

# Climate Change Opportunities and Risks for Orion

July 2020

Prepared in accordance with the recommendations of the  
Taskforce on Climate-related Financial Disclosures (TCFD)

The Orion logo is positioned in the bottom right corner of the page. It features the word "Orion" in a white, sans-serif font, set against a dark background. A thick, diagonal green line runs across the bottom right corner of the page, partially overlapping the logo.

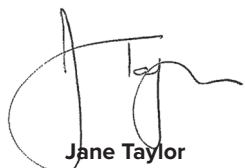


Our **Purpose** is to power a cleaner and brighter future for our community.

Our **Vision** is to lead progress, sustainability and liveability within our region and across New Zealand.

# Meeting our climate challenge



  
**Jane Taylor**  
Chair



  
**Rob Jamieson**  
Chief Executive

We are a passionate advocate for clean energy, and a proactive enabler of those seeking help to reduce their carbon footprint through more efficient use of low carbon energy sources.

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, so our network and our business can continue to be safe, reliable and resilient.

Climate change means central Canterbury is likely to face more severe droughts and more extreme weather events. Warmer summers may change traditional energy consumption

patterns. New technologies assisting the transition to a low-carbon economy will also impact our business.

This, our first report on the Climate Change Opportunities and Risks for Orion is designed to provide our community with an understanding of how climate risks and opportunities might impact our business, and what we are doing to prepare for a changed future. We also share the actions we are taking to contribute to New Zealand's carbon zero 2050 commitment.

**This report is the first step in our journey to assess the impact of climate change on Orion, and it is the baseline by which we will measure our future efforts.**







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# About the Task Force on Climate-related Financial Disclosures

## Orion has adopted the TCFD recommendations

Figure 1.1 TCFD four thematic areas



The Task Force on Climate-related Financial Disclosures (TCFD) was launched by the Financial Stability Board in December 2015. The Financial Stability Board is an international body that monitors and assesses vulnerabilities affecting the global financial system and proposes actions needed to address them. The Board established the task force to identify what information investors, lenders, and insurance underwriters would need to assess and price climate-related risks and opportunities. The task force developed 11 recommendations for companies to transparently and consistently report on climate impacts, structured around four thematic areas.

Orion has adopted the TCFD recommendations. In this report, our first, under the four thematic areas we set out the impacts of climate change on our business, now and into the future, and the actions we are taking to address them. This report will be updated annually, and will evolve over time

to reflect the growth in our knowledge, as our mitigation plans adapt to new information and what we learn as we progress on our journey.

The four thematic areas are:

