

Sustainability Report 2023

This report provides an overview of Chorus' Sustainability performance for FY23.

It includes the actions we're taking to identify and manage our climate-related risks and opportunities.



A note from Mark Cross:

03 Adaptation, Equity and Future-focused

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Adaptation, Equity and Future-focused

The last year has seen unprecedented extreme weather events challenge the land of Aotearoa and the people who call it home.

The impacts of climate change are real, and we've witnessed first-hand the devastation that can result. The extreme rainfall and subsequent flooding took Auckland by surprise in January 2023. Then came Cyclone Gabrielle in February 2023, leaving parts of the North Island cut off from essential utilities, including telecommunications and broadband services.

There is climate realisation across our organisation and the wider telco sector; we recognise the climate-related risks and opportunities ahead and the need for these to be front and centre of our decisions today. We are now firmly focused on our resilience and adaptation to climate change, balanced with doing all we can to mitigate risks and decarbonise our business to prevent further harm. This year we joined the Climate Leaders Coalition to show our ambitious commitment to act and drive change. Copper withdrawal and solar photovoltaics on our exchange buildings are the hero programmes to help us achieve our emissions reduction target. A programme team is considering a handful of pilot sites for our solar PV trials.

We acknowledge that we are in the early stages of our environmental and social impact journey. We have ambitious aspirations to achieve by 2030 and although we are pleased with the progress we have made this year, there is much more for us to do.

In line with recommended practice, we will review our targets annually and consider any material changes to Chorus' business or the assumptions used to model the targets and emissions reduction pathways. The impact of recently disclosed organisational changes will be considered as part of the FY24 review of the targets and emissions reduction pathways.

At Chorus, we genuinely believe fibre can deliver what's needed from a technology perspective. It combines the ability to both meet data growth demand while keeping carbon emissions low. The lower emissions profile of fibre is, in part, why we've signalled our intention to retire our copper network and focus on the technology that can bring opportunity in our global bid to reduce the impact and rate of climate change.

In addition, every person, every whānau (family) across Aotearoa, should be able to unlock the full potential of being a digital citizen. The reality today is that a significant digital divide still exists. We know that we can't solve this social issue alone. Listening to the communities we're here to connect and working in partnership with others is essential. That's why we continue to support government agency initiatives focused on digital equity. During the financial year, we gave close to half a million dollars to organisations and charities working within their communities to help close the digital divide.

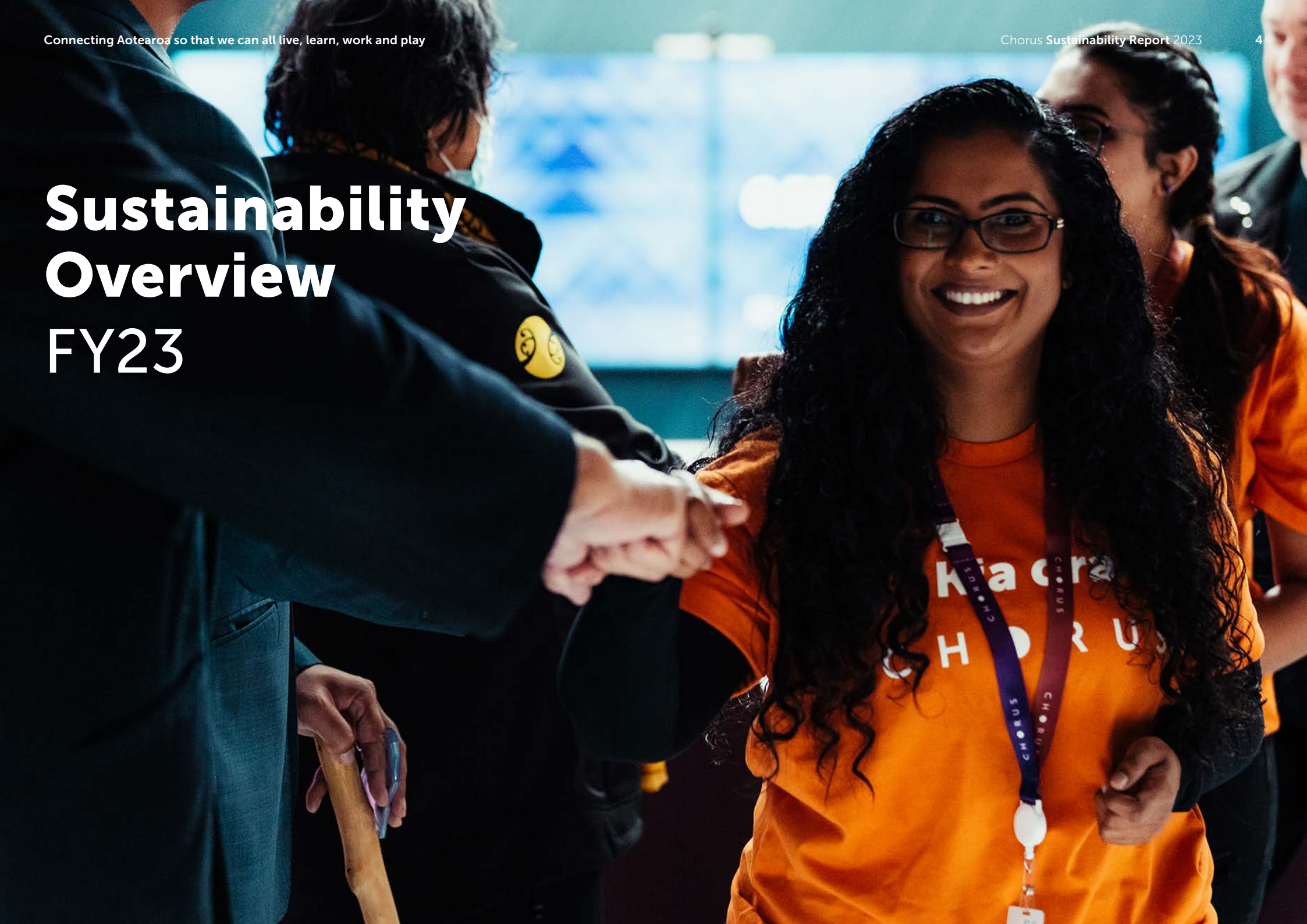
We've also introduced a new Diversity, Equity and Inclusion strategy this year to ensure we build a fair, inclusive and equitable culture where differences are our strengths, we connect on shared values, and everyone can thrive.



A handwritten signature in black ink, appearing to read 'Mark Cross', written in a cursive style.

Mark Cross
Chair

Sustainability Overview FY23



Who we are

Chorus maintains and builds the telephone and broadband networks that connect Aotearoa New Zealand homes and businesses to each other and the world.

We are an open-access internet infrastructure company that provides wholesale telecommunications services to over 90 broadband retailers. Our networks offer people, communities, and businesses greater access to ever-expanding opportunities through high-speed, reliable, and world-class fibre broadband.



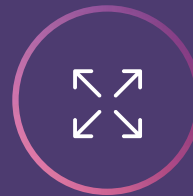
846

EMPLOYEES WORKING FOR CHORUS



2,300

TECHNICIANS WORKING ON CHORUS' BEHALF



2,4,8 Gbps

HYPERFIBRE SERVICES AVAILABLE



7,400

PETABYTES OF DATA CARRIED ON OUR NETWORK IN FY23



73%

FIBRE UPTAKE 91% CONNECTIONS ON 300MBPS OR ABOVE PLANS



4

CORPORATE OFFICES NATIONWIDE



1,271,000

FIXED LINE CONNECTIONS



14,700

CABINETS ACROSS THE MOTU



311,000

POLES OVER NEW ZEALAND



67,000 kms

DUCT NETWORK ACROSS AOTEAROA



~600

EXCHANGES ACROSS AOTEAROA



FIBRE IS PROVEN AS A LOW-EMISSION TECHNOLOGY

Our purpose

'Connect Aotearoa so that we can all live, learn, work and play'.

This means Chorus invests and innovates to deliver the best possible connectivity services for Aotearoa to help enable the environmental, economic, and social transformation ahead.

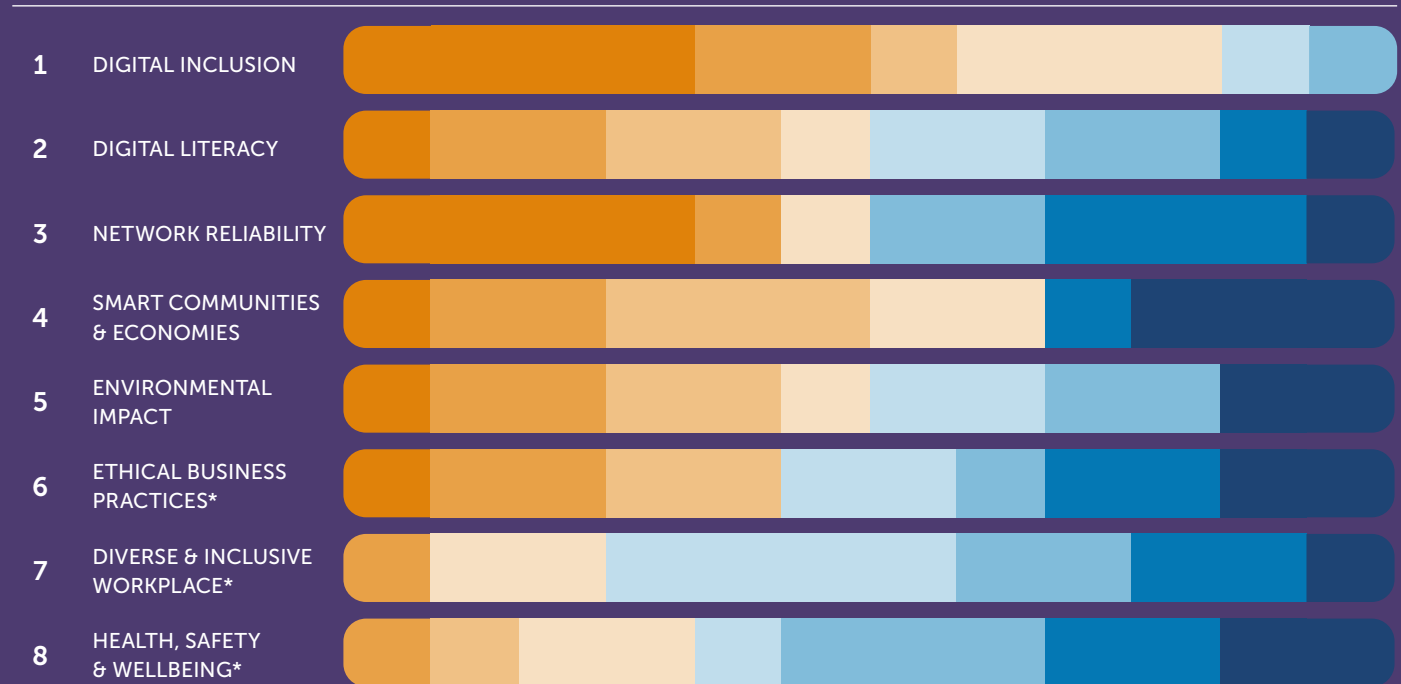
Our focus on Sustainability is guided by our purpose, by Kaitiakitanga (environmental guardianship) and Manaakitanga (acts of giving and caring for).

Over the last three years, we have worked with external consultants, most recently in 2022, to validate our sustainability approach and

run materiality assessments with stakeholders to ensure we focus on what makes business sense while supporting what's right for Aotearoa.

We asked stakeholders to rank a list of material topics in terms of Chorus' ability to create value.

