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Energy Markets Policy
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To whom it may concern

Accelerating renewable energy and energy efficiency

This submission relates to the discussion document "Accelerating renewable energy and energy efficiency" released for review in December 2019 (the **Discussion Document**)

We support the ENA submission in relation to the Discussion Document and record our further comments for Orion below:

Section 1 Addressing Information Failures
Q1.1 Do you support the proposal in whole or in part to require large energy users to report their emissions and energy use annually publish Corporate Energy Transition Plans and conduct energy audits every four years? Why? We support this proposal, as we believe it will help with network planning and encourage LEUs to have transition conversations earlier with their EDB.
Q1.2 Which parts (set out in Table 3) do you support or not? What public reporting requirements (listed in Table 3) should be disclosed? We support all of the public reporting requirements, as we expect these will assist with network planning.
Q1.3 In your view, should the covered businesses include transport energy and emissions in these requirements? We believe it should as it will help us understand EV transition impact.
Q1.4 -1.6 No response
Q1.7 Do you support the proposal to develop an electrification information package? Do you support customised low-emission heating feasibility studies? Would this be of use to your business?

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We support this proposal. We also emphasise the importance of EDB involvement in the production of an information package. We recommend that emphasis in guidance is placed on contacting your local EDB early in the process when contemplating upgrades or electrification initiatives.
Q1.8 No response
Q1.9 Do you support benchmarking in the food processing sector? We particularly support the 'learning networks' aspect of this proposal. We believe that information sharing in the food processing industry of costs and available technology is vital.
Q1.10 Would benchmarking be suited to, and useful for, other industries, such as wood processing? Refer to our response to 1.9 above. Sharing of information is an important component in any approach, as firms will be better able to transition if their investigation efforts are streamlined. We are of the view that the easier the transition away from fossil fuels is made, the more likely it will be to happen.
Q1.11 Do you believe government should have a role in facilitating this or should it entirely be led by industry? We believe that government should take the lead, as speed is of the essence in tackling climate change.
Section 2 Developing markets for bioenergy and direct geothermal use
No response
Section 3 Innovating and building capability
We generally support improving industry knowledge and removing barriers to uptake of low-emission technology.
Section 4 Phasing out fossil fuels in process heat
We generally support removal of coal fired boilers as a future process heat option, provided emphasis is placed on a just and sustainable transition with appropriate support for affected participants. We support steps such as the Corporate Energy Transition Plans, as they encourage a planned phase out of process heat by businesses to ensure response is not ad hoc.
Section 5 Boosting investment in energy efficiency and renewable energy technologies
No response
Section 6 Cost recovery mechanisms
No response
Section 7 Enabling development of renewable energy under the Resource Management Act 1991
Q7.1 Do you consider that the current NPSREG gives sufficient weight and direction to the importance of renewable energy? No response

Q7.2 What changes to the NPSREG would facilitate future development of renewable energy? In particular, what policies could be introduced or amended to provide sufficient direction to councils regarding the matters listed in points a-i mentioned on page 59 of the discussion document?

The NPS for Electricity only covers Transpower. This provides a level of protection for Transpower's assets within regional plans, and a better ability for Transpower to maintain lines and cables. Unfortunately EDBs' high voltage assets are not afforded the same level of protection – even at the same or higher voltages than some of Transpower's assets.

We believe to encourage greater use of renewable electricity, new significant renewable energy generation will require easy access to resilient and reliable electricity distribution assets. Protection of all high voltage assets (regardless of ownership) will therefore become more important than ever. An easy way to achieve this is by including EDB high voltage assets in the NPS.

By way of example, while we had good success when we engaged on the Christchurch District Plan consultation last round, we believe this is an inefficient or non-cost-effective means of achieving planning protection for our network. This approach requires a lot of resource committed hours and third party lawyer fees. If the NPS covered EDB assets, it would have saved us this time and cost. We will face the same time and cost once again in a few more years when the District Plan is reviewed again, unless EDB assets are brought into the NPS.

