



28 March 2021

Climate Change Commission

To whom it may concern

**Re: 2021 Advice Report**

## Summary

Orion Group are in agreement with the topics and themes of reduction in the Climate Commission report (Report), but would like to see faster emission reductions to 2030, in line with the 1.5 degree global climate goal:

- Our primary recommendations are:
  - a. Cross-regulatory coordination is vital to enable the transition;
  - b. Equitable allocation of cost for increased electrification requires a combination of pricing methodology, financial support for network upgrades and easier routes to VERs;
  - c. Action is required so customers can access ½ hourly energy use information in real time; and
  - d. Increased resourcing needs to include consideration of digitisation and human capital investment
  
- We also suggest that the Commission considers:
  - a. Greater funding and awareness around native forestry;
  - b. Standardisation on the use of offshore VERs – for voluntary offsetting and as part of the NDC;
  - c. Maintaining the ability to use NZUs in voluntary offsetting;
  - d. Facilitating standardisation of EDB network design and equipment;
  - e. National battery recycling investment; and
  - f. Developing maturity in embodied carbon accounting.

## Introduction

Orion is the electricity distribution business for central Canterbury. **Orion Group** includes Connetics, who design, construct and maintain overhead and underground lines and associated equipment, provided for the delivery of utility and infrastructure services.

We are the stewards of over 8000km of lines and cables and deliver electricity to around 205,000 customers around the Canterbury region. Connetics also provide support services across the South Island and in the Wellington region. Together, we are a passionate advocate for clean energy and seek to proactively enable those seeking help to reduce their carbon footprint, to deliver on our purpose of *powering a cleaner and brighter future*.

We consider that we are the guardians of an important resource - our service is vital to the wellbeing and livelihood of the people and businesses in our region. This responsibility drives us to understand more about the impacts of climate change on our operations, both physical and transitional. It is vital that our planning and adaptation ensures our network and our business can continue to be safe, reliable and resilient while meeting the needs of our community.

Orion Group face a period of significant uncertainty, which demands a new level of resilience and agility in response. Our actions to support the low carbon transition should be focussed, impactful and flexible enough to allow easy change. To that end, we have adopted design principles to guide decision making in its evolution. We share these below as they also guide our submission.

1. *We are responsible in our evolution and ensure whatever steps we take will not impact the ability of customers to access clean energy.*

Clean energy underpins current and future wellbeing for our community. It is vital we recognise and live up to the importance of our role in helping a resilient transition to a low carbon future.

2. *True adaptation is customer-centric*

We do not operate in isolation. Our future network must adapt to the future needs of customers, while accommodating the changes in our operating environment. For this to occur, customers must be actively involved in identifying adaptation pathways that meet their needs.

3. *Action taken is informed by science and results are measured and reported wherever possible*

We are subject to an objective external pressure – what science demands in order to keep warming within 1.5 degrees C. We will avoid action that jeopardises this planetary boundary.

4. *Our group strategy sets the direction and emphasis of action*

We have an outward facing group strategy. Action is assessed and prioritised based on the positive impact it creates for the region, the industry and the country.



## 2021 Advice for Consultation

### We support action that keeps warming within 1.5°C

Orion welcomes the Climate Change Commission's (CCC) draft advice to Government (**Report**) and support any action to lower emissions in a systemic way. However, we do support more significant reductions, particularly in the second budget, on the basis that the next 10 years are critical in achieving the global climate goal to keep heating within 1.5 degrees.

We are also a member of the following organisations, whose submissions we support:

- Electricity Networks Association (**ENA**)
- Climate Leaders Coalition (**CLC**)

We have some additional comments on areas of particular interest to Orion. These are divided into comments on:

- Mitigation
  - a. Transitional adaptation
  - b. Electrification
  - c. Bioeconomy
- Voluntary offsetting
  - a. Native Forestry
  - b. NZUs and VERs

### Advice principles

#### *Consultation question 1*

The principles-based approach to the advice report is supported. We would like to see the emphasis in Principle 1 shifted to make the 1.5-degree global climate goal the key driver in decision making, in accordance with the purpose of the Climate Change Response Act (2002), then subsequently to reference the 2050 targets.<sup>1</sup>

We also suggest that Principle 4 [avoid unnecessary cost] and Principle 7 [leverage co-benefits] be considered together. A holistic view of cost should be taken when deciding a course of action – this includes the cost of inaction and the value generated through early transition.