RANK OPTIONS

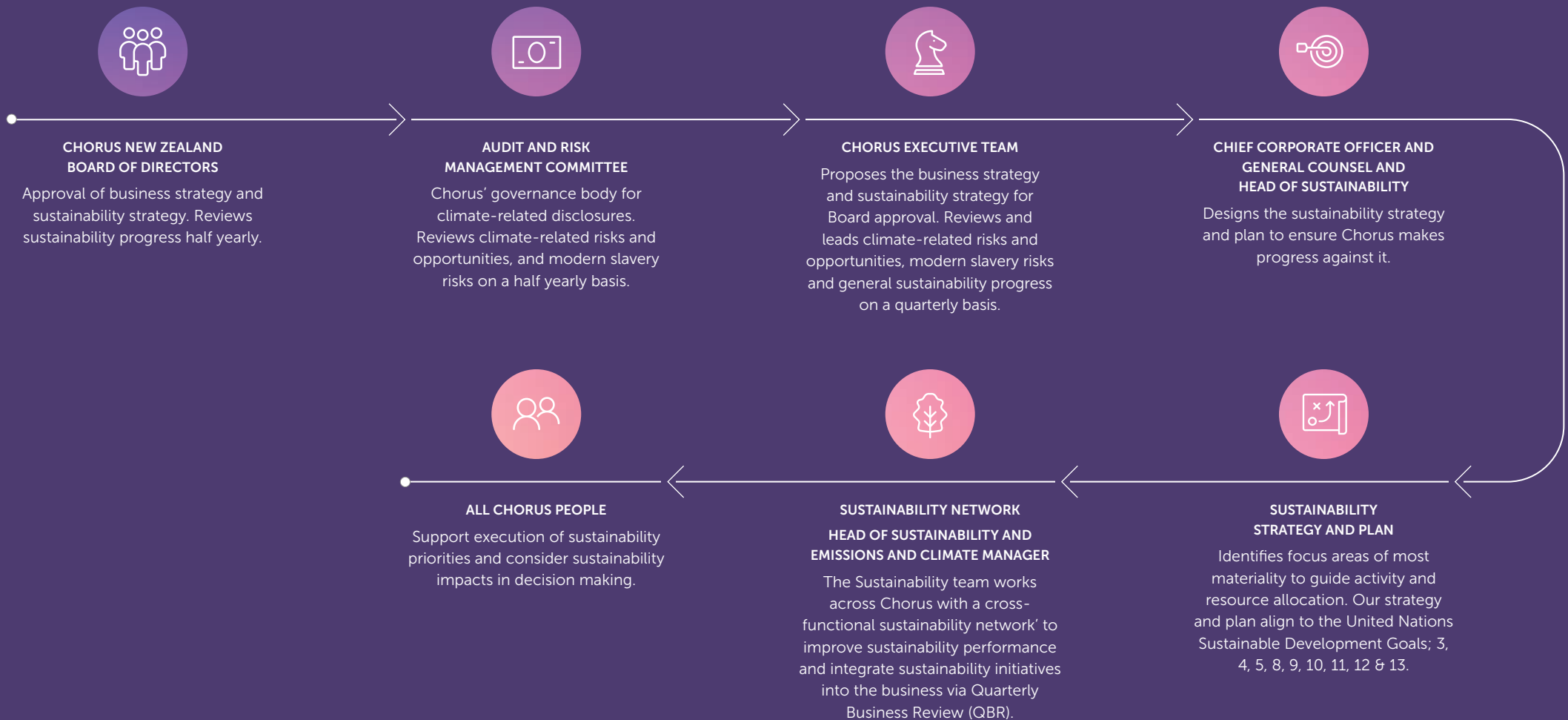


* Ethical business practices; diverse and inclusive workplace; health, safety and wellbeing were lower on the priority list due to stakeholders generally feeling these are business as usual topics that must be done.

FIRST CHOICE ● ● ● ● ● ● ● ● LAST CHOICE

Governance

Chorus has a sustainability governance structure that helps ensure sustainability is overseen at the highest levels of the organisation and embedded throughout everyday operations.



Strategy

Sustainability is integrated into our business strategy, with three pillars representing our commitment to improving environmental, social, and governance performance: **Thriving Environment; Sustainable Digital Futures; and Thriving People.**



While the three pillars of our Sustainability strategy are enduring, the activities within them will evolve over time to ensure we continue to be responsive to a changing operating environment and the needs of our stakeholders. Our Sustainability strategy sits alongside our Diversity, Equity and Inclusion Strategy which informs how we develop strong connections with Māori and builds our understanding of Te Ao Māori.

Risk management

Chorus Risk Management framework



* In the context of climate change-related risks, Chorus' risk management framework is being applied within these categories.

Our corporate governance documents, including our Managing Risk policy, are available at: <https://company.chorus.co.nz/governance>.

Risk management cont.

New Zealand has implemented a new mandatory climate-related disclosure (CRD) regime that will apply to Chorus for FY24. It has been introduced as part of Aotearoa's journey towards a low carbon future and for businesses to have a good understanding of how climate change will impact them, both in terms of risks and opportunities.

Scenario analysis

As part of the incoming CRD standards, we must prepare and disclose three possible climate scenarios: at 1.5 degrees Celsius, at 3 degrees Celsius or greater, and one other scenario (yet to be agreed).

Climate change scenarios are narratives about plausible futures that predict how climate change could affect the sector. They consider various combinations of climate-related risks (e.g. impacts of storms and shifts in temperature) and a range of economic, regulatory and social factors (e.g. emissions pricing or consumer preferences). We are working through our scenario analysis process to meet the CRD standards for FY24.

A sector-wide approach to scenario analysis will benefit risk management and help stakeholders understand the potential implications of climate change. The Telecommunications Forum (TCF) board has formed a Climate Change Working Group (CCWG) to work on a sectorial scenario analysis to gather information on the impacts of climate change and understand the impact climate change could have on the resilience of the telecommunications industry. Chorus proposed the establishment of this working group to the TCF and will play a key active role.

AON 2022 Climate Change risk assessment

In 2019, Aon investigated potential climate change impact from sea level rise on Chorus assets. In 2022, Aon built on this work by reassessing the climate change impacts with an updated asset portfolio and an extended scope to consider coastal, pluvial, and fluvial flooding. The report didn't include transitional or physical risks from high temperatures, severe windstorms, or bushfires. The results of the report can be found on page 44.

Two of the Intergovernmental Panel on Climate Change (IPCC) global warming Shared Socioeconomic Pathways (SSP) scenarios from moderate (SSP2-4.5) to high (SSP5-8.5) over two timeframes (2040 and 2090) were used in the work. Aon finalised the report in January 2023 – before the Auckland floods and Cyclone Gabrielle significantly impacted New Zealand and parts of Chorus' network. Cyclone Gabrielle was the largest weather event to affect the Chorus network and while the effects were consistent with the Aon report, with no damage to primary exchanges or access sites, some regional fibre routes were cut and damage to power networks meant about 55,000 consumers were unable to access our services for a period.

There are lessons to be learnt from Cyclone Gabrielle for the future. That's why we've contributed to a telecommunications industry plan, led by the TCF, to identify opportunities for enhanced network resilience and collaboration with government.

Climate-related risk and opportunity register

Chorus' risk management framework is being applied to our climate-related risks and opportunities, with the relevant stakeholders across our Network Operations, Technology, Legal and Sustainability teams identified as owners of the risks and associated mitigants, opportunities and actions.

We have consolidated all climate-related risks and opportunities into a single risk and opportunities register so we can manage these holistically.



Sustainability Impact Summary FY23



Sustainability Impact summary FY23

Thriving environment

Long-term targets

- 1 Science-based target:**
 Reduce 62% scope 1 and 2 emissions by 2030 (base year 2020).
- 2 Science-based target:**
 Top 70% of suppliers by spend have a science-based target or equivalent by 2030.
- 3 25% less energy use**
 across our network by 2030.
- 4 100% EV or hybrid**
 Chorus Corporate Fleet by 2028.
- 5 Accelerate our journey**
 to be net zero before 2050.

Impact FY23



Membership
 of the Climate Leaders
 Coalition and Sustainable
 Business Council.



5% Reduction
 in electricity use
 FY23 (77.4 GwH)
 FY22 (81 GwH).



**First Electric
 Vehicles**
 introduced to
 the fleet in 2023.



24% Reduction
 in Scope 1
 and 2 emissions
 FY23 (10,661 tCO2e)
 FY22 (13,957 tCO2e)



Future Fit
 a tool to help
 employees track
 and reduce their
 emissions launched
 in 2023.



Chorus network
 is now powered
 by Toitū climate-
 positive certified
 electricity with
 Ecotricity.

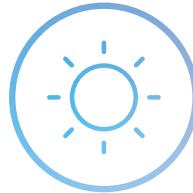
Sustainability Impact summary FY23

Sustainable Digital Futures

Long-term targets

- 1** **Host 50 Shine the Light events**
In FY23 to enhance digital knowledge. Our aim is to create awareness about the digital skills support available for the local communities.
- 2** **10,000-plus people helped**
with digital access, skills support, and devices.

Impact FY23



Delivered

65 Shine the Light events nationwide in FY23.



Active

in the Digital Equity Coalition for Aotearoa, co-chairing the Affordable Connectivity Constellation.



Employee/community

volunteer framework refreshed to align with sustainability strategy and due to launch in FY24.



9,000 students

were supported with free connections and devices through the Ministry of Education initiative.



2,000 Adults

and organisations have benefited from \$500,000 in donations and sponsorships to support digital inclusion initiatives nationwide in 2023.

Sustainability Impact summary FY23

Thriving people

Targets by the end of 2023*

1 **Remain in top 10%**
of the technology industry benchmark for Employee Engagement.

2 **40:40:20** gender ratio.

3 **Gender pay gap**
at no greater than 2% by career level.

4 **Rainbow, Gender & Accessibility**
tick accredited.

5 **75% employee participation**
in Te Reo and Te Ao Māori education programmes.

Impact FY23



Top 10%
Technology industry benchmark for employee engagement.



40:40:20
gender ratio achieved at board and all employee levels.



34% employee
participation in Te Ao Māori programme.



<2%
gender pay gap in 7 career levels.



3 Ticks
Re-accreditation of the Rainbow Tick, moved to the advanced category of Gender Tick and achieved Accessibility Tick accreditation.



Partnership
with Tupu Toa internship and the Pasifika Niu leadership programme.



Diversity, Equity and Inclusion
Refreshed strategy implemented focused on diversity of thought and wellbeing to support our people to thrive.

*calendar year

Te taiao puāwai

Thriving environment

Our focus is to reduce carbon emissions and waste to landfills across the Chorus ecosystem. We're also making sure we're prepared for what's to come, that climate change scenarios are understood, and that we adapt for the future.



Fibre – a low emissions technology

Fibre networks are recognised as the most climate-friendly digital infrastructure because they transmit data via light over large distances.

This means fibre optical equipment doesn't require cooling or powered equipment in suburban streets and the amount of data able to be transmitted is increasing significantly with each generation of network equipment. Fibre is also more resilient than copper lines, meaning the optical cables will last several decades and require less maintenance.

The 2022 World Broadband Association highlights the environmental benefits of fibre and associated research in its whitepaper *'The importance of environmental sustainability in telecom service providers' strategy*.

https://worldbroadbandassociation.com/wp-content/uploads/2022/09/Print_2609_WBBA-Environmental-Sustainability.pdf

As fibre connections and data usage grow, and our copper network is retired, we are seeing a reduction in our electricity usage.

Figure 1: Data usage vs network electricity usage FY21 – FY23

Year	Copper data usage (PB)	Fibre data usage (PB)	Total usage (PB)	Electricity usage (MWh)
FY21	1,123	4,700	5,823	77,520
FY22	949	6,191	7,140	81,398
FY23	700	6,702	7,402	77,400

Resilient and reliant

In December 2022, we completed an 11-year public-private partnership with the New Zealand Government to build a fibre-to-the-premises network for more than 1.3 million homes and businesses. More than 80% of the connections on our network are now on fibre, and we've begun withdrawing our legacy copper network in fibre-enabled communities.

Environmental management

As the owner of about 600 exchange sites and an extensive fixed line network throughout urban and rural Aotearoa, we take practical steps to avoid environmental breaches.

Our environmental framework requires that we, and our suppliers, ensure our physical and operational work complies with all relevant local and central government legislation, including the National Environmental Standards for Telecommunications Facilities; the Health and Safety at Work Act NZ; the Resource Management Act; and the Heritage New Zealand Pouhere Taonga Act.

We have about 70 network sites on Department of Conservation (DOC) land, typically transmitter links on hilltops or mountains. Some of these remote sites will be retired as new technologies, that better meet the needs of rural customers, evolve.

We have an in-house Environmental Management System that allows us to manage network build and other physical works projects. We engage with numerous local Māori organisations and Heritage New Zealand to ensure cultural impacts are mitigated, particularly where we are building network in culturally sensitive areas.



Network reliability and resiliency

Network resiliency

Our network is designed to limit the consumer impact of service outages through a range of practices including:

- physical duplication, or redundancy, within parts of the network to protect against equipment, cable or power system element failure
- geographic separation of critical network elements
- developing the network in a way that limits the scale of any individual network failures
- network practices to reduce the likelihood of accidental damage or network failure.

We've made substantial investment in the resiliency of our network through the rollout of fibre to the premise and have begun withdrawing our copper network in areas where fibre is available. Other recent projects have included the government-supported deployment of fibre backhaul along the South Island's West Coast to provide network diversity for that region and the construction of a flood protection wall for the South Dunedin exchange building.

Our FY23 assessment of flooding risk for our network assets is shaping our future asset management plans, along with the knowledge gained from recent extreme weather events. We are, for example, considering ways to make river crossings more resilient and how alternative technology may be used to provide added diversity to key fibre routes. These events also highlighted the interdependence between telco networks and other infrastructure such as electricity and roading in a natural disaster. The Telecommunications Forum's proposals for disaster preparedness and emergency management include improved understanding of other infrastructure's resilience and planning.