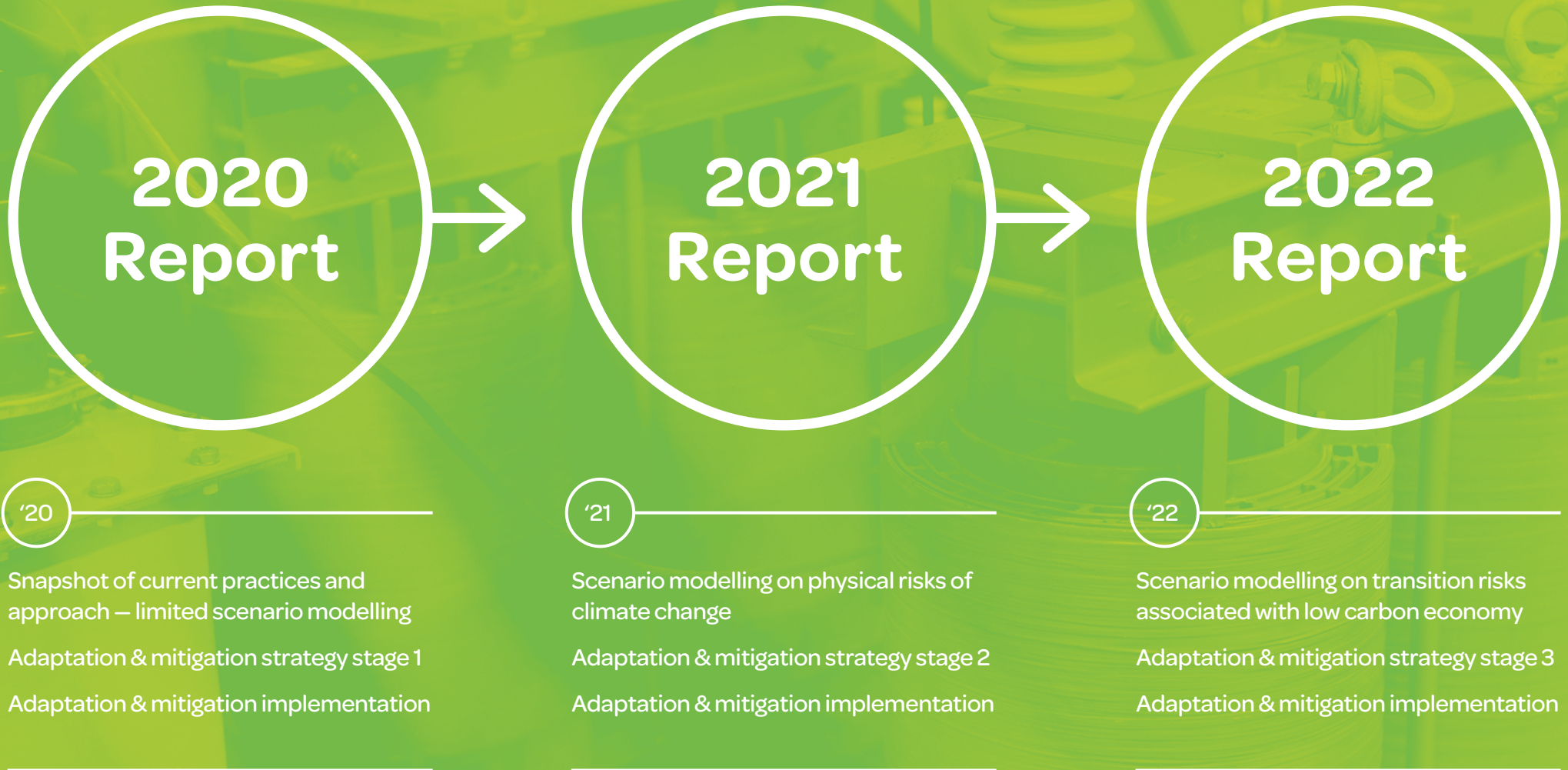
**Governance** — the organisation's governance around climate-related risks and opportunities.

**Strategy** — the actual and potential impacts of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning.

**Risk management** — the processes used by the organisation to identify, assess, and manage climate-related risks.

**Metrics and targets** — the metrics and targets used to assess and manage relevant climate-related risks and opportunities.

Figure 1.2 The evolution of our reporting on the climate impacts on Orion



# Governance

**Climate change and the disruption that will occur as New Zealand transitions to a low carbon economy are a key focus.**

**Figure 2.1** Our Purpose is reflected throughout our key plans and policies



### TCFD Governance recommendation

*Describe the board’s oversight of climate-related risks and opportunities, and management’s role in assessing and managing risks and opportunities.*

In leading Orion to deliver on our Purpose and Vision, our board of directors and leadership team are challenged to think about what a changed future may hold. Climate change and the disruption that will occur as New Zealand transitions to a low carbon economy are a key focus.

In leading the company to continue to thrive in an evolving world, we must ensure Orion is an adaptable, agile and future-fit business ready to engage fully in the changes ahead.

The board of directors is responsible for Orion’s governance. It reviews quarterly papers on the company’s key risks and emerging issues. Our leadership team is responsible for leading risk management and strategy development for Orion. They are also responsible for developing policy that guides day to day decision making in all that we do. They keep the board informed of opportunities and risks – including those related to climate change.

Our Statement of Intent sets out Orion’s commitment to economic, social, environmental and cultural sustainability and contains climate-related targets. This year our climate targets focus on reducing Orion’s operational carbon emissions, measuring and reporting on our climate-related efforts, and helping our community to decarbonise and improve electricity efficiency. These targets are approved by the board and progress is monitored quarterly in interim reports to shareholders.