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<sup>1</sup> Climate Change Response Act 2002 s3(1)(aa)(i)

## Electrification

The Report states *barriers to rapid electrification will need to be systematically addressed. For consumers and industry to invest and convert to electrification, they need to have confidence that electricity will be available, affordable and reliable.*

We are ready to support the low carbon transition. This requires the key enablers summarised below, which we cover in more detail later in the submission:

### 1. Transitional Adaptation

- a. Cross party and cross government support for shifts in how enabling legislation works together, in order to optimise:
  - i. *Deployment and retirement of physical assets* to deliver the transition, for example lines or cables – or batteries and solar generation; and
  - ii. *Digital assets*, for example control software, mapping and modelling software
  - iii. *Human assets*, to design, deliver, maintain and explain the physical and digital assets
  - iv. *The flow of energy use information*, used to support customer behaviour [feedback loops] and optimise pricing to incentivise desired demand behaviour
- b. Behaviour change, which is facilitated by a co-ordinated government approach and assists with management of demand.

### 2. Distribution

- a. Management of demand for energy – in terms of the amount demanded and the time it is required, through efficiency and behaviour change action, in order to maintain:
  - i. availability
  - ii. quality
  - iii. affordability

### 3. Generation

- a. Increasing the supply of energy to deliver on demand, both:
  - i. Traditional 'linear' generation
  - ii. Enabling low emission distributed generation

To provide some context, our FY20 peak demand was 606MW and early indications are that there is up to 340MW of non-renewable load from thermal boilers in the Canterbury region, This figure is yet to be validated and we expect the final figure to be lower, as electric heat pump systems have co-efficiency of performance which will reduce the electricity demanded, but it does give an indication of the nature of the challenge distributors (and the broader sector) face.

## Transitional Adaptation

### Regulatory coordination

Enabling recommendation 2	Consultation question 6
Time critical necessary action 3a	Consultation question 15
Necessary action 10	Consultation question 15
Necessary action 15	Consultation question 19

#### **We strongly support a long-term national energy strategy**

A strategy will encourage the type of co-ordinated approach along the energy value chain and across government, that has been lacking to date. A coherent strategy will also avoid the type of siloed behaviour that can produce inefficiencies or barriers in the low carbon transition.

We suggest any energy strategy should include consideration of:

- Deployment and retirement of transmission and distribution physical assets, including how to speed up this process without unintended consequences
- Facilitation of uptake of digital assets that will enable the transition
- Support for the human capital that will be required for the transition
- Release of ½ hourly energy use information direct to customers in real time
- Equitable allocation of costs at an energy system level

#### **We strongly support co-ordination of regulation to support climate action across government agencies.**

Orion continues to see issues where regulation runs counter to climate action or has unintended effects.

For example, the Commerce Commission is still unable or significantly restricted in its ability to take account of:

- actions to install infrastructure that facilitate emissions reduction (like EV chargers);
- sustainability, or
- innovation

In addition, delivery of supporting regulatory controls such as Worksafe recommendations and electrical standards for matters such as EV charging should balance the goal of primary legislation with the need to avoid a chilling effect on decarbonisation. This is not currently achieved.

It is important to recognise that the current regulatory regime for EDB's means that increased investment in infrastructure, even if demand management is used, will have a downstream effect on customer price. In considering regulatory changes, government should consider the fair allocation of costs amongst those (the NZ public) who will carry the burden.

An equitable transition requires significant balancing support for those vulnerable communities least able to carry increased costs in the short to medium term. Regulatory co-ordination must be considered in alignment with electricity price methodology and further policy action to make it easier for businesses to find new means of funding their transition (for example VERs). We cover this topic in more detail later in our submission.

If regulatory constraints incentivise rather than discourage decarbonisation activities, a number of co-benefits can be realised. For example, in the case of EV infrastructure:

- we can actively partner with organisations to facilitate fleet electrification and alleviate costs
- multiple chargers can be installed around the network in optimal positions for both parking and network load, for example close to transformers
- Network losses would be reduced due to optimised deployment of chargers
- Charging during the day can be managed and encouraged
- Load on the residential LV network at night can be reduced

**Co-ordinated government intervention and funding for on-shore reuse and recycling of large batteries presents an equitable transition opportunity in a new market and is strongly supported by Orion.**

Multi-sector and governmental co-ordination is vital in managing the inevitable downstream effects of transition. We are of the view it is unlikely the private sector alone will resource circular recycling of lithium ion batteries fast enough address the upcoming surge in EV batteries, as it is likely exporting or dumping the issue will remain a least cost option for a number of years.<sup>2</sup>

We see the environmental impacts of dumped batteries as an emerging problem and unless addressed, it is an argument some could use to delay uptake of EVs.