Earthquakes remain the primary focus for our resiliency planning. Historically, earthquake damage has tended to be limited to local copper cables, and damage to exchange buildings has been minimal. We have an ongoing programme to strengthen critical network sites for earthquakes. Seismologists also use our new West Coast fibre network to analyse the South Island's Alpine Fault. This first-of-its-kind study will help inform local communities and organisations, and help them to plan for future essential utility resiliency.

Our insurance programme covers all risks (subject to standard exclusions) of physical damage and business interruption for above-ground assets. The specific cover is provided for earthquake damage to underground cables in Auckland, Hamilton, Wellington and Dunedin.

We undertake probability-based loss estimate modelling to ensure adequate policy limits covering material damage and business interruption.

Network reliability

We recognise our network's essential role in consumers' daily lives and businesses. We monitor our network 24/7 and have disaster response plans to help maintain or restore service in an emergency. Our employees and service company technicians often go the extra mile to keep communities connected during extreme weather or natural disasters.

We report fibre performance measures to the Commerce Commission. This includes two standards measuring network availability in 23 geographic regions based on downtime in the Layer 1 (physical) and Layer 2 (electronic) parts of the network. Table 2 shows this data for fault restoration and unplanned downtime in FY23 at an aggregated national level. Another quality standard reported to the Commission measures national port utilisation to ensure network capacity is meeting monthly demand.

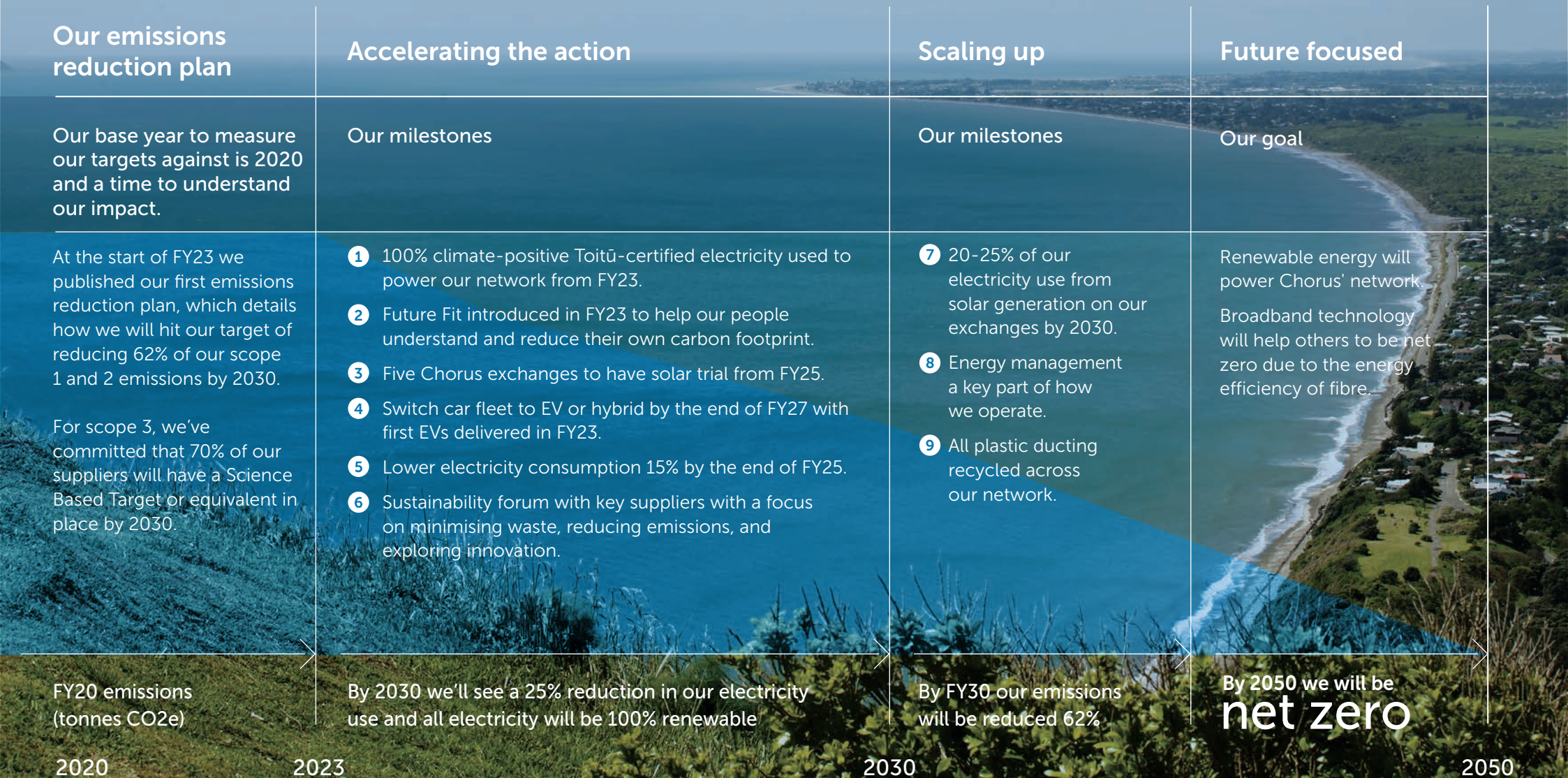
Figure 2: Fibre faults and restoration in FY23

Fibre network*	Faults per 100 connections	Average yearly unplanned downtime (minutes)**
Layer 1	2.47	32.52
Layer 2 (including premises electronics)	1.10	12.17

* Excludes Chorus network in other local fibre company areas.

** Excludes force majeure events.

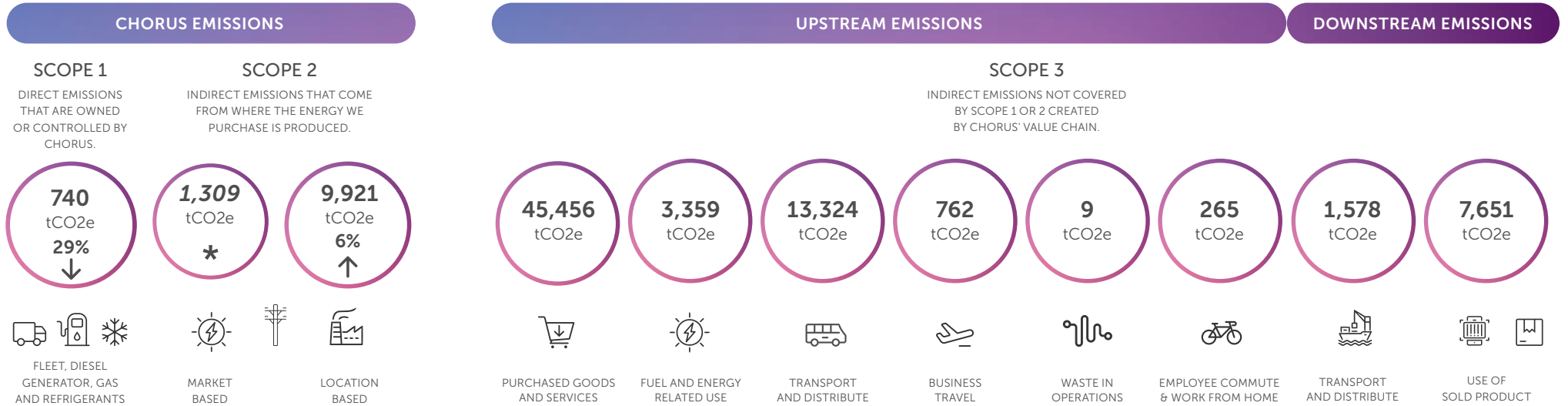
Chorus' transition roadmap



Emissions performance summary 2023

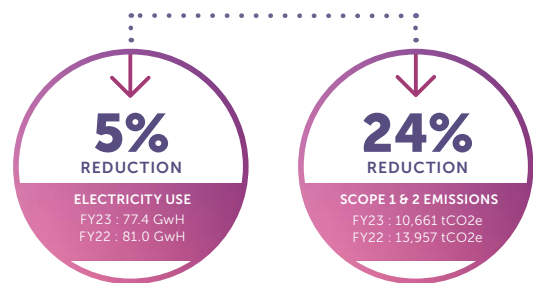


Following the introduction of our first Emissions Reduction plan last year, we are starting to see good traction in our emissions reduction ambition with the following highlights for FY23: After two years of our scope 1 & 2 emissions increasing, we are now seeing a reduction. Overall our FY23 scope 1 & 2 emissions are up 3% compared to our base year, however FY23 emissions are down 24% when compared to FY22.



93% of Scope 1 and 2 is from electricity use.

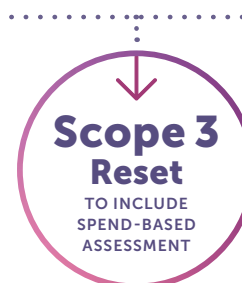
We are investing in solar and other initiatives to reduce this use by 25% by 2030.



* A market-based method for scope 2 reflects emissions from electricity that companies have purposefully chosen, whereas a location-based method reflects the average emissions intensity of grids on which energy consumption occurs.

Collaborating to reduce Scope 3 emissions.

We have established a supplier sustainability forum to identify collaboration opportunities and co-design initiatives to help reduce scope 3 emissions.



Circular economy and waste minimisation

Figure 3: Waste overview FY21 – FY23

Waste	Disposal method	FY21 (tonnes)	FY22 (tonnes)	FY23 (tonnes)
Duct (plastic)	Recycled	85	60	63
Redundant network (metal)	Recycled	187	100	*219
Batteries	Recycled	10	8.5	9
E-waste	Recycled	14	12	26
Corporate offices	Landfill	32	27	15
Fibre cable	Landfill	82	80	36
Total waste (tonnes)		410	287.5	368 ↑
% of total waste recycled		72%	63%	90% ↑

We continue to implement programmes to reduce waste and reuse products.

Our plastic duct offcuts are sent to a supplier to be granulated and used in the production of new ducting.

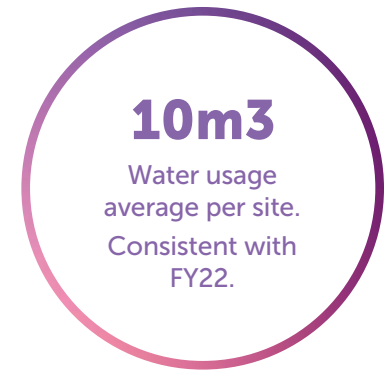
In October 2023 we took part in the Reclaim Recycling Week, where we encouraged employees to bring in e-waste from home and equally understand the different ways to reduce, reuse and recycle waste. This saw an increase in our e-waste as a result.

With the UFB build now complete, we expect that our waste numbers will reduce. Overall we are recycling more.

Please refer to Appendix 1 for more detailed information on our emissions.

* The increase for FY23 for metal is due to multiple SIMS reporting being included this year.

FY23 waste and circular economy highlights



Toa hangarau

Sustainable Digital Futures

Chorus is a member of a network of organisations in Aotearoa dedicated to achieving digital equality for all. The digital divide has several obstacles such as availability, affordability, and adoption. We understand that significant change can only occur by paying attention to the needs of the communities we connect and collaborating with others to achieve digital equity for everyone.



Ka taea e tātou ka
matihiko ki
Everyone in A
capabilities to full



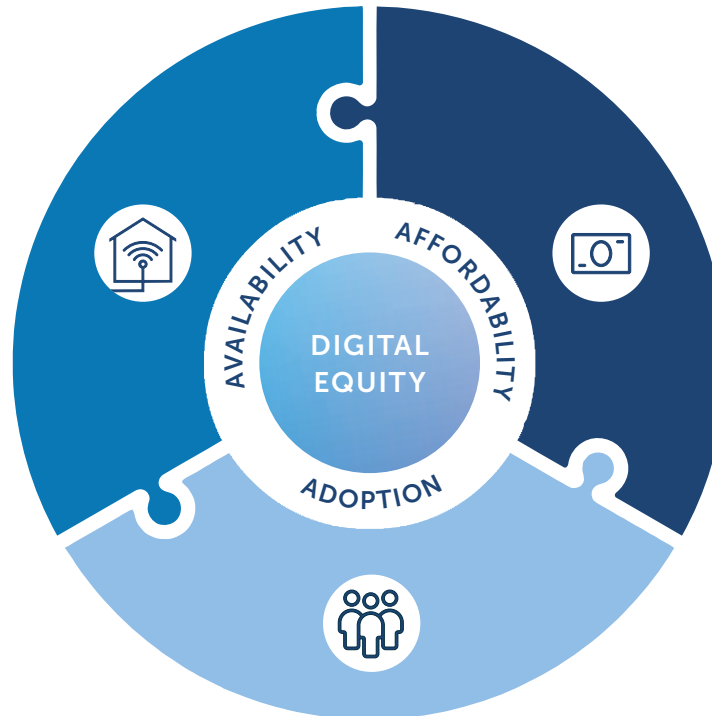
Availability

Chorus believes that everyone, regardless of their location in urban or rural areas across Aotearoa, should have the opportunity to connect to the digital world.