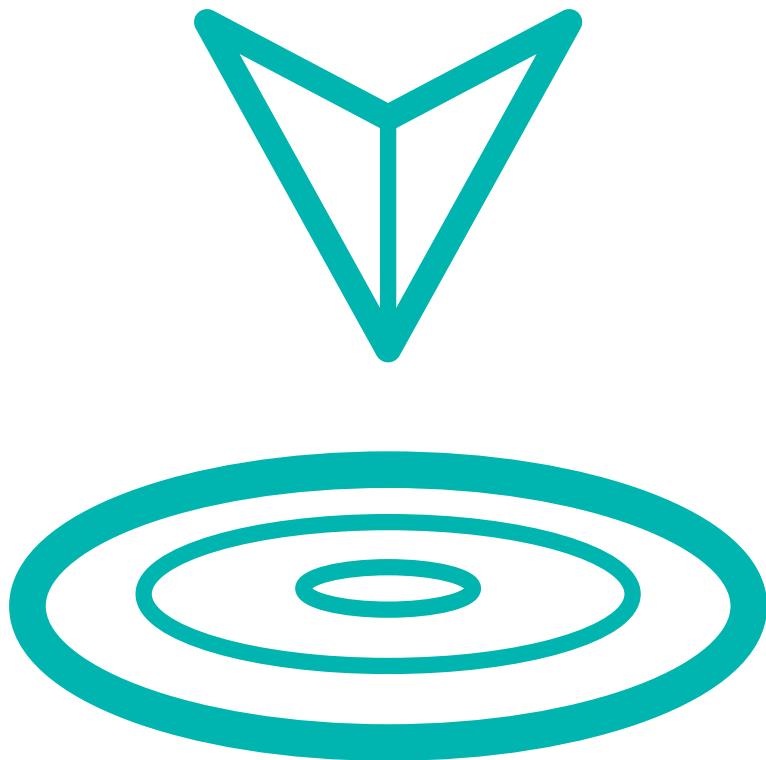
Our Purpose is core to our business strategy which is reflected in our Statement of Intent and in our 10 year Asset Management Plan. We report on our progress at most board meetings. Specific climate-related opportunities and risks are also regularly considered and assessed by the board, particularly as new information emerges.





# Strategy

The aim of this report is to provide our community with confidence in how Orion is preparing for the future.




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#### TCFD Governance recommendation

*Describe the climate-related risks and opportunities the organisation has identified over the short, medium, and long term, the impact of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning, and the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.*

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This report reflects our first qualitative assessment of the opportunities and risks presented to us by climate change. It provides us with the opportunity to set out what we view as the key opportunities and risks we face from climate change, and how we propose to address them. The aim of this report is to provide our community with confidence in how Orion is preparing for the future. To help us build our understanding of these issues, we will add quantitative analysis and introduce detailed scenario models in future reports. Because they will be managed differently, we have classified opportunities and risks associated with climate impacts separately.

#### Opportunities

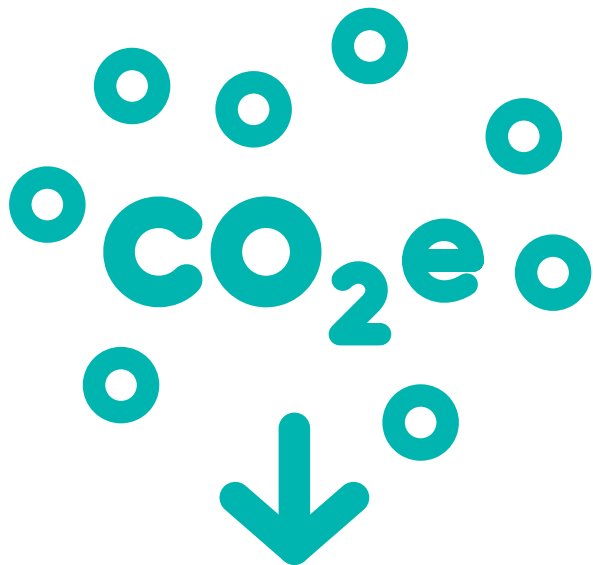
As New Zealand transitions to a low-carbon economy, the energy sector has a critical part to play, but also faces significant disruption to traditional services from new technologies, increased by climate-related behaviour change and innovation. This is an exciting opportunity for an adaptable, agile and future-fit business, which is what we aspire to be. Orion is developing an aspirational purpose-led strategy to be a vital player in that transition for our community and our region.