**We strongly encourage engagement of regional and local government with local EDB's in considering the climate transition.**

Strategic documents such as a Regional Transport Plan are fundamental to enabling NZ to reach its reduction goals, but successful implementation of these plans depends to a large extent on good knowledge of the local distribution network. If EDB's are involved at an early stage, input can be provided to optimise any regional or local district decarbonisation plans.

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<sup>2</sup> Currently even when recycled, batteries are shipped (at an emissions and monetary cost) to Australia for chemical treatment, while the remaining components are then shipped (at further emissions cost) to Europe to be incinerated, releasing dioxins into the atmosphere.

## Behavioural change

Necessary action 16	Consultation question 19
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### **Successful behaviour change requires effective feedback loops. We strongly support free access of customers to their real time energy use information.**

The Report relies on demand-side energy management and efficiency gains to help keep electricity affordable.

*Active* energy demand-side management relies on behaviour shifts, either through:

- seeing the benefit and accepting distributed control of an energy consuming asset, such as a hot water cylinder or an EV; or
- responding to signals (usually price) to shift demand for electricity and realising the benefit that results

*Passive* demand side management, specifically efficiency gains, gains traction when customers can see the effect and benefit of their purchase or design decisions.

Customer access to their ½ hourly electricity consumption data in real time, without having to install additional equipment, would be hugely beneficial in establishing these feedback loops. This can currently be achieved with behind the meter equipment, which is a costly and inefficient measure, the cost associated with this equipment being particularly pertinent to residential and SME's. If customer access to their energy use information is slowed or stifled, customers can't see the effect of their use decisions *in real time* or as close to this as possible.

A free flow of real time electricity use information to a customer, without investment in additional monitoring technology, is also a key enabler of understanding, planning and participation in potentially innovative reduction or distributed generation measures. If information is controlled by one entity, innovation is stifled or subordinated to the goal of that entity – whether it be philanthropic or profit-driven. If customers have the control, competition is encouraged, and diversity will facilitate innovation.

## Generation

Necessary action 5	Consultation question 15
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### *Optimise use of existing assets*

Distributed generation should be encouraged alongside optimisation of generation from existing generation assets. Traditional generation assets are operated to maximise value to shareholders, a goal which cannot be assumed to be in lock step with a low-cost carbon transition. If operation of existing assets (particularly hydro) is not optimised, inefficiencies could result in the dispatch of higher-emission generation to cover peak periods.

*DER to assist with dry-year risk*

The energy sector is aware that managing dry-year risk is vital to reliability of low-emission electricity supply in the future. Increased levels of DER should help reduce this risk by keeping more water in southern lakes all year round, or at least while DER is able to generate.

*Maintain a resilient distribution system*

We support facilitation of distributed generation, as the transition from a linear to a redistributive platform will improve resilience of the network in the long term and reduce losses by moving generation closer to end use. We already support diesel DER on the network due to learned behaviour from the 2011 earthquake event, so any incentive to encourage low emissions alternatives to this generation is considered an excellent outcome by Orion.

By targeting vulnerable communities first in supporting DER, an equitable transition is made more likely. We also suggest that in instances where large users of energy wish to transition, they are incentivised to explore distributed and sharing solutions with their local community, rather than operating in isolation in installing generation on site.

**Distribution**

**Availability**

Time critical necessary action 2	Consultation question 14
Necessary action 1	Consultation question 13
Necessary action 5	Consultation question 15
Necessary action 7	
Necessary action 9	

For a customer to use electricity instead of fossil fuel, it must be available when they need it, every time they need it. Availability is a combination of supply and the capacity of infrastructure to deliver energy to meet demand. There are three touchpoints that distributors can influence.

Supply side measures:

- facilitate DER (discussed above) to increase *supply*
- build bigger or smarter network to accommodate increased *supply*

Demand side measures:

- influence behaviour to reduce the *amount* demanded or change the *time* it is demanded



As previously stated, all of these measures require resource:

- *Physical assets* to deliver the energy, for example lines or cables – or batteries and solar generation; and
- *Digital assets*, for example control software, mapping and modelling software
- *Human assets*, to design, deliver, maintain and explain the physical and digital assets
- *Information*, used to support customer behaviour [feedback loops] and optimise pricing to incentivise desired demand behaviour

### **Resource supply side measures**

#### *Promote a cross-government and multi-sector energy strategy and approach*

We are currently hampered in our deployment of low-emission appropriate network by a regulatory environment that in some instances pulls directly counter to the suggestions of the Climate Change Commission.