In the past year, Chorus has focused on understanding the needs of rural customers by listening to key stakeholders and community feedback. Due to the physical distance from everyday services that urban New Zealanders take for granted, rural New Zealanders require even higher quality technology than their urban counterparts. Therefore, rural customers should have access to the same speed, reliability, ability to use data, and reasonable pricing as their urban peers.

Chorus, in FY23, commissioned the New Zealand Institute of Economic Research (NZIER) to evaluate the advantages of unrestricted connectivity in rural areas of Aotearoa.

According to the report, the benefits would amount to around \$16.5 billion in the next decade. Chorus is working towards extending its fibre network and collaborating to expand the reach of fibre where it can to help bring these benefits to communities.



Affordability

At the same time, Chorus understands that for many people living in urban areas, the expense of being connected is challenging, especially during the current cost of living crisis. For the last decade, Chorus has prioritised the connectivity of key community hubs, like schools and marae.

For the last three years, Chorus has worked closely with the Ministry of Education and the wider telecommunications industry to support free connectivity for students whose families are struggling with broadband and device affordability. Originally part of the COVID-19 emergency response, this initiative has helped connect over 9,000 student homes through retailers delivering broadband services, using wholesale connections subsidised by Chorus, other Aotearoa wholesale providers and the Ministry of Education. Despite the pandemic and extended lockdowns now ending, albeit with reduced numbers, the initiative continues, with an expected end date of June 2024.

We continue to work with the government, the Digital Equity Coalition for Aotearoa and the telecommunications industry to understand the ongoing affordability challenges, seeking to co-design solutions to remove affordability challenges within our communities.

Adoption

Hapori (community) connecting to the digital world.

While availability and affordability are the key focus areas for Chorus' response to establishing Sustainable Digital Futures, support to organisations focused on digital inclusion that give communities the opportunity and skills to be confident online is also at the core of our purpose.

In FY23, Chorus partnered with 20/20 Trust to run a pilot programme called Hapori (community) connect.

Northland, a region with a disproportionate number of digitally excluded people, was chosen for the pilot. Māori and Pasifika adults applied to attend the programme to strengthen their digital skills and develop personal learning plans in parallel, to not only help them build trust, confidence, and skills in the digital space but support the community to thrive in a digital world.

Utilising the existing foundational digital skills curriculum from 20/20 Trust, the programme's focus was Hauora (a Māori philosophy of health and well-being unique to Aotearoa).

Chorus engaged Netsafe in FY23 to identify how to keep seniors safe and confident online. The findings were used to create a range of resources to support them.



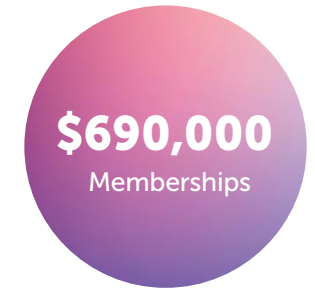
FY23 contributions



- Digital Future Aotearoa
- Digital Seniors
- Digits Charitable Trust
- Global Centre of Possibility
- Hokianga Sports Club Inc
- Matakite Online Trust NZ
- Senior Net
- The Funding Network NZ



- Accessibility Tick Ltd.
- Auckland YWCA Inc.
- Diversity Works NZ
- Global Women
- Innovative Young Minds
- Internet Service Providers Association NZ Conference
- Netsafe
- NZ Compare
- Rainbow Tick
- Selfie Central Limited
- South Pacific Pride
- TUANZ
(After 5 events and Rural Connectivity Symposium)



- Business Leaders Health and Safety Forum
- Climate Leaders Coalition
- Human Resources Institute of NZ
- Infrastructure New Zealand
- Institute of Managers and Leaders
- Property Council of NZ
- Sustainable Business Council
- Telecommunications Forum (TCF)
- Technology Users Association (TUANZ)
- The NZ Initiative Ltd

Nga iwi whai hua

Thriving people



Accessibility  Tick

Committed to Accessibility

This certificate awards

Chorus Limited

The Accessibility Tick in recognition of its ongoing commitment to becoming accessible and inclusive of disabled and neurodiverse people


Phil Turner

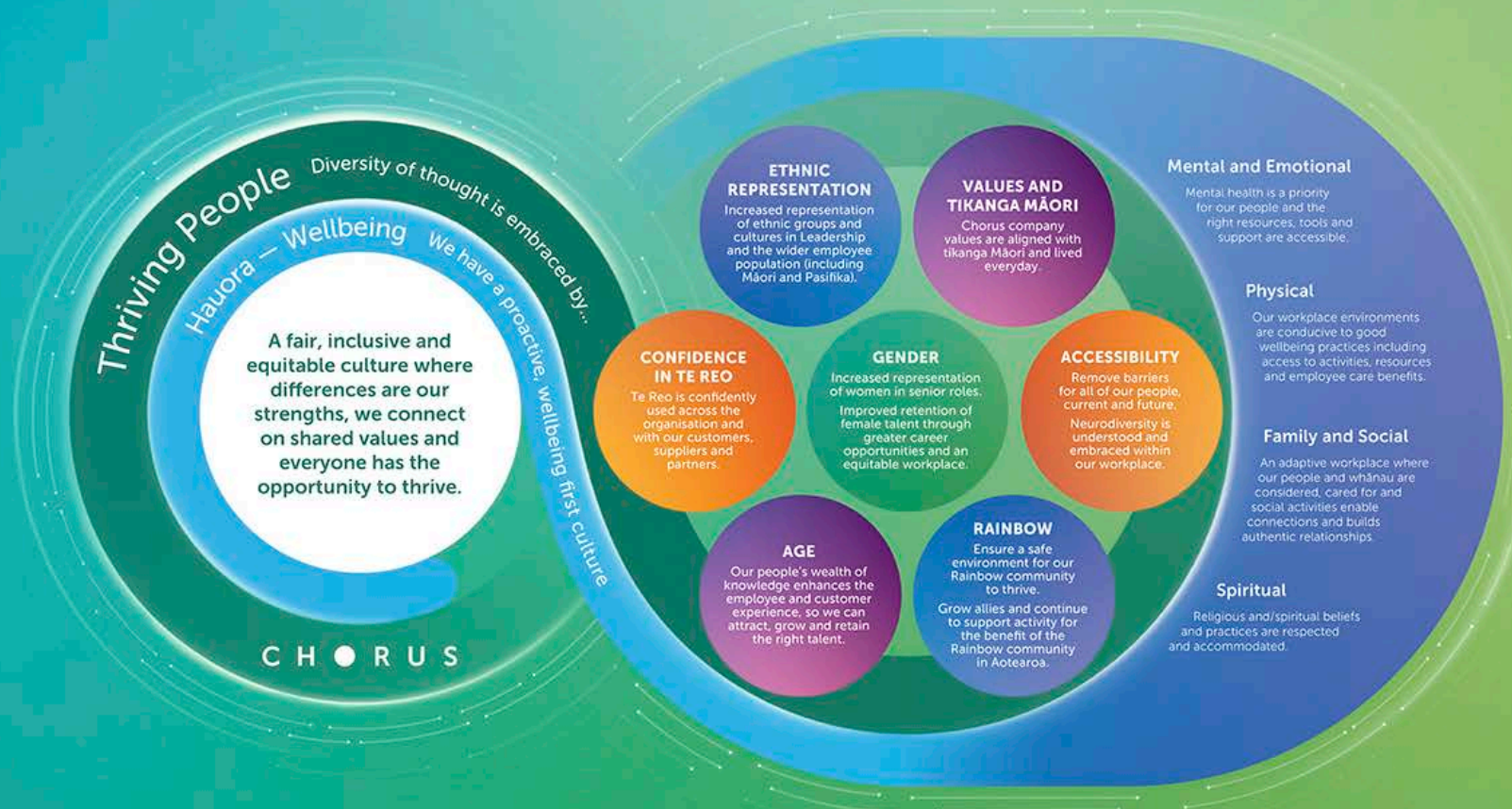
20 March 2023
Date



CHORUS LIMITED
PO BOX 10000
AUCKLAND 1142

Diversity, Equity and Inclusion

Thriving People, diversity of thought and wellbeing are all central to Chorus' Diversity, Equity & Inclusion (DEI) strategy, launched at the start of FY23.



Our strategy was developed in consultation with a diverse group of people across the business, using the Aotearoa Inclusivity Matrix (AIM) as the framework and a number of employee data points for input. AIM is an evidence-based framework explicitly developed for NZ workplaces that allows organisations to identify the maturity of their DEI measures across seven components. It provides a basis for workplaces to understand their current capabilities, identify areas for improvement and create a roadmap for transformation.

We continue to use AIM as a measure of progress against our DEI objectives in addition to a number of others, including specific demographic measures and at an overall organisational level. As of 30 June 2023, we achieved our measure of being within the top 10% of the technology industry benchmark for our engagement surveys three drivers of diversity: diversity, inclusiveness and non-discrimination. We report on our measures to the People Performance and Culture Committee, a subset of our board, annually.

Chorus employee overview

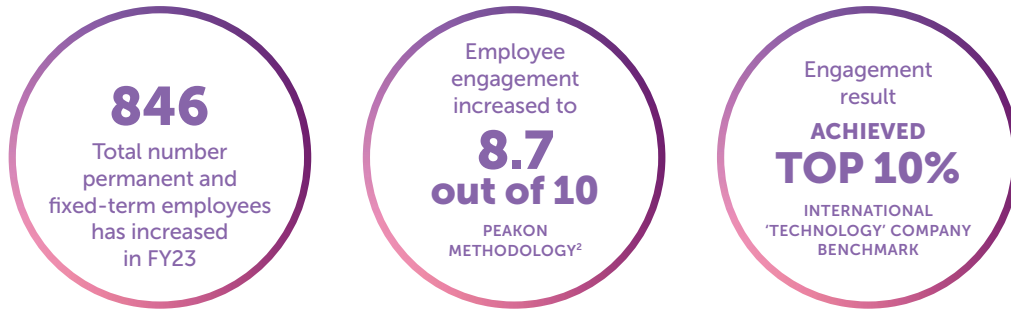


Figure 4: Employee turnover rates - FY21 – FY23

Employee turnover rate	FY21	FY22	FY23
Voluntary	8.1%	14.4%	9.6%
Total turnover rate	12.6%	15.3%	10.1%
Positions filled by internal candidates	43.3%	54.0%	46.0%

Figure 5: eNPS¹ - three year view FY21 – FY23

Employee engagement ²	FY21	FY22	FY23
Total (out of 10)	8.5	8.5	8.7
Employee net promoter score (eNPS)	+62	+64	+70
Participation rate	86%	85%	86%

Figure 6: Employee learning investment - FY21 – FY23

Training and development	FY21	FY22	FY23
Average hours per FTE	8 hours	5 hours	8 hours
Average spend per FTE	\$1,060	\$693	\$1,012



1 eNPS means employee Net Promoter Score. Net promoter scores can range from -100 to +100 and are calculated by subtracting the percentage of detractors (0-6 engagement score) from the percentage of promoters (9-10 engagement score)

2 Chorus engagement survey data is provided by Peakon who provide a technology sector benchmark for comparison.

Engagement

As part of Chorus' employee communications and engagement strategy, each business area reviews their engagement scores and comments every quarter, with people plans in place to respond to trends and needs of teams. Chorus has a comprehensive internal communications strategy which focuses on sharing and discussing the business strategy and news with its people, using a range of channels, from yearly face-to-face events, monthly people leader video calls, to daily intranet articles and an all staff daily call, our heartbeat. There is also regular reporting of engagement results and themes to the People Performance and Culture Committee.

Flexible working

Flex@Chorus is Chorus' approach to flexible working, providing employees access to multiple flexible working options. This includes flexibility in work schedule, flexible locations, part-time working hours and the ability to stagger a return to work after parental leave.