We cannot comment on whether all other EDBs have the resource to pursue this on a regular basis or whether there was good success with their own local district plans. This means that outcomes for EDB asset protection may be inconsistent across NZ.

Q7.3 – 7.22 No response

Section 8 Supporting renewable electricity generation investment

Q8.1 -8.6 No response

Q8.7 Do you consider the development of the demand response (DR) market to be a priority for the energy sector?

While we want to facilitate the development of a wider and deeper demand response market, we must retain the significant DSM benefits that we currently share with our customers, that are associated with our demand response initiatives already in place. For Orion, these include:

- a significant amount of deferrable residential and small commercial water heating load and some space heating load has been shifted to off-peak night periods in response to lower off-peak pricing, and
- customers have provided access for us to manage water heating load within service level targets to reduce peak loading levels.

We also need to be sure that the benefits associated with any alternative use of this load exceed the benefits lost. As a distributor, prior to losing access to these loads, we will need to build and reinforce the network to accommodate the higher peaks. These assets have long lives, and once that investment is made, the benefits associated with peak load reduction are extinguished in the short to medium term – a decision to move away from peak load reduction is a long term decision.

More broadly, the coordination of load that is likely to be a feature of a developing demand response market poses a real and significant risk. The diversity of unmanaged load is a very efficient attribute that allows us to reduce the size and cost associated with our delivery infrastructure. To help explain this, consider that a typical house has probably 50kW of appliances of various sorts that might be turned on at some point, but the house will happily get by with a 15kW (60 Amp) supply fuse, and will then probably only set a peak maximum demand of around 8kW to 10kW. Taking a step further, the peak load of that entire residential street is likely to work out at less than 5kW per household, and when we look at the high voltage system further up the network, diversity has further reduced the peak contribution of each household to less than 3kW. This is normal human diversity – we all do things at different times.

Coordinated demand response puts this diversity at considerable risk, and we have a lot more to lose than we have to gain. We have longstanding first-hand experience of this challenge – a good example was our Day'n'Night pricing in the 1990s when we were still a retailer and a distributor (called Southpower). This pricing offer attracted such a response that many residential electrical feeders started peaking at 11pm when our low-price period began. Since that time the pricing has been modified several times to address the issue. We therefore need to be sure that any demand response initiative can first improve on natural diversity before it is undertaken.

It is also important that multiple actors in this space can coordinate their activities. For example, if separate demand response coordinators elect to restore supply at the same time, the load increase could put system security at risk. At best, independent systems can create unstable loading patterns as they respond to each other's loading changes, and at worst, outages could occur.

Electricity distributors physically aggregate load and are naturally placed to provide cohesion between and coordination of demand response providers. We consider that development of a demand response market must first begin with the development of a platform for demand response activities.

Q8.8 No response

Q8.9 What are they key features of demand response markets? For instance, which features would enable load reduction or asset use optimisation across the energy system, or the uptake of distributed energy resources?

We align with the list of features provided by ENA, with the addition of 'long term certainty'. While demand response is a useful tool, one of the dangers with third party demand response is the longevity of the company offering that demand response. Stopping the demand response activity, particularly an abrupt stop, can have perverse outcomes.

We provide the following scenario by way of example. An EDB may not have upgraded its system for say, winter peaks, as it had planned for it to be addressed by demand response. Then, say in March, the company offering demand response stops offering it. If this occurs, the EDB likely would not have enough time to design the necessary upgrade, order and receive the necessary equipment, and then install the new equipment before the winter peaks occur. At that point, customers would be left with either no power or an expensive emergency fix (and potentially polluting as it would likely be diesel generation).

Consequently, long term certainty of demand response being available would be required if Orion were to rely on it over network build.

Q8.10 What types of demand response services should be enabled as a priority? Which services make sense for New Zealand?