**The top two opportunities for Orion from climate change are set out in Table 3.1.**



**Table 3.1** Orion's key climate change opportunities

Opportunity	Timeframe analysed	Qualitative/ Quantitative assessment	Description	Strategic initiatives	Commitments and targets
<p>Enable decarbonisation</p>	<p>10 years</p>	<p>Quantitative peak demand modelling.</p> <p>(See Appendix A for modelling methodology and scenarios.)</p>	<p>The electricity industry must play a crucial role to achieve New Zealand's low-emission goals. This includes giving business and customers confidence in a low-carbon electricity grid.</p> <p>We expect demand on our network to increase.</p>	<p>We want our community to be on track to meet its interim emissions targets by 2025. This means our business needs to be across future technology and demand changes so we can actively assist customers to move away from fossil fuels.</p> <p>We have a great foundation with a robust low voltage (LV) network, well placed to handle forecast increases in demand over the next 10 years. We already manage network load using price signals and support the safe connection of distributed generation such as solar on our network.</p> <p>We're building on that with a new LV monitoring programme started in 2019, to understand future needs better. We forecast demand and target network improvements to help our future network adapt.</p>	<p>Investigate carbon reduction options for Orion that will also assist our customers and engage to improve awareness of low carbon options in business and transport</p> <p>Install more EV chargers in the Selwyn District, to bring our total to at least 50 by April 2021</p> <p>Install at least 100 LV monitoring devices around our electricity distribution network by April 2021</p> <p>Replace older sub-transmission cables in the urban area as needed to support 50-year growth plans.</p>
<p>Increase network resilience</p>	<p>10–50 years</p>	<p>Qualitative analysis</p>	<p>We have a responsibility to ensure a resilient electricity supply for our customers in the face of increasing physical events caused by climate change.</p> <p>Building resilience has always been a core element of our business. Our network is built to withstand significant physical events.</p>	<p>We have developed a transformation roadmap and are engaged with others in the industry to improve the overall resilience of New Zealand's electricity network. We also work to build and improve on our existing success with load management.</p> <p>We plan to continuously improve our understanding of conditions on our network. Introduction of dynamic monitoring and new decision-making tools will allow us to be even more responsive to changes.</p> <p>Network improvements have future resilience at the heart of our design – such as the planned replacement of oil filled 66kV cables in urban areas and improving resilience through route and supply diversity.</p>	<p>We are required to comply with targets on the duration and frequency of power outages for our customers. We publicly disclose these targets.</p> <p>We will produce an Adaptation Plan by April 2021, which will include a strategy to conduct more analysis of climate impacts on our business and our network.</p>



### Climate change and the risks ahead

Orion's network is exposed to a range of climate-related risks. In 2021 our aim is to improve our understanding of these risks through further scenario modelling and quantitative analysis of their effect on our business.

We see our greatest risk coming from climate-related changes in customer behaviour and innovation accelerating, bringing with it an increase in the likelihood of new technologies. Being an adaptable and agile business is key to Orion successfully navigating a rapidly changing environment.

We assess new technology as it emerges and continuously improve the flexibility, adaptability and resilience of our network. In this era of unprecedented change in our industry, our greatest risk is also our greatest opportunity to make a positive impact for our community.

### Physical risks

Climate change will upset weather patterns that may physically impact our network. Physical risks can be driven by extreme weather events such as wind and snow storms, or longer-term shifts such as a gradual temperature increase and sea level rise. Predictions for climate change by the Ministry for the Environment show increased westerly winds in winter and spring will create drier conditions in Canterbury, along with an increase in moderate and extreme rainfall events. Overall drought severity is also forecast to increase.