We also note that Orion is limited in supply by what can be generated within its network region and what can be delivered through GXP's. If additional grid resource is required, the timing of delivery of transmission upgrades may be one of our biggest constraints.

#### *Enable more industry training*

When considering resource for distributors it is important to consider human capability. Increased demand brings with it an increased need for people to manage the electricity transition and design, build, maintain and operate our future distributed network. The Energy Academy is our active step in managing this future capability requirement, but government support and incentives for training or retraining from sunset industries must be part of the equitable transition described in Necessary Action 1.

#### *Fund digitisation*

There are a number of smart technologies available to help electricity networks get the most out of their existing assets – for example PORT. This improves the network 'brain' to make it more reliable and resilient while minimising change to existing physical assets. Resourcing appropriately should include funding for this type of innovation.

#### *Encourage standardisation of design wherever possible*

Supply chain vulnerability is an emerging risk for Orion. The majority of our equipment is sourced internationally, often transported long distances and assembled in multiple locations. Delivery of electricity to satisfy increased demand may come at increased financial cost in the short to medium term, as international manufacturers also face their own climate transition.

Encouraging standardisation and sharing of distribution design and resources amongst EDBs would help mitigate this risk and improve installation and maintenance efficiencies.

#### *Improve maturity in consumption-based carbon accounting*

All physical assets introduced contain embodied carbon and we were encouraged by the discussion of consumption-based accounting methodology in the Report. It is our view that in order to optimise the sustainable design of an energy solution, consideration should be paid to both the embodied carbon in the various solutions, alongside the benefit in terms of mitigation they may bring.

To provide an example, Orion has a significant amount of pole replacement programmed over the next 10 years. An LCA on the comparative environmental footprint of different poles was carried out to help decisions about 'right pole, right place' and guide our approach to pole disposal. This revealed that wooden poles (an HWP) are carbon negative when reused or recycled and their use on the network influenced the fact that installation of poles on our network in 2019-2020 was actually negative 319 tonnes of carbon.

Building maturity in this area as a country is strongly supported by Orion. It is our view that holistic emissions reduction should be optimised at the time of design, to avoid legacy issues for future generations.

### **Resource demand side measures**

#### *Improve efficiency in building stock and appliances*

We strongly support any improvement in the efficiency of existing and proposed building stock.

We also strongly support expanded assistance for vulnerable families to avoid inequitable outcomes if any increased costs are passed on.

#### *Alleviate the cost of network upgrades*

We support the assistance proposed, as while distributed generation is part of the solution for many, it often does not avoid the need for network upgrades which can be costly. We support policy action that incentivises a co-ordinated or community approach to energy design, for example facilitating energy sharing amongst a community and a large user. This approach could help incentivise innovation and remove barriers to entry for communities who may otherwise be constrained from using distributed generation or participating in energy sharing schemes.

#### *Remove barriers to development of demand management*

Currently to smooth peak load, we

- issue 'control period' price signals to major customers, who have subscribed to this price plan. Subscribed customers respond by reducing their demand for electricity at peak times, either by using distributed generation (ie diesel powered generators) or by choosing to time their heavy demand for off peak times.
- use 'ripple control' signals, matched with pricing plans, to control when hot water is heated at residential properties who have signed up to this approach. This schedules water heating to occur off peak (i.e. typically overnight).

Current regulations restrict how EDBs can set charges for services, and this likely masks the impact that a demand response market could have, disincentivising development of this tool.

Regulatory change, alongside ensuring customers have access to their ½ hourly data in real time, could better enable use of demand management by distributors.

### **Affordability**

Necessary action 5	Consultation question 15
Necessary action 9	

We have given detail about what can be achieved by distributors to electrify more quickly, with the right resources. It is important to remember that (depending on regulatory shifts) these resources represent a cost to our customers. We have a responsibility to be considered in how costs are allocated, to avoid inefficiency and inequitable outcomes.

To provide some context, our costs comprise around 26% of an average electricity bill and even if we reduce our prices, savings are often not passed on to customers.

In our latest AMP, we have forecast total network and non-network capital expenditure over the next ten years of \$745m and operating expenditure of \$649m.<sup>3</sup> This results in an average cost increase per customer of around \$12.50 per year. Based on the work done to date to catalogue boiler conversions, we can expect a further increase in forecast expenditure over the next 10 years to accommodate the additional demand that will be coming.