Gender

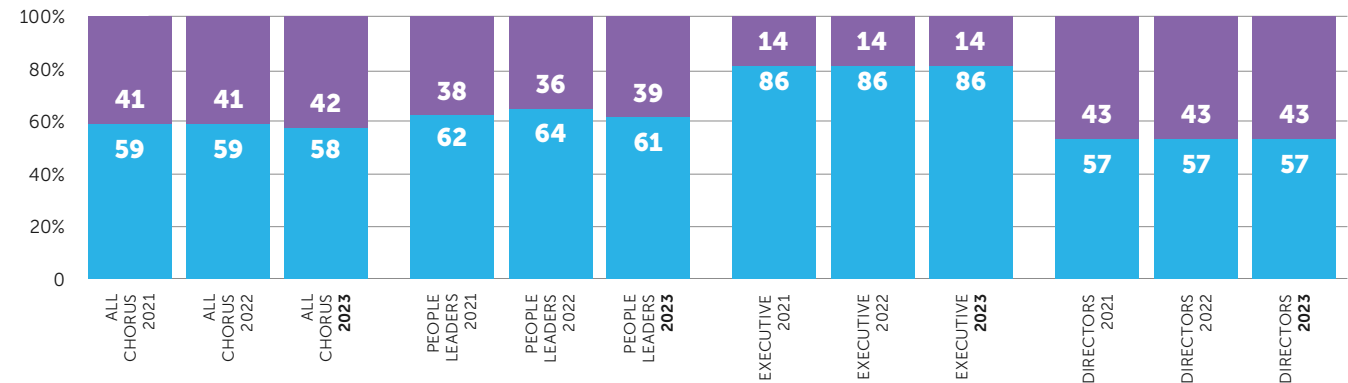
Chorus uses the Global Women recommended target of a 40:40:20 gender ratio for its Board and People Leader community. While we've had minor fluctuations to date, there is progress with creating more role opportunities and career pathways underway. The highlight in gender is the significant decrease we've witnessed in female voluntary turnover. As of June 2023, female voluntary turnover in career levels 8-11 had decreased by 16% and in career levels 3-7, it decreased by 5% compared to June 2022. Chorus uses an industry framework developed by EY to determine the career level of every role at Chorus. There are currently nine career levels (CL3 to CL11) below the executive team.

Figure 7: Female voluntary turnover

Career level	June 2022	June 2023
8-11 (Senior roles)	25.7%	9.6%
3-7	17.1%	12%

Figure 8:

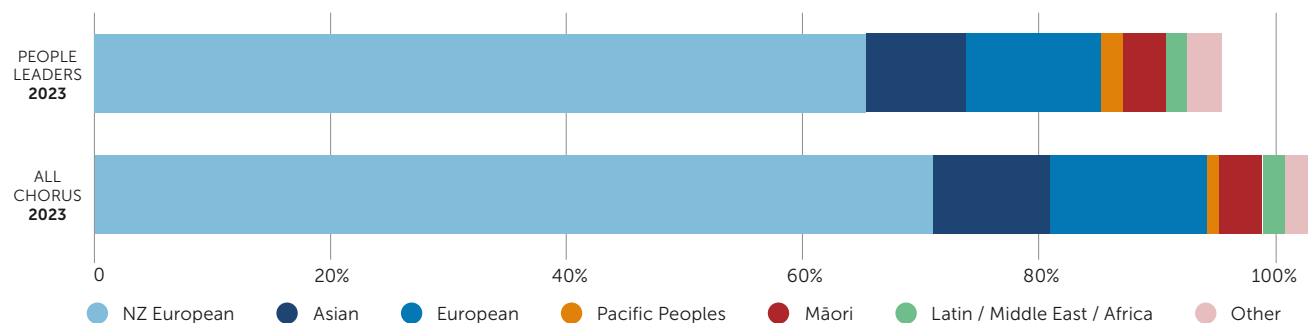
Gender by role - three year view FY21 - FY23 as of 30 April 2023



40:40:20 split of employees by 2023 / 40:40:20 split of Career level 8-11 by 2023 / 40:40:20 split of People Leaders by 2023.
40:40:20 split of Executive by 2023 / 40:40:20 Board split by 2023.

Figure 9:

Ethnicity by role 2023



NOTE - these two % columns don't add to 100%. This is because our people can choose up to three ethnicities that they identify as, so where someone has more than one they are represented in each of their ethnicities, but over the total headcount. This is consistent with how we report ethnicity splits elsewhere.

Ethnic representation: Chorus has 99% of our employee population's ethnicity data, well above the level of many organisations in Aotearoa. Chorus seeks to grow diverse leadership population with internal development and education programmes, sponsorship and mentoring.

Wellbeing

Hauora is the Te Ao Māori view of wellbeing and is the latest part of the evolution of Chorus' wellbeing journey.

Along with supporting Chorus to be a great workplace, the wellbeing programme's objective is to create a healthier and more resilient workforce by influencing and supporting healthy habits. We achieved our measure of being in the top 5% of the technology industry benchmark for the wellbeing drivers in our engagement survey of social, physical and mental wellbeing and organisational support.

The Wellbeing Programme comprises a range of excellent benefits, resources, national events and a range of holistic activities in local offices that Chorus employees can participate in. The programme is run by a passionate and motivated group of champions nationwide. Te Whare Tapa Whā – the four pillars of Mental and Emotional, Physical, Family and Social, and Spiritual Wellbeing ensure a holistic approach.

Accessibility

Chorus was awarded the Accessibility Tick in February 2023, and we have an accessibility action plan in place across nine business categories. We've had three digital platforms assessed by subject matter experts, and recommendations for accessible improvements are underway. Educational webinars and workshops, including a focus on neurodiversity, are a regular feature in our DEI communications.

Confidence in Te Reo and Values and Tikanga Māori

At the end of FY23, 34% of our people were enrolled in our online Te Ao Māori programme with additional support provided by an external Te Ao Māori cultural advisor. The increased use of Te Reo across the business has been significant, and Tikanga practices are being adopted across teams. Additional Te Ao Māori learning and development is planned in the first half of FY24.

Figure 10: Confidence in Te Reo & Values in Tikanga Māori

	as at April 2022		as at April 2023	
>75% annual participation rate in training in relation to Te Ao Māori	Te Ao Māori education programme	9%	Te Ao Māori education programme	34%
	Te Tiriti workshops	200	Te Tiriti workshops	200

Age

Our people's knowledge enhances the employee and customer experience, so we can attract, grow and retain the right talent. We are in the process of refreshing our mentoring programme and have implemented a tailor-made talent development programme in our Chief Technology Operations function to create greater internal career pathways.

Rainbow

In FY23, we sponsored and attended the Big Gay Out, The Rainbow Excellence Awards and extended our membership level to Gold with Pride Pledge. We hold the Rainbow Tick Accreditation and, through this partnership, established a calendar of Rainbow 101 workshops accessible through our Chorus learning platform. Our bespoke ally programme, developed with our Rainbow employee network, will launch in July 2023.



Health and Safety

The health, safety, and wellbeing of anyone within our ecosystem is paramount for Chorus.

Target: Total Recordable Injury Frequency Rate (TRIFR) benchmark of 2.60 and Lost Time Injury Frequency Rate (LTIFR) benchmark of 1.45.

Health, safety and wellbeing of Chorus people includes our direct employees and the thousands of people working on our behalf to build, connect and maintain our network. Our health and safety focus extends to anyone in, or in the vicinity of, our workplaces.

In FY23, in addition to our focus on risk management, assurance and governance optimisation, we successfully looked after Chorus people during multiple adverse weather events across New Zealand.

The volume of work performed, including our service companies, totalled 6.1 million hours. This was down from 6.7 million hours in FY22, resulting from the connection activity continuing to decrease and the end of the UFB rollout programme.

The TRIFR decreased to 1.30 in FY23, down from 2.53 in FY22. Injuries to our people decreased to eight, down from 17 in FY22. The injuries observed were strains, sprains and lacerations caused by manual handling activities, slips, trips and falls and vehicle accidents. There were no fatalities. The LTIFR decreased to 0.65 from 1.34.

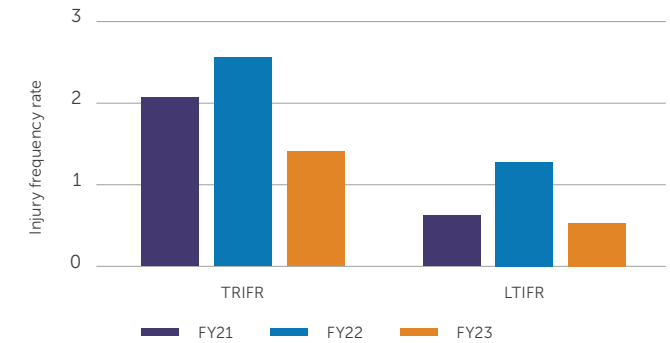
In 2022 Chorus achieved 'performing' level in the SafePlus assessment.

A company at 'performing' level has proactive and visible leadership and governance. It actively reviews and monitors performance to support continual improvement. It also actively seeks information on its health and safety risks and implements and monitors actions to sustainably manage identified health and safety risks. Workers are involved in all activities and empowered to take action. There is a shared understanding from workers at all levels of the commitment to support good health and safety outcomes.

Our Health and Safety Policy is available online. <https://company.chorus.co.nz/file-download/download/public/2260>

Figure 11:

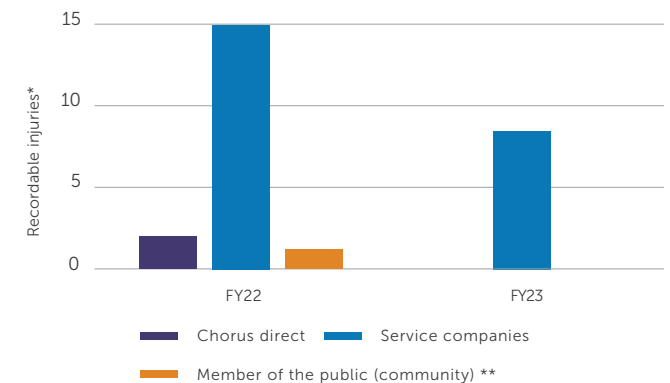
Injury frequency rates FY21 – FY23



LTIFR: number of lost time injuries + medical treatment injuries + restricted work injuries per million hours worked.

Figure 12:

Actual recordable injuries* FY22 - FY23



* Recordable injuries are medical treatment, lost time or restricted work injuries

** Member of the public (community) injuries reflect those sustained by slips and trips on Chorus infrastructure e.g. utility covers, which are remediated as quickly as possible.

Ethical supply chain

We want to have sustainable and valuable supplier relationships.

We conduct our business with high social, labour and ethical standards. Given the rapid change within our industry, we focus on building enduring relationships that deliver value to both parties and encourage innovation.

We consider a range of criteria when evaluating potential suppliers, including environment, health and safety, worker welfare and corporate reputation.

We encourage our suppliers to go beyond legal compliance, drawing on internationally recognised standards to advance social, labour and business ethics.

Our commercial team administers our Supplier Code of Practice and has governance oversight from the Board. See www.chorus.co.nz/chorus-suppliers

Modern Slavery Statement

Our latest Modern Slavery Statement is available at: www.chorus.co.nz/governance

Our supply chains span around 1,150 direct suppliers representing approximately \$890 million in procurement spend in FY23.

Most of our direct supplier spend is in Aotearoa. We source a range of goods and services internationally, primarily from suppliers in Europe, North America and Asia with a New Zealand presence. Beyond our service company partners, we have surveyed key suppliers to better understand their risks and responses to modern slavery.

In FY23, Chorus focused on resources and efforts to transition to our new Field Service Agreements. To support this, we conducted three ethical voice surveys reaching out to technicians and sub-contractors for feedback on health and safety and employment conditions. These have led to action plans to improve conditions and communications. This is now established as an ongoing tool for continuous improvement in our service company supply chain. We audited the worker welfare programmes within Chorus and at our service companies to ensure that the programme is operating effectively.

With the opening of the borders post the COVID pandemic restrictions, we have seen renewed growth in migrant workers joining the supply chain. We have supported service companies and new migrants into New Zealand and continued monitoring for exploitation. A small number of complaints have been received and dealt with by Chorus, service companies or specialist investigators. Four companies were required to undertake remedial action and one company was removed from further work on the Chorus network.

Worker welfare

We also manage modern slavery risks during the procurement lifecycle: including tendering, supplier selection; prequalification; contracts – through strong terms and conditions; and an ongoing worker welfare programme and audit regime focused on our field workforce to assess supplier performance.

We expect our suppliers to share our commitment that everyone is treated fairly. We work closely with our service company partners, to maintain our network, meet the demand for fibre connections and deliver a good customer experience. This workforce numbers about 2,300 people and is reducing as the fibre network rollout concludes and we retire overlapping areas of our copper network.

Our worker welfare team monitors our contractor and subcontractor field workforce within Aotearoa. The aim is to make worker welfare an everyday part of our business, like health and safety.

