responsible supplier of electricity lines services to the people of Canterbury for the foreseeable future.

Orion is confident that this EV charger investment will benefit our customers. Various organisations, including EECA, have estimated that on average households will save around \$2,500 per annum if they own an EV, due to reduced energy, maintenance and running costs.⁷ This \$2,500 saving compares with an additional cost, via higher power bills, of less than \$2 per annum per household if we spend \$2m on EV chargers to FY19, and include that \$2m on our RAB (to date we have spent just over \$1m, which is less than 0.1% of our RAB). In short, a proportionate response to promotion of EVs by Orion, to seed the market, that leads to a slightly earlier EV uptake by the mass market, will significantly benefit our community.

⁵ <https://www.ccc.govt.nz/the-council/plans-strategies-policies-and-bylaws/policies/transport-policies/electric-vehicle-policy>

⁶ It is also the case that in a number of our public facilities, which are placed on the roadside or supermarket carparks, for instance, the point of supply for Electricity Act purposes is not clear.

⁷ This assumes a drop in the current high capital price of EVs - which is forecast to be significantly lower in around 5 years.

We believe our (limited) EV investment charger approach is in line with the Commission's open letter, on its priorities for the electricity sector for 2017/2018 and beyond, when the Commission, referring to proportionate scrutiny, stated that "While we are well aware of the cost to consumers of every extra dollar of revenue we allow, we must also be mindful of dis-incentivising investment that will increase net benefits to consumers over the long term."

Other earlier informal indications from the Commission about the application of the framework to EV charging facilities is also consistent with Orion's approach.

For instance, commentary at the 2015 emerging technologies workshop appeared supportive of stimulating a critical mass of EVs on the road through public EV charger installations being in the long term benefit of consumers and thus might be included on RABs under section 52A⁸.

In the IM reviews the Commission also stated that, "DPPs provide EDBs with project flexibility and funding headroom to innovate"⁹, and went on to say that explicit innovation incentive mechanisms were not required. In support of this the Commission cited a number of initiatives by EDBs under way that support the delivery of the regulated line service including:¹⁰

66.3 A range of initiatives by Vector, including development of its electric vehicle charging network,.. and

66.6 Northpower's efforts to encourage the roll-out of electric vehicles including its own extensive electric vehicle charging network.

Given the combination of reasons we set out in this letter which support Orion's approach to date in including EV chargers on our RAB, the treatment of investment in EV charging facilities proposed in the appendix to the Commission's open letter, namely non-inclusion in the RAB, has taken us by surprise.

As will be clear from our explanation above, we think the focus taken in the open letter is too narrow. The test for relevance of an investment in emerging technology that was articulated by the Commission previously was not limited to short term network management. Rather, the test was relevance to the delivery of the regulated service. As we have explained, being a responsible supplier of the regulated service in our Canterbury network area requires us to think more broadly and longer term than day to day network management.

We appreciate that these perspectives are clearer when standing in our shoes. For that reason we would appreciate an opportunity to discuss these issues further with the Commission before the Commission commits to a narrow test of when investment in emerging technologies will be relevant.

⁸ Emerging Technologies workshop December 2015, page 77 of transcript.

⁹ IM Review final reasons paper Chapter 2 point 62.2 page 568 and 569

¹⁰ IM Review final reasons paper Chapter 2 point 62.2 page 568 and 569

If there is a narrowing of the regulatory view, this will have direct implications for Orion's strategy and longer term plans for how it meets the challenges that we know are coming for the sector. Any narrowing of the regulatory view will also have negative implications for how sector regulation generally interacts with the electrification of the economy that is signalled government policy for New Zealand's climate change response pathway.

We also appreciate that a discussion of the role of EDBs in stimulating the transition to the mass uptake of EVs, and becoming informed about the implications for demand and network investment, also includes a discussion about when the function of stimulation and learning ends, and commercial provision begins.

We are interested to discuss this with the Commission. We know that today we are unfortunately some way from the demand and supply conditions in the Christchurch market supporting commercial provision of EV chargers, and we expect the regulatory treatment of investments to change when that occurs. But again these types of questions will be an important part of the next phase of discussions and we look forward to engaging with the Commission on those topics.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Rob Jamieson', with a long horizontal flourish extending to the right.

Rob Jamieson

CEO

Appendix: Our EV charging investment

Our investment history in EV chargers to date comprises 25 public chargers installed – six fast chargers¹¹ and 19 standard chargers.

Our chargers are EV model/brand agnostic i.e. are not underpinned by promotion of any particular EV vehicle.

The location of our public chargers is shown in the map provided in figure 1 below, with fast chargers depicted in orange and standard chargers depicted in blue – all are on the Plugshare website¹²/app.

A further 18 chargers are available for Orion EV vehicles and public use onsite at our head office in Wairakei Road.

During the current financial year we are aiming to install 10 to 15 more EV chargers to respond to local body feedback that more chargers are desirable in the rural area and to reduce range anxiety between chargers.

We have made application to EECA's contestable EV fund, with Westpower as co-applicant, for installation of charger/battery combinations on the route to the West Coast via Arthur's Pass.

However our plans for further investment in EV charger facilities will be influenced by the resolution of the issues raised in the Commission's open letter. Until we work through these matters we will be pausing our rollout and communicating this to stakeholders. We will notify EECA that we can no longer continue with our application to undertake the Arthur's Pass route for this round of funding.

To date standard charger usage remains low at an average of 5kWh per day and in the range of 0.5 to 16 kWh per day. This indicates the market is still in an early 'seeding' stage.

We have partnered with ChargeNet in regards to some EV charger installations and for ChargeNet to provide the billing platform for charging EV drivers to use the EV fast chargers. We have a good relationship with ChargeNet and believe this is a good example of an EDB partnering with an independent supplier of services. We both recognise that by working together we can achieve more in a shorter space of time, thereby encouraging a quicker uptake of EVs, to the benefit of both commercial players like ChargeNet and our customers.

¹¹ One of these chargers is owned by ChargeNet. Four others have been purchased from ChargeNet.

¹² <https://www.plugshare.com/>. Plugshare is an international website that is pretty much used by all installers of chargers in New Zealand to show where chargers are located



Figure - Orion EV charger locations