We are of the view that affordability is assisted by:

- funding improvement of demand side efficiency
- appropriate allocation of costs through the pricing methodology to avoid inequitable outcomes and enable development of demand management
- facilitation of the free flow of ½ hourly energy use data to customers in real time
- opening the ability for customers to (if desired) have more than one retailer
- encouragement of distributed generation at scale – for example a community energy project

## Quality

Necessary action 5	Consultation question 15
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*We support consideration of the need to ensure electricity quality in any national energy strategy.*

Distributed generation has many benefits, but may require new ways of managing voltage to ensure the quality of electricity delivered continues to be within the desired parameters.

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<sup>3</sup> this forecast expenditure does not yet include upgrades associated with process heat conversion.

## Bioeconomy

### Biofuel

Necessary action 4	Consultation question 14
Necessary action 6	Consultation question 15

*The Report could benefit from definition of 'bioeconomy' 'biogas' and 'biofuel'.*

*We support the development of biofuels as a solution for hard-to-abate sectors and a way to retain resilience during a network transition period.*

By way of example, we know a lot of our customers have generators for resilience (earthquakes) and use them to respond to our control period pricing and mitigate costs. The use of biodiesel instead of mineral diesel retains resilience while battery technology is being developed, but enables emissions to be reduced.

Support in both reducing the cost of circular biofuel solutions and ensuring continuity of supply is vital to uptake. We have trialled 100% biodiesel made from used cooking oil in one of our generators, which has been successful. It is a high-quality fuel, but is constrained in supply, an issue which is exacerbated by commodities pricing that incentivises selling raw ingredients offshore.

### Biogas

Necessary action 9	Consultation question 15
Necessary action 13	Consultation question 18

Many households will not understand what is meant by 'bioenergy', we suggest more discussion of this transition is appropriate, including the role of biogas and the distinction between biogas and fossil natural gas.

*We support further investigation of the potential for Anaerobic Digestion (AD) as a distributed generation possibility, particularly in the rural and food sectors.*

Landfill gas capture is a relatively inefficient way to capture methane associated with organic waste. AD has a role in the transition away from fossil fuels, generating a storable and transportable energy source with other co-benefits associated with the generation process.

## Voluntary offsetting

### Native forestry

Budget recommendation 5	Consultation question 20
	Consultation question 11
Necessary action 12	Consultation question 17

*We support retention of the existing step-change accounting method for post-1989 permanent (ie not harvested) forests.*

An averaging approach for carbon accounting is best suited to exotic harvested forests, that follow a short-cycle replacement sequestration path.

*We support facilitation of biodiversity credits or similar for permanent native forests or wetlands*

We note the current difficulties with carbon accounting associated with forest management and other smaller, non-forested areas such as wetlands. The issue of biodiversity credits or similar, in line with the recommendations of the Aotearoa Circle report, may incentivise this desirable behaviour, while these accounting issues are being worked through.<sup>4</sup>

*We support faster action and release of funding to incentivise native forests*

We welcome the discussion of incentivising native forestry, but the timeframe proposed is too slow and we believe momentum for planting built through the 1 Billion trees programme will be lost. We strongly suggest the timeframe for release of these incentives is shortened.

### NZUs

Budget recommendation 5	Consultation question 20
Necessary action 19	Consultation question 19

*Clarity on the role and avenues for voluntary mitigation is supported.*

We strongly support any measure that encourages businesses to mitigate their emissions, provided the incentive is to first reduce and then offset.

We support budget recommendation 5d as this enables Orion to retain the ability to voluntarily offset our emissions by using NZUs in the most robust way possible.

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<sup>4</sup> [The Aotearoa Circle Native Forests Report](#)

**VERs**

Enabling NDC recommendation 2	Consultation question 23
Budget recommendation 4	Consultation question 4

*Clarity on voluntary offset accounting, as discussed in Chapter 8 is supported.*

We strongly support continuing to enable businesses who wish to voluntarily offset their carbon emissions to access offshore VERs, provided they are audited to a suitable standard.

We support the recommendation on reporting on and meeting the NDC. The behaviour of the government in accessing offshore mitigation, including the integrity with which it chooses and audits the VERs selected will set the tone for businesses wishing to voluntarily offset their emissions using offshore mitigation. Any support for development of a rigorous international VERs market would assist businesses currently exploring voluntary offset options.