From our quarterly Pulse engagement survey to technicians, through our online portal and independent whistle-blower process, our worker welfare team monitors our contractor and subcontractor field workforce within Aotearoa.

Our cross-business governance team oversees any investigation of actual or potential work mistreatment and oversees the service companies' worker welfare programmes. If we identify worker welfare issues, we'll notify relevant regulatory authorities and, where appropriate, ban companies from working on our network. See: <https://worker-welfare.chorus.co.nz>

Cybersecurity and Privacy

Privacy

We don't sell telecommunications services directly to consumers or bill them directly. This means we hold significantly less personal information than the retailers who use our network to provide services to their customers. For example, we don't store credit card information (we use a specialist payment gateways provider).

We're committed to protecting and managing personal information in line with the requirements of the New Zealand Privacy Act 2020 and the Telecommunications Information Privacy Code 2020 (that sets out additional rules for our sector).

Our privacy policy covers how people can raise concerns or make requests, such as access, correction, or deletion of personal information – <https://www.chorus.co.nz/terms-and-conditions/our-privacy-policy>. We either delete or anonymise personal information once it is no longer needed for the purpose for which it was collected.

Our Privacy Officer is responsible for implementing our privacy framework within our wider risk management framework. They promote awareness of our privacy systems and processes, and escalate matters to the Executive team if required.

FY23 privacy initiatives

An independent audit of privacy risks and practices was completed in FY23 and a roadmap for further enhancements to our privacy framework is being developed. Other initiatives included:

- refreshing our privacy policy to clarify how we collect, use, and share personal information
- launching an employee website with resources such as privacy guidelines, policies on information management, and training videos
- new privacy training module for employees and contractors required to be completed annually
- a new internal privacy breach reporting tool and process to clarify how we address and mitigate any breaches
- a process to identify and assess privacy risks for product and marketing decisions
- providing the Board with six-monthly privacy reports

Cybersecurity

The Audit and Risk Management Committee receives comprehensive cybersecurity reports from our Chief Technology Officer every six months, with interim updates as required. These are reported back to the Board.

We have detailed policies, processes, and registers to ensure cybersecurity is addressed through technology selection, network delivery practices, and ongoing operations and protection of our IT systems. Access controls and encryption are applied to systems identified as containing sensitive information.

Our Principal Security Officer tests our security incident responses and liaises with the National Cyber Security Centre on advanced cyber threats. We undertake regular reviews, including annual external audits, and ad-hoc reviews, to provide assurance and feedback on our assessments and controls. Analysis of cyber-attacks against other businesses inform our approach.

We provide annual training to anyone who accesses our information systems, including contractors, on issues such as phishing and malware. Our contracted suppliers are required to meet our information security standards and we have insurance for key cybersecurity risks. We undertake incident exercises and vulnerability audits, including with external parties, in parallel with internal real-time scanning of our systems.

We recorded no material cybersecurity incidents or privacy complaints from the Office of the Privacy Commissioner in FY23.

Stakeholder and Community

Stakeholder and investor relations

The rollout and ongoing maintenance of our fibre network has entailed an extensive stakeholder engagement programme at all levels of government, local councils and other stakeholders.

We monitor customer satisfaction through surveys on new fibre installations and connecting homes with an existing fibre box. These measures are linked to organisational objectives for remuneration purposes. We also use independent consumer surveys to assess broadband satisfaction and the public's perception of Chorus.

Our investor relations programme facilitates two-way communication with investors and other market participants about our business, governance and performance. This is a valuable source of feedback. Our annual and half-year results presentations are available to all investors via webcast, as is our annual meeting.

Community relations

Our Community Relations team works closely with local councils, government agencies and community groups, with key highlights being;

- Engaged with 39 local councils to get more than 170 murals on our cabinets, enhancing our streets, creating work for local artists and lifting their profile while at the same time playing our part in working to reduce graffiti vandalism.
- Partnered with community and business groups such as the Beautification Trust; Creative Bay of Plenty and Creative Northland; Business Associations in Parnell, Wiri and Papakura; graffiti teams in Auckland, Wellington and Christchurch; Art Trust, Greypower and Federated Farmers.
- Delivered 65 Shine the Light events in towns and communities around Aotearoa. These face-to-face events run in communities where fibre build is complete, but uptake is slow. These events build community goodwill, identify digital skills needs and help us understand the barriers people have to connect to the digital world.
- After the Local Government elections last year, Chorus met with 24 of the 31 new mayors, as well as Deputy Mayors, Chief Executives, CIOs, Councillors, Community Board Chairs and council operations staff. The purpose of the meeting was to emphasise the importance of broadband in their communities.



Code of Ethics

Our directors and employees are expected to act honestly and with high standards of personal integrity. Our codes of ethics set the expected minimum standards for professional conduct. They also facilitate behaviours and decisions consistent with our values, business goals and legal and policy obligations.

Annual training is provided to our directors and employees, including part-time workers and contractors. Our people are encouraged to report unethical behaviour and are asked annually to register any potential conflicts of interest. This process is subject to internal audit, and all reported breaches are investigated. A third-party review in 2019 benchmarked our compliance function against industry best practices.

Policies that reinforce the behaviours we expect at Chorus, include:

Bribery and gifts

Acceptance of bribes, or gifts and other benefits which could be perceived as influencing decisions, are prohibited under our codes of ethics. Our Gifts and Entertainment policy applies to all directors, employees and contractors. Gifts and entertainment over \$150 require approval. Chorus is not involved in any ongoing bribery and corruption cases, and no fines or settlements were incurred for anti-competitive business practices in FY23. Our Supplier Code of Conduct requires our suppliers to comply with laws relating to anti-bribery and corruption. This includes bribery, abuse of power, extortion, fraud, deception, collusion, cartels and embezzlement.

Anti-bullying, harassment and discrimination

We're committed to a psychologically and physically safe working environment, and we take a zero-tolerance approach to bullying, harassment and discrimination. Anti-bullying training is provided each year. Our policy reflects Aotearoa legislation, such as the New Zealand Bill of Rights Act 1990 and the Human Rights Act 1993, prohibiting discrimination and protecting the right to freedom of expression.

Whistleblowing and fraud

The Protected Disclosures (Protection of Whistle-blowers) Act 2022 provides enhanced legislative protection for employees who notify an appropriate authority about serious wrongdoing in, or by, an organisation. We encourage confidential reporting of serious misconduct or wrongdoing and suspected fraud or corruption. A dedicated whistle-blower email address and phone number are provided. PwC monitors these and are available to all employees and subcontractors. A dedicated email address is also available for reporting suspected fraud.

We did not receive any reports of serious instances of unethical behaviour by our employees in the year to 30 June 2023.

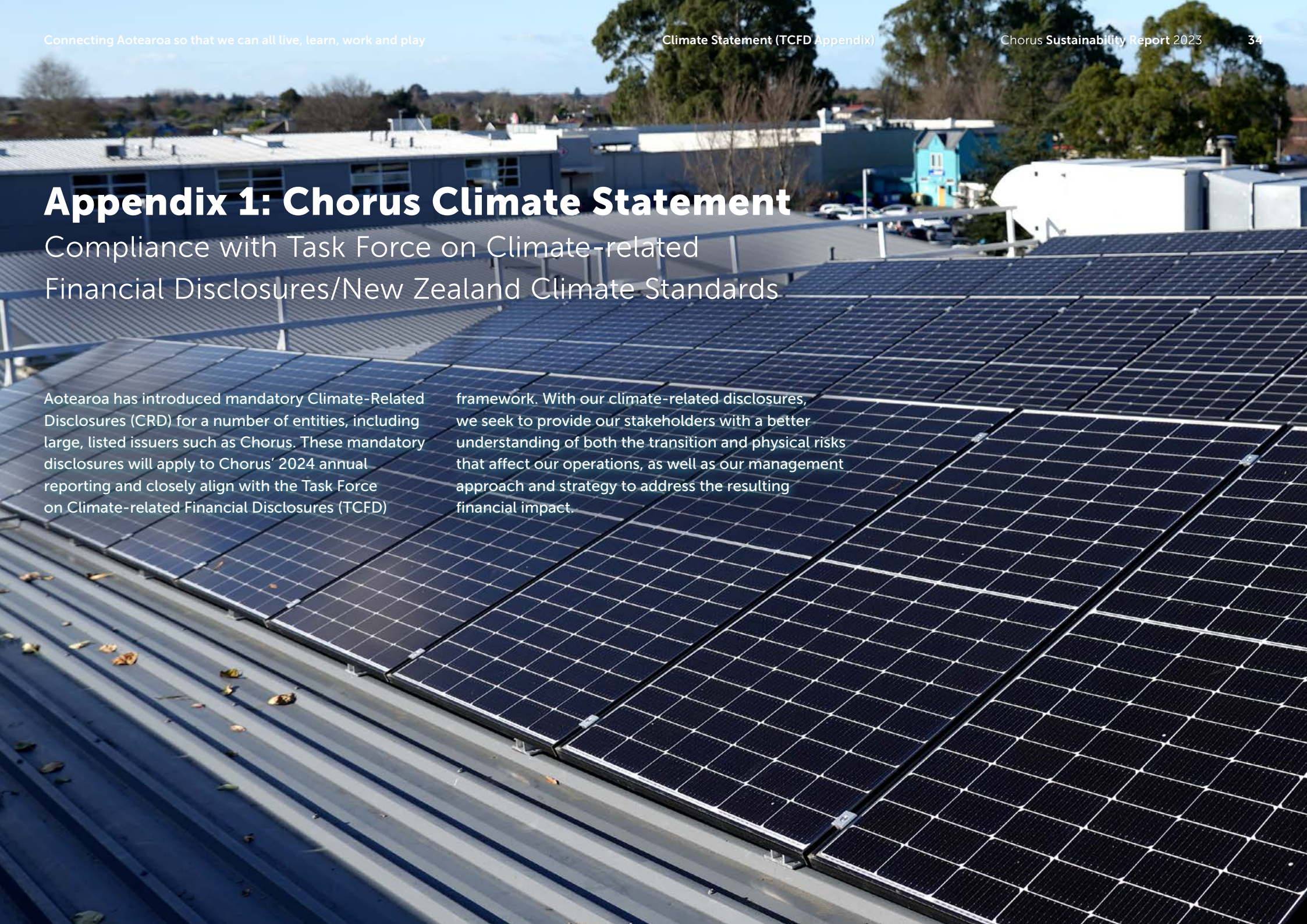


Appendix 1: Chorus Climate Statement

Compliance with Task Force on Climate-related Financial Disclosures/New Zealand Climate Standards

Aotearoa has introduced mandatory Climate-Related Disclosures (CRD) for a number of entities, including large, listed issuers such as Chorus. These mandatory disclosures will apply to Chorus' 2024 annual reporting and closely align with the Task Force on Climate-related Financial Disclosures (TCFD)

framework. With our climate-related disclosures, we seek to provide our stakeholders with a better understanding of both the transition and physical risks that affect our operations, as well as our management approach and strategy to address the resulting financial impact.



Governance

Disclose the organisation's governance regarding climate-related risks and opportunities. Describe the governance body's oversight of climate-related risks and opportunities.

Describe the governance body's oversight of climate-related risks and opportunities

Our Board is ultimately responsible for Chorus' risk management framework and governance. Our Audit and Risk Management Committee (ARMC) has been appointed as the governance body for the purposes of the CRD given its members' financial, industry and sustainability skills. The Board and ARMC expects Chorus to understand the risks, opportunities, and threats to its current and future business environment, assign principal risks to members of the Executive within the necessary skills to oversee this risks and opportunities and respond tactically and strategically.

This includes:

- annually setting risk appetite and tolerances and determining principal risks.
- approving and regularly reviewing our Managing Risk policy and supporting framework.
- promoting a culture of proactive risk management.
- providing risk oversight and monitoring through our ARMC/governance body.

Principal risks are the key risks to the achievement of our strategy. They are assessed based on a risk profile that identifies the likelihood of occurrence and potential severity of impact. Our current principal risk categories are identified through a comprehensive enterprise risk management framework encompassing financial and non-financial risks. These categories include:

- Health, safety, and wellbeing risks: Working to keep the people we owe duties to safe.
- Commercial and financial sustainability risks: Maintaining appropriate capital management and credit settings.
- Core services risks: Ensuring core service availability and network resilience.
- People and skills risks: Ensuring Chorus has employees capable of achieving its strategic objectives.
- Legal, regulatory, and contractual risks: Working within the regulatory and legal environment.
- Stakeholder and customer confidence/reputation risks: Attaining and retaining a positive reputation with key stakeholders and customers.
- Innovation risks: Identifying and pursuing innovation and opportunities that will enhance Chorus.