Our qualitative analysis of climate risk is based on a 15-year outlook with risks rated on a scale of low to high. Given our industry's unique regulatory environment, we have assessed the risks against our ability to meet our reliability and quality targets.

Preliminary analysis shows our biggest physical risk from climate change is likely to be from

**In this era of unprecedented change in our industry, our greatest risk is also our greatest opportunity to make a positive impact for our community.**

vegetation on our overhead lines causing power outages, severe storms, and drier conditions increasing the risk of fire. By April 2021 we will produce an adaptation plan, which will include a strategy to assess and model the effect of changes in the physical environment on our network.

### Our top four physical risks are set out in

**Table 3.2.** We have identified additional low risk associated with flooding, snowfall, changing underground conditions, increased temperature and changes in pest and disease vectors and habits.

### Transition risks

As New Zealand and the world transitions to a lower-carbon economy in line with the Paris Agreement, we will face changes to the economy, climate policy and technology as well as customer preferences and behaviour. Because the nature of these changes and the technology that accompanies them are difficult

to predict, we think our best preparation is to be an adaptable and agile business that can respond quickly. We see these changes as an opportunity.

Our qualitative analysis looks at transition risks for the next 15-years and rates the risks from low to high against the financial impact. We have indicated whether we believe this risk will increase over a 50-year horizon, when some of our network components will reach the end of their lifetime. We have modelled demand forecasting and carbon pricing to assess the potential risk level from some transitional impacts. Further analysis will be undertaken in 2021 and 2022.

### Our top four risks from the transition to a low carbon economy are set out in Table 3.3.

We have identified some additional low risks associated with reputation, insurability and cultural resistance to change which we will continue to monitor and address.



**Table 3.2** Orion's key physical risks from climate change

Risk	15-year risk assessment	50-year change in risk assessment	Impact	Risk treatment	Commitments and targets
<b>Vegetation and treefall</b>	Medium to high	Increasing	Vegetation and treefall are some of our biggest challenges in maintaining network reliability, mostly in areas with overhead network. We expect vegetation issues to increase due to weather events and higher growth rates from warmer temperatures.	<p>We have a robust ongoing vegetation management programme that will need to adapt to changes in growing conditions.</p> <p>We work with our community and Councils to explain the importance of controlling vegetation near power lines, this includes choosing the right tree to plant near our network.</p>	Vegetation management processes that are continuously monitored and improved.
<b>Severe storms and wind speed</b>	Low for urban network. High for rural network.	Increasing	Overhead lines are more at risk from severe storms and high winds, which means our rural customers are more exposed to this risk. Damage to our network due to severe storms and winds can also create a safety risk.	Our design standards for the inland network have been modified to increase network resilience to high winds. We will assess design specifications against future wind speeds as part of our continuous improvement approach to management of network assets.	Dynamic network monitoring, future-fit technical specifications and remote switching capability .
<b>Fire conditions</b>	Medium	Increasing	Drier conditions will lead to longer and more severe periods of fire risk across more of our region. This may increase the frequency and severity of network impacts from fire. There is legal risk to Orion if a fire starts within our network and causes losses to third parties.	<p>We're proactive about cutting back vegetation around our lines.</p> <p>Following Australia's example, we use real-time hourly fire risk ratings from NIWA and stop our network from automatically re-livening during times of high fire risk.</p>	We will continue to learn from fire response in Australia and the USA to update our resilience and recovery plans.
<b>Sea level rise</b>	Low	Gradual increase, particularly for coastal parts of our network.	Sea level rise over the next 15 years is likely to affect minor parts of our network. In the longer term, sea level rise will also increase the water table level in coastal areas, which reduces the season for cable work and could increase the frequency of faults in a small area of our underground network.	Since 2011, we have reduced the potential impacts of major coastal events as our key service providers have moved inland. When installing new equipment near the coast, we consider the latest sea level rise projections from NIWA to make sure the foundations of equipment are above the level of potential risk.	Continuously update design standards based on latest NIWA information and future scenario analysis.