The greatest opportunity for demand response lies with two technologies – hot water cylinders and electric vehicles. Batteries also offer some opportunity, although this opportunity is likely to be more into the future.

Given the importance of EV demand response, standardised, interoperable communications protocols for EV charging stations is desirable. This would require mandate by government on EV charger products that can be sold in NZ complying with appropriate international or Australian/New Zealand Standards.

Q8.11 & 8.12 No response

Q8.13 Do you support the proposal to require electricity retailers and/or distributors to meet energy efficiency targets? Which entities would most effectively achieve energy savings?

We have some reservations about this policy direction, which does not appear to recognise or work with the existing incentives for efficiency at the distribution level. Targets potentially introduce an additional level of complexity for EDB's, without addressing issues that currently prevent the existing system from working in the optimum way. We suggest those underlying issues – outlined below, be addressed before the policy system is further adjusted. This will result in more sustainable outcomes for our community and New Zealand as a whole.

The Commerce Act already promotes incentives and removal of disincentives for EDB's to invest in energy efficiency and demand side management. These measures are actively pursued by Orion.

By way of example, Orion has a near 20 year partnership with Community Energy Action and we are also developing a number of partnerships to improve the effectiveness of electricity use in the region. This is in addition to our network level demand response activities.

We believe the conversation, particularly in the context of residential and small business customers, should be about the effectiveness of electricity use to achieve certain key outcomes for a building or process, for example warmth, light and heat levels for a community building. Effective electricity use then becomes about how efficiently electricity can be used to achieve those outcomes, rather than simply being about turning off electrical appliances. Real time visibility of electricity use is key in introducing these measures, as customers are then able to track the immediate difference a change in behaviour has produced. One of the easiest solutions in this space is to improve access to smart meter data for all parties.

The efficiency measures discussed above are retrospective, which aim to achieve efficiency gains within existing structures. Whilst as a distributor we can influence energy efficiency, we are ultimately not the decision maker when the structures that use electricity are built or approved. We suggest a proactive solution could be giving consideration to improvements in building standards for new and redeveloped sites, to promote improved efficiency.

We also note that low user fixed charge regulations force EDBs to recover much of their revenue from volume prices, which can run counter to the Commerce Act incentive to encourage efficiency and inhibits efficient restructuring toward more cost-reflective pricing. We are of the view that LUFC should be transitioned out of, as soon as possible, to reduce this tension.

Q8.14-8.16 No response

Q8.17 This policy option involves a high level of intervention and risk. Would another policy option better achieve our goals to encourage renewable energy generation investment? Or, could this policy option be re-designed to better achieve our goals?

We support development of renewable generation including off-shore wind. We note that any electricity generation closer to the load will produce less system losses and less requirement for additional capacity at a transmission level.

One of the major risks potential developers of off-shore (and on-shore) wind farms face is uncertainty over future electricity demand levels. Currently there is lots of discussion for the need for increased utilisation of NZ's renewable electricity however there are few government policies in place that ensures this occurs. Whilst recognising this consultation document is focusing on what can be done to aid the transition, it specifically doesn't examine EV's.

We believe enhanced Government policies on increasing EV uptake are vital, and we encourage the Government to do more in this area. We note with disappointment the recent cancellation of the proposed feebate scheme.

Q8.18 -8.24 No response

Q8.25 Do you support the managed phase down of baseload thermal electricity generation?

Q8.26 Would a strategic reserve mechanism adequately address supply security and reduce emissions affordably during a transition to higher levels of renewable electricity generation?

Q8.27 Under what market conditions should thermal baseload held in a strategic reserve be used? For example, would you support requiring thermal baseload assets to operate as peaking plants or during dry winters?

We strongly support the reduction of fossil fuel use in NZ's electricity mix, but also recommend technical consideration of the role of different renewables on New Zealand's electricity system, not simply at the point of generation. There should be a clear delineation between generation that is renewable and generation that reduces New Zealand's carbon emissions.