Our climate change risks and opportunities are reviewed within this framework. Principal risks and opportunities are reported to the ARMC half yearly and, if necessary, also by exception. Our ARMC reports to the Board.

See Governance on **page 7** and Risk Management on **pages 9-10**.

Describe management's role in assessing and managing climate-related risks and opportunities

Principal risks are owned by relevant executives, promoting integration into operations and planning and a culture of proactive risk management.

Our CEO and executive are responsible for considering how risks and events interrelate and for managing our overall risk profile. Executive Management also semi-annually considers unforeseen and emerging risks and reviews Business Unit risks quarterly. Climate change risks may be reflected as Principal, Emerging, or Business Unit risks depending on their potential impact and likelihood to impact Chorus' strategy. Operational risks related to climate change are identified within our risk management framework, particularly regarding core service availability and network resilience. The Chief Technology Officer is responsible for operational risks related to our nationwide physical network. Mitigation measures include planning for network deployment and protection, as well as ongoing maintenance and fault management. In FY22, we conducted internal workshops to review climate-related risks, creating our first dedicated climate risk register. Each risk's likelihood and potential consequences were analysed and recorded, and business owners have been assigned to each risk to mitigate and manage that risk, with quarterly reviews. In FY23, we reviewed that register, added some additional risks and considered opportunities, and created it into a Climate-Related Risks and Opportunities register to align with the CRD standards. Risks and opportunities are reported to the ARMC half-yearly.

See Governance on **page 7** and Risk Management on **pages 9-10**.

Strategy

Disclose the climate-related risks and opportunities the organisation has identified over the short (0-3 years), medium (3-10 years), and long-term (10+ years).

Disclose the actual and potential impacts of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning, where such information is material

In anticipation of the mandatory CRDs for FY24, we are preparing climate scenarios and analysis to assess the potential impact of climate change on Chorus' business. We have started with a qualitative approach to identify the climate risks most likely to have an impact on Chorus so that these risks can be managed and mitigated under our risk management framework. We plan to quantify select risks next year.

In the past year, climate change-related weather events have tested the resilience of the Chorus network. While Cyclone Gabrielle led to the widespread loss of electricity and the subsequent loss of telecommunications services, damage to our core network was reasonably limited with no exchange buildings affected. Flooding across the North Island also tested the resilience of our copper network, which had higher fault rates as a result. However, we did suffer some fibre backhaul breaks as a consequence of the cyclone. EBITDA impacts from flood and cyclone-related events were \$7m and exclude future capital expenditure, where required, for network replacement. The operational risk created by extreme weather remains our main climate-related risk over the short to medium term.

See Network Reliability, starting on **page 17**, our transition roadmap on **page 18**, and Risk Management on **pages 9-10**.

Physical risks	Nature of risk/opportunity	Impact	Response
<p>Risk 1: More frequent/extreme weather events</p> <p>Time horizon: Short and medium term</p>	<ul style="list-style-type: none"> • Damage or disruption to our network assets could affect the delivery of telecommunications services to our customers (retail service providers) and their end users. • Prolonged service disruption may have a detrimental financial and/or reputational impact, particularly where it impacts a large area or number of consumers (e.g. damage to key fibre routes or widespread loss of electricity). • Extreme temperatures or cascading climate related events affect our people's ability to work. 	<ul style="list-style-type: none"> • Detailed risk analysis in FY23 has identified potential exposure across a range of Chorus network assets (see page 44). • Significant damage may require replacement or relocation of assets. • Staff and contractors unable to work due to Health & Safety risks posed by extreme events (e.g. physical damage to infrastructure limits movement or temperature extremes constrain activity). 	<ul style="list-style-type: none"> • Climate risk is included as part of asset management planning with a detailed pluvial and fluvial flooding risk analysis completed in FY23 (see page 44). This will inform ongoing investment for protection or potential exit from key assets (e.g. South Dunedin exchange building flood wall). • Continued growth in fibre uptake increases network resilience because fibre is less susceptible to weather-related faults. • The expected shutdown of copper over the next decade will reduce the amount/type of assets exposed to future climate risks. • Ongoing investment programmes to enhance network resiliency (e.g. fibre backhaul upgrade and FTTH in high rainfall area of South Island West Coast). • Ongoing monitoring of network performance in extreme weather to assess trends: \$7m EBITDA impact in FY23 following significant weather events. Pan-industry working group to identify opportunities for enhanced network resilience and collaboration with government. • Work to minimise the impact of extreme temperature or compounding and cascading weather events for both employees and technicians.

Continued overleaf

Strategy cont.

Physical risks	Nature of risk/opportunity	Impact	Response
<p>Risk 2: Sea-level rise</p> <p>Time horizon: Long term.</p>	<ul style="list-style-type: none"> Projected risk of damage to our network assets from sea level rise or coastal flooding needs to be considered as part of our asset management planning. Damage to cables or buildings could affect the delivery of telecommunications services to our customers (retail service providers) and their end users. 	<ul style="list-style-type: none"> External impact assessment in 2023 screened key network assets. 	<ul style="list-style-type: none"> Network risk assessment findings incorporated into long-term asset management planning. Network asset exposure will reduce with the expected shutdown of the copper network over the next decade. Periodic updates to network risk assessment in future as new climate change data becomes available.
<p>Risk 3: Supply chain disrupted due to major weather events</p> <p>Time horizon: Short, medium, and long term</p>	<ul style="list-style-type: none"> Global supply chain disrupted or materials delayed on a more frequent basis due to major weather events (whether at source or while materials are in transit). 	<ul style="list-style-type: none"> Shortage of ONTs and other core materials. Failure to meet contractual obligations to service companies regarding supply of materials. Unable to meet customer demand. 	<ul style="list-style-type: none"> Review supply chain forecasting buffers to assess if they allow for the current and anticipated frequency and severity of climate events and eventual minimal supply of some parts and limited number of supply routes. Ensure that supply chain processes embed a review of the impact of climate change.
<p>Risk 4: Insufficient electricity generated through any means could lead to demand outstripping supply</p> <p>Time horizon: Short, medium, and long term</p>	<ul style="list-style-type: none"> Electricity supply (from hydro, wind, solar or other sources) is insufficient to meet demand to run our business. 	<ul style="list-style-type: none"> Increased carbon emissions and rolling black-outs. 	<ul style="list-style-type: none"> Install own generation assets and reduce electricity demand. Network asset exposure will reduce over time as copper network is replaced with more energy efficient fibre network.

Continued overleaf

Strategy cont.

Transitional risks	Nature of risk/opportunity	Impact	Response
<p>Risk 5: Insufficient priority on climate mitigation and adaptation</p> <p>Time horizon: Short term</p>	<ul style="list-style-type: none"> Increased unplanned capital spend for frequent and extensive service and network restoration activities. 	<ul style="list-style-type: none"> Financial costs. 	<ul style="list-style-type: none"> Climate risks factored into asset management planning.
<p>Risk 6: Insufficient allowance for weather related operating cost or asset investment</p> <p>Time horizon: Short and medium term</p>	<ul style="list-style-type: none"> Regulatory framework provides insufficient allowance for weather related opex or asset investment. 	<ul style="list-style-type: none"> Financial costs. 	<ul style="list-style-type: none"> Assess and report costs associated with climate mitigation and adaptation. Expedited exit of copper network to reduce at risk assets.
Opportunities	Nature of risk/opportunity	Impact	Response
<p>Opportunity: Energy sources</p> <p>Time horizon: Short term</p>	<ul style="list-style-type: none"> Electricity is our largest source of scope 1 and 2 carbon emissions at 9,921 tonnes-CO2e in FY23. Energy use reduction and generating our own electricity from solar PV is one of our biggest opportunities. We have developed an Emissions Reduction Plan that focuses on opportunities to reduce carbon emissions and the energy costs associated with our network. 	<ul style="list-style-type: none"> Our electricity consumption is expected to reduce by 25% as our copper network is retired 	<ul style="list-style-type: none"> The national grid averages ~80% renewable and is expected to become more renewable. We are investing in solar for our exchanges with six pilot sites decided and build expected to start in FY24. Our new electricity supplier is climate positive certified.

Risk Management

Describe the impact of climate-related risks and opportunities on the organisation's business, strategy, and financial planning.

Climate-related risks and opportunities have limited impact on our business, strategy, and financial planning. Our investment in an FTTH network has helped mitigate significant potential transition and physical risks related to climate change. Our climate change impact assessment in FY22 and other network information and experience from past extreme weather events inform our ongoing network planning and management practices. Our Emissions Reduction Plan further focuses on emissions reduction opportunities and potential energy savings. Our transition roadmap is outlined on page 18.

See Governance on **page 7** and Risk Management on **pages 9-10**.

Disclose the resilience of the organisation's strategy, considering different climate-related scenarios.

As part of the CRD standards, we must prepare and disclose three possible climate scenarios: 1.5 degrees Celsius, 3 degrees Celsius or greater, and one other scenario in our FY24 reporting. We are working through our scenario analysis process to meet the CRD standards.

Climate change scenarios are narratives about plausible futures that predict how climate change could affect the sector. They consider various combinations of climate-related risks (e.g. impacts of storms and shifts in temperature) and a range of economic, regulatory and social factors (e.g. emissions pricing or consumer preferences). Business and industry groups in New Zealand have worked together to do scenario analysis for their respective sectors.

A sector-wide approach to scenario analysis will benefit risk management and help stakeholders understand the potential implications of climate change. The Telecommunications Forum (TCF) board has formed a Climate Change Working Group (CCWG) to work on a sectorial scenario analysis and gather and share information on the impacts of climate change on the resilience of the telecommunications industry. Chorus has joined this working group.

See Risk Management on **pages 9-10**.

Describe the organisation's processes for identifying and assessing climate-related risk.

Chorus has a Climate Change Risks and Opportunities Registry to align with the requirements of the CRDs. Chorus held a high-level workshop with representatives from across the business to review the existing registry and ensure it was still fit for purpose and that lessons from the recent weather events were considered.

See Risk Management on **pages 9-10**

Describe the organisation's processes for managing climate-related risks.

Our management of climate-related risks aligns with the process used for other threats. Principal risks are assigned to individual executives for management, and risk mitigation initiatives are identified. We utilise external data, experience with extreme weather events, and ongoing network planning and management practices for network risks related to flooding or sea-level rise. Mitigation measures include building maintenance and flood protection for at-risk exchanges, geotechnical surveys for selecting fibre routes, placement of cables on the downstream side of bridges, and network expansion projects to enhance route diversity and network robustness. Post Cyclone Gabrielle, river crossing build techniques are being revisited, with separate aerial connection being considered. As parts of our copper network are shut down, at-risk network assets are being phased out.

See Risk Management on **pages 9-10**.

Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organisation's overall risk management and prioritised.

Climate-related risks are identified, assessed and managed within our existing risk management framework and practices. Identified risks and related actions are monitored and updated quarterly. If risks exceed our risk tolerance, additional mitigation activities may be implemented.

See Risk Management on **pages 9-10**.

Metrics and Targets

Disclose the metrics the organisation uses to assess climate-related risks and opportunities in line with its strategy and risk management process.

We measure energy and fuel usage across our network and monitor greenhouse gas emissions. We aim to reduce our scope 1 and 2 emissions by 62% by FY30, based on FY20 levels. Data usage metrics indicate the reduction in emissions intensity as we transition to a fibre-based network and data volumes continue to grow. Fault performance and associated cost measures are relevant for monitoring network resilience.

See Thriving Environment, starting on **page 15**.

Disclose scope 1, scope 2, and, if appropriate, scope 3 greenhouse gas (GHG) emissions and the related risks.

We report our scope 1, 2, and limited scope 3 emissions annually. Our emissions performance and intensity for the last three years is available on pages 41 & 42. Network electricity consumption accounts for most of our combined scope 1 and 2 emissions. Our Emissions Reduction Plan focuses on energy efficiency and reducing energy use across our network. The shutdown of parts of our copper network will reduce electricity needs and emissions by about 25% by 2030. In FY23, we powered down 225 copper cabinets and have seen a 4.5% reduction in electricity consumption. We anticipate reducing scope 3 emissions as fibre uptake increases. Fault-related activity is also lower on the fibre network.

See Thriving Environment, starting on **page 15**.

Describe the targets the organisation uses to manage climate-related risks and opportunities and performance against targets.

Our Emissions Reduction Plan aims to reduce electricity consumption by 15% over the next three years and we have achieved a reduction of our corporate fleet by 25% at the end of FY23.

The rollout of our FTTH network has contributed to the transition to a more energy-efficient and resilient network. We have achieved a 70% uptake of the fibre network to date. By increasing fibre uptake, we can further reduce our carbon footprint through reduced electricity usage. Fibre broadband offers high-speed capability with lower emissions. Average data usage per connection on our network is growing significantly each year.