**Table 3.3** Orion's key risks from the transition to a low carbon economy

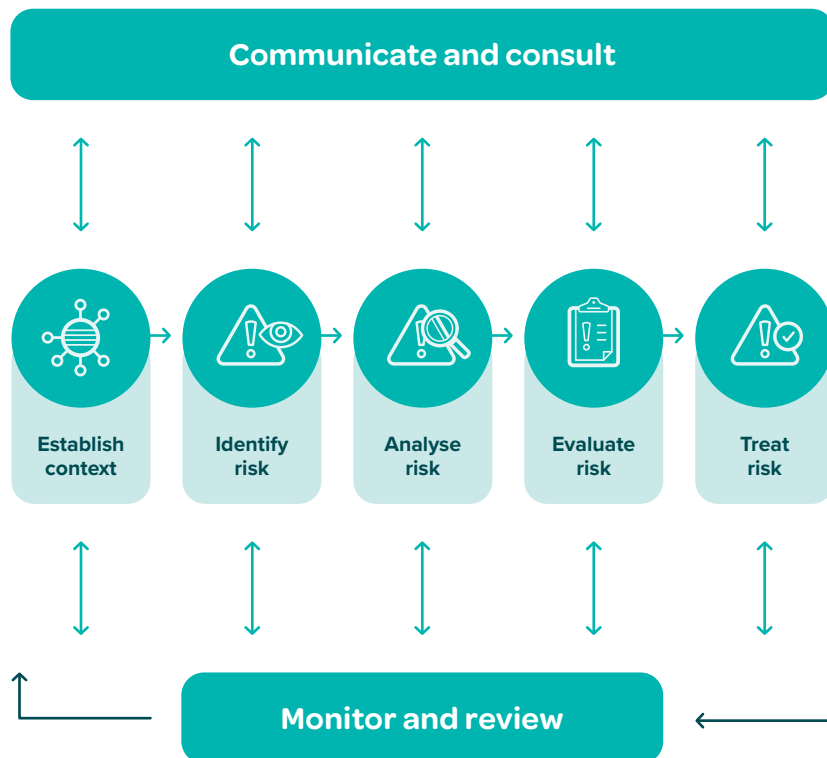
Risk	15-year risk assessment	50-year change in risk assessment	Qualitative/ Quantitative assessment	Impact	Risk treatment	Commitments and targets
New technology	Medium	Increasing	Quantitative and qualitative analysis. Peak demand modelling based on emerging technologies.	New technologies and increases in demand will create risks and opportunities for our electricity distribution network. Our network will need to become more adaptable to complex electricity flows and different customer solutions.  New technologies may mean that a traditional network is no longer the most efficient or effective energy solution.	Our low voltage network is where most multi-directional electrical flows will occur. We assess the potential impact of technologies as they emerge.  New technologies help us provide new and better services and manage our costs and risks. We will continue to adopt and invest in technologies that support these objectives.	Install further electric vehicle chargers.  Improve Low Voltage network monitoring
Regulation change	Medium	Increasing	Quantitative. Carbon price of up to \$100 used to replicate policy change.	Orion operates in a regulated market, so change in Government policy or legislation could impact the way Orion operates.	Orion has emissions reductions plans in place, we also work with the industry to align the response to climate impacts.	Participate in consultation with the government.  SF6 loss below 0.8%.
Increasing equipment costs	Medium	Increasing	Qualitative analysis	Network equipment costs could increase due to carbon pricing. Our equipment consists of emissions-intensive products such as concrete and steel. The costs of purchasing these products may increase as global carbon prices increase.	We are investigating ways to include social and environmental benefits to our procurement process, such as local supply and embodied greenhouses gas emissions.	Sustainability Procurement Strategy by April 2021.
Pricing	Medium	Unchanged	Qualitative analysis	A significant proportion of our pricing is currently volume based. If this continues, it could de-incentivise businesses from converting to electricity and slow decarbonisation.	We report annually on our pricing. We also engage with our regulator to encourage guidance that allows sustainable pricing.	Advocacy at an industry level on pricing.