By way of example, we know of no comprehensive study examining whether solar in New Zealand will reduce carbon emissions, other than a Concept Consulting report that showed that solar would increase the use of polluting generation plant during winter peaks.

Consequently, before the government promotes all renewable generation as reducing carbon emissions, we would encourage further analysis on the long term carbon impact of different forms of generation within the New Zealand system.

An analysis of this type, ideally considering all new decarbonisation technologies, would also help electricity companies guide their pricing efforts. An example is that pricing of electricity in a manner that encourages solar uptake may be at the expense of encouraging EV uptake. Consequently, knowing the relative potential for different technologies to aid New Zealand's decarbonisation efforts would be helpful.

An analysis of this type would also help in balancing the equity difficulties associated with the introduction of new technologies and their affordability for low income families.

Q8.28 What is the best way to meet resource adequacy needs as we transition away from fossil-fueled electricity generation and towards a system dominated by renewables?

Q8.29 Should a permanent capacity market which also includes peaking generation be considered?

Q8.30 Do you have any views regarding the above options to encourage renewable electricity generation investment that we considered, but are not proposing to investigate further?

We note there is little consideration of the impact of promoting different types of renewable generation on carbon emissions as compared to other measures to improve NZ Inc's carbon emissions.

By way of example, improving the uptake of EV's has measurable benefits to both carbon emissions and our economy. While we support other policy measures to reduce carbon emissions AND recognise that this discussion paper does not include transport measures – the two are linked. We strongly support measures to increase the uptake in EV's, along with better information about where they are located, for example through access to registration information and/or smart meter data.

Section 9 Facilitating local and community engagement in renewable energy and energy efficiency

Q9.1 Should New Zealand be encouraging greater development of community energy projects?

We support this, provided participants have adequate support to understand the implications and costs of different options.

Q9.2-9.8 No response

Section 10 Connecting to the national grid

Q10.1 Which option or combination of options proposed, if any, would be most likely to address the first mover disadvantage?

The issue of first-mover disadvantage has always been a feature in our industry. At the smaller EDB scale, this is most often seen in a farming setting, where the first mover commissions a line extension, then, further down the track, the extension is used by others.

Customers will always be at different stages in their planning and decision making processes, and we do not think it will be feasible to get multiple parties to agree to cost sharing arrangements for an upgrade. We also expect that there will be situations where customers are in competition and do not wish to share their plans.

The most common mitigating measure among EDBs is to operate a prorated transfer from subsequent customers to the initiating customers. Effectively, the first mover pays the full share of capital costs (either as an upfront or ongoing payment) and then, if a subsequent customer joins, a calculation is done to reallocate costs (to the extent that future capital costs have been pre-funded), to establish an amount payable by the new customer and refunded to the first customer.

With the scale of transmission upgrades, we think that a similar approach could work in this situation. Further, including such a provision would not preclude (and would actually encourage) multiple customers to jointly develop an efficient solution in situations where this can be done.

Finally, we note the GRS (Grid Reliability Study) in the code currently does not reflect either decarbonisation or resilience issues. It is prescriptive and tends to favour short term solutions. So allowing additional economic benefits to be included outside the limited prescription could be helpful.

Q10.2 -10.14 No response

Section 11 Local network connections and trading arrangements

Q11.1-11.3 No response

Q11.4 What changes, if any, to the current arrangements would ensure distribution networks are fit for purpose into the future?

Connection of distributed generation is currently regulated to be on a first-come-first-serve basis, with the first movers having access to all available capacity for export associated with distributed generation at no cost. This is the opposite of the first mover disadvantage covered above, and may lead to inefficient outcomes. For example, over-sized PV installations may preclude the connection of more appropriately sized installations on the same feeder.

We note the Electricity Authority's recent consultation on integrating hosting capacity, and we support changes that would allow distributors to share export capacity across contributing customers.

Yours sincerely

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