# 4

# Risk management

Figure 4.1 Orion's approach to risk identification and treatment



We prioritise risks with the largest potential consequences.

### TCFD Governance recommendation

The TCFD recommends that companies describe the organisation's processes for identifying, assessing and managing climate-related risks, and how these processes are integrated into the organisation's overall risk management.

Our risk management framework is flexible, purpose-built and consistent with the ISO31000:2018 Risk Management Guideline. Our risk management processes and tools are embedded into our business operations to drive consistent and accountable decision-making.

Climate-related risks are assessed using our risk framework and consider both the consequence and likelihood of the risk. **Our approach to risk identification and treatment is detailed in Figure 4.1.**

We prioritise risks with the largest potential consequences. Quarterly reports on relevant and emerging risks are delivered to the board. Risk controls are updated into business procedures and risk registers, which are used to update the risk guideline, risk policy and other business policies.

# 5

# Metrics and targets

**Table 5.1** Orion's three year greenhouse gas emissions profile

	2018 tCO <sub>2</sub> e	2019 tCO <sub>2</sub> e	2020 tCO <sub>2</sub> e
Scope 1	710	740	953
Scope 2	16,340	13,100	14,019
Scope 3	185	190	145
<b>Total gross emissions</b>	<b>17,230</b>	<b>14,030</b>	<b>15,117</b>

## TCFD Governance recommendation

*Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process, disclose Scope 1, Scope 2, and, if appropriate, Scope 3 GHG emissions, and the targets used to manage climate-related risks and opportunities.*

Orion measures and reports on its greenhouse gas emissions annually in accordance with the Greenhouse Gas Protocol, the world's most widely used greenhouse gas accounting standards. This splits emissions into three categories – Scope 1, 2 and 3. These are defined as:

**Scope 1** – those we can directly control, such as fuel use in our fleet of vehicles.

**Scope 2** – those associated with electricity use in our buildings and electricity lost as it travels along our network.

**Scope 3** – those outside our direct control, but we choose to report and manage on those we can influence – such as air travel and taxi use.

**Our assessment of our emissions for the past three years, within each area of scope are set out in Table 5.1.**

Approximately 95 per cent of our emissions are associated with electrical losses and are

directly linked to how New Zealand generates its electricity. We take steps to limit these, for example by reducing peak load, but there are no viable solutions to eliminate these losses yet.

Our operational footprint is relatively small by comparison, typically less than 1000 tonnes per annum. We believe it is important to manage our footprint nonetheless and use our footprint to trial reduction measures that could also assist our customers.

We have committed to setting a target in 2020 and have partnered with Toitu for the last two years to measure and assess our footprint, obtaining CEMARS certification in 2019.

## Orion's metrics and targets

Our commitments and targets for monitoring and responding to the climate related risks and opportunities are set out in **Section 3 Strategy**, in Tables 3.1, 3.2 and 3.3.





# A

# Appendices

## Appendix A

### Demand forecasting scenarios

Network development is driven by growth in peak demand, so we forecast peak demand across all levels of our network, with the exception of our Low Voltage (LV) network, to ensure we can maintain supply in the future. We will investigate a framework for LV forecasting.

Our method is to forecast growth at the zone substation level and translate this up to Transpower GXP to produce a total network demand forecast. The forecast is based on four different demand scenarios – low, mid, high and potential extreme cold snap peak.

## Appendix B

### Reliability and quality targets

We have electricity supply reliability and quality targets set by the Commerce Commission that we disclose publicly.

Because of our unique regulatory environment, the financial impact of risks does not necessarily reflect the level of their impact on our business and its ability to deliver on our vision of powering a brighter and cleaner future for our community. For this reason, we have assessed physical risks in particular against our ability to meet our reliability and quality targets. The result is that physical risks in this report may be rated as higher than their financial impact may appear to warrant, but the rating reflects the actual effect on our community.



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