See Thriving Environment, starting on **page 15**.

Our organisational boundary

Our organisational emissions reporting boundary takes an operational control approach defined by the GHG Protocol and includes Chorus New Zealand Limited only, as our operating company and sole subsidiary of our parent company, Chorus Limited. Chorus Limited is publicly listed, and our issued shares are quoted on the New Zealand Stock Exchange (NZX) and Australian Securities Exchange (ASX).

Targets

- Science-based target – reduce 62% scope 1 and 2 emissions from 2020 by 2030
- Science-based target –70% of our suppliers, by spend, cover over half of scope 3 emissions and will have science-based targets or emissions reduction plans by FY30.
- The largest potential areas to address emissions in Scope 3 are purchased goods and services, fuel and energy-related use (technician van fuel) and use of sold products (downstream). We have established a supplier sustainability forum to identify collaboration opportunities and co-design initiatives to help reduce scope 3 emissions.

We aim to achieve an emissions intensity of under 1 (tCO₂e/PB) by FY25.

	Data traffic (PB)	Scope 1 and 2 (tCO ₂ e)	Emissions intensity (tCO ₂ e/PB)
FY20	4,945	10,370	2.09
FY21	5,823	13,239	2.27
FY22	7,140	13,957	1.95
FY23	7,402	10,661	1.44

GHG emissions intensity

Chorus monitors emissions intensity against the amount of data transmitted across its network in Petabytes (PB). As the amount of data transmitted on our network steadily increases as more people and devices connect, our emissions intensity decreases.

Base year

Greenhouse gas emissions source inclusion

Scope - Category	Activity	Methodology and data quality	FY20	FY21	FY22	FY23		
							Tonnes-CO2	
1 – Direct	Diesel generator fuel.	Supplier specific: Invoices detailing litres of diesel used for Engine Alternatives.	170	172	273	315	↑	
1 – Direct	Refrigerants (gas leakage from air con).	Supplier specific: Invoices detailing litres of refrigerants (gas) top ups.	565	548	601	181	↓	
1 – Direct	Natural gas (LPG use in exchanges).	Supplier specific: Invoices detailing LPG bottles purchased.	99	82	95*	85	↓	
1 – Direct	Chorus vehicle fleet fuel.	Supplier specific: Fuel card data showing litres of petrol/ diesel.	NA	204	127	159	↑	
2 – Purchased electricity	Location based.	Average/Supplier specific: Monthly electricity invoices – detailing usage for each Installation Control Point. Include Spark invoice for Chorus electricity used in Spark exchanges.	9,334	12,248	12,861	9,921	↓	
	Market based.		N/A	N/A	N/A	1,309		
3/1 – Purchased goods and services	Emissions based on spend, per activity. Focused on emissions associated with manufacturing and shipping.	Spend-based: Toitū worksheet which calculates emissions based on spend and average emissions per activity.	N/A	NA	22,559	**45,456		
3/2 – Capital goods								
3/3 – Fuel and energy use	Electricity used by customers and transmission and distribution line losses.	Average/Hybrid Supplier specific: Based on what we invoice Spark for electricity use in Chorus exchanges.	3,395	4,339	4,069	3,359	↓	
3/4 – Upstream transportation and distribution	Service company corporate fleet and Chorus technician fleet.	Supplier specific: Based on information from service providers using some fuel use data and statistical data for light vehicle fleets.	505	931	5,589	***13,324	↑	
3/5 – Waste generated in operations	Waste from corporate offices and network.	Average/Hybrid: Based on one month of daily weighing for all corporate sites (multiplied). Network waste data supplied by service providers.	63	60	28	9	↓	
3/6 – Business travel	Business flights, car rentals, accommodation and taxis.	Supplier specific: Actual data provided by travel provider. Broken down to employee name and number.	765	294	202	762	↑	
3/7 – Employee commuting	Employee commuting and work from home.	Average/Hybrid: Based on average data from employee survey.	N/A	N/A	124	265	↑	
3/9 – Downstream transportation and distribution	Transportation and distribution of equipment and spares.	Supplier specific: Shipment of Nokia equipment and supplier invoices.	N/A	N/A	2,545	1,578	↓	
3/11 – Use of sold product	Electricity used in customer premise to power the ONT.	Supplier specific: Supplier specs on energy consumption for each model. Based on a 24/7, seven days a week usage.	N/A	51	6,911	7,651	↑	
			Total Scope 1	1,035	992	1,096	740	↓
			Total Scope 2	9,343	12,247	12,861	9,921	↓
			Total Scope 3	9,221	9,807	19,668	72,404	↑

* Natural gas FY22 emissions number has been restated due to an error found in data capture. We have restated emissions for prior years based on revised emission factors and activity levels. Emissions may vary from previously reported figures.

↑ Emissions up from last year.
↓ Emissions down from last year.

** Full spend-based analysis and calculation completed for FY23.
*** FY23 is the first year we have had supplier specific data for service companies fleet emissions, including Chorus' technician fleet.

Greenhouse gas emissions source exclusions

Scope - Category	Exclusion reason
3/8 – Upstream leased assets	Chorus equipment located in suppliers' exchange buildings is included in scope 2.
3/10 – Processing of Sold Products	Excluded due to low materiality, lack of available data, and high degree of uncertainty.
3/12 – End of life treatment of sold products	E-waste programme in place and most network waste is recycled.
3/13 – Downstream leased assets	Customer electricity on network/ICT equip in Chorus' exchanges is included under 3 fuel and energy use.
3/14 – Franchises	Chorus has no franchise model.
3/15 – Investments	Chorus has no other investments at this stage.

Guidance documents, standards and emission factors used for our climate statement

The following guidance documents were used in the preparation of this GHG Inventory:

Aotearoa New Zealand Climate Standard 1

Climate-related Disclosures (NZ CS 1)

<https://www.xrb.govt.nz/standards/climate-related-disclosures/aotearoa-new-zealand-climate-standards/aotearoa-new-zealand-climate-standard-1/>

Aotearoa New Zealand Climate Standard 2

Adoption of Aotearoa New Zealand Climate Standards (NZ CS 2)

<https://www.xrb.govt.nz/standards/climate-related-disclosures/aotearoa-new-zealand-climate-standards/aotearoa-new-zealand-climate-standard-2/>

Aotearoa New Zealand Climate Standard 3

General Requirements for Climate-related Disclosures (NZ CS 3)

<https://www.xrb.govt.nz/standards/climate-related-disclosures/aotearoa-new-zealand-climate-standards/aotearoa-new-zealand-climate-standard-3/>

Greenhouse Gas Protocol – Scope 2 Guidance

<https://ghgprotocol.org/sites/default/files/2023-03/Scope%20%20Guidance.pdf>

Greenhouse Gas Protocol Technical Guidance for Calculating Scope 3 Emissions

https://ghgprotocol.org/sites/default/files/standards/Scope3_Calculation_Guidance_0.pdf

SBTi Criteria and Recommendations

<https://sciencebasedtargets.org/resources/files/SBTi-criteria.pdf>

Ministry for the Environment: Measuring Emissions – a guide for organisations

<https://environment.govt.nz/publications/measuring-emissions-a-guide-for-organisations-2022-detailed-guide/>

Figure 13: Chorus' network exposure to climate change

	SEA LEVEL RISE		COASTAL FLOODING			PLUVIAL FLOODING			FLUVIAL FLOODING		
	2040 SSP2-4.5	2040 SSP5-8.5	2023	2040 SSP2-4.5	2040 SSP5-8.5	2023	2040 SSP2-4.5	2040 SSP5-8.5	2023	2040 SSP2-4.5	2040 SSP5-8.5
KEY EXCHANGE SITES (N=61)											
* potentially exposed (very low to very high)	0	0	0	0	0	4 (7%)	4 (7%)	4 (7%)	8 (13%)	9 (15%)	9 (15%)
* potentially exposed (high to very high)	0	0	0	0	0	2 (3%)	2 (3%)	2 (3%)	3 (5%)	4 (7%)	4 (7%)
OTHER EXCHANGE/ACCESS SITES (N=778)											
* potentially exposed (very low to very high)	3 (<1%)	3 (<1%)	8 (1%)	16 (2%)	17 (2%)	104 (13%)	104 (13%)	104 (13%)	177 (23%)	181 (23%)	181 (23%)
* potentially exposed (high to very high)			4 (1%)	9 (1%)	9 (1%)	20 (3%)	20 (3%)	22 (3%)	79 (10%)	83 (11%)	83 (11%)
UNDERGROUND UTILITY BOXES (N=285,554)											
* potentially exposed (very low to very high)	383 (<1%)	401 (<1%)	2,610 (1%)	4,723 (2%)	4,789 (2%)	28,292 (10%)	28,292 (10%)	35,017 (12%)	32,988 (12%)	35,017 (12%)	35,017 (12%)
* potentially exposed (high to very high)			1,700 (1%)	3,487 (1%)	3,557 (1%)	10,543 (4%)	10,757 (4%)	25,563 (9%)	23,213 (8%)	25,157 (9%)	25,563 (9%)
TERMINAL ENCLOSURES OR CABINETS (N=14,702)											
* potentially exposed (very low to very high)	40 (<1%)	41 (<1%)	162 (1%)	264 (2%)	269 (2%)	1,295 (9%)	1,295 (9%)	1,295 (9%)	1,723 (12%)	1,799 (12%)	1,799 (12%)
* potentially exposed (high to very high)			79 (1%)	140 (1%)	141 (1%)	259 (2%)	267 (2%)	281 (2%)	849 (6%)	919 (6%)	942 (6%)
POLES (N=310,779)											
* potentially exposed (very low to very high)	529 (<1%)	570 (<1%)	2,875 (1%)	4,258 (1%)	4,295 (1%)	32,239 (10%)	32,239 (10%)	32,239 (10%)	37,456 (12%)	37,456 (12%)	37,456 (12%)
* potentially exposed (high to very high)			0	0	0	0	0	0	0	0	0
REGIONAL FIBRE (67,483KM)											
* potentially exposed (very low to very high)	484 (<1%)	499 (<1%)	962 (1%)	1,356 (2%)	1,371 (2%)	9,144 (14%)	9,144 (14%)	9,144 (14%)	12,181 (18%)	12,435 (18%)	12,435 (18%)
* potentially exposed (high to very high)			0	0	0	0	0	0	0	0	0

This assessment builds on a 2019 analysis of Chorus' network exposure to climate change induced sea level rise. Current network asset information is assessed against additional climate change risk from coastal, pluvial and fluvial flooding. Two global emissions scenarios were used: moderate (SSP2-4.5) and high (SSP5-8.5) to 2040 and 2090. The 2090 results are not shown given most Chorus assets have much shorter accounting lives. Flood damage assessment is based on estimated inundation depth from ground level, with an adjustment for estimated floor height. An impact level is assigned based on damage expectancy with 'very low' representing 1% or less damage and based on damage expectancy with less than one hour of disruption. 'High' and 'very high' impact represents estimated damage above 25% and multi-day disruption.

DEFINITIONS:

Sea level rise: 0.16m increase in sea level for SSP2-4.5 and 0.18m for SSP5-8.5.
 Coastal flooding: storm surges causing coastal inundation by sea water.
 Pluvial flooding: extreme rainfall that overwhelms drainage systems and/or results in flash flooding.
 Fluvial flooding: excessive rainfall or snow melt causing river or lake overflow onto surrounding land.

Chorus is currently migrating customers to its fibre network and expects that its copper network will be shut down within a decade. As the copper network is shut down the number of exposed assets is expected to reduce significantly. The fibre network is much more resilient to water ingress than the copper network because fibre cables do not carry an electrical signal and fibre nodes in suburban streets do not contain electrical equipment.

Chorus is using the findings from this analysis to inform its asset management programme and ongoing investment in network resilience. Cyclone Gabrielle in February 2023 was the largest weather event to affect the Chorus network and the resulting damage was consistent with the findings of this report, with no damage to exchanges or access sites.

Glossary

ADSL	Asymmetric Digital Subscriber Line - a copper-based technology that can provide basic fixed line broadband services.	GHG Inventory	A quantification of an organisation's greenhouse gas sources, sinks, emissions, and removals.	Refrigerants	A substance or mixture used in a heat pump and refrigeration cycle.
Board	Chorus Limited's Board of Directors.	GPON	Gigabit Passive Optical Network.	SBTi	Science Based Target initiative.
CO2e	Carbon dioxide equivalent.	Layer 1	The physical cables and co-location space.	Scope 1	Direct emissions from sources that are owned or controlled by a company.
CRD	Climate-Related Disclosures.	Layer 2	The data link layer, including broadband electronics, within the Open Systems Interconnection model.	Scope 2	Indirect emissions from the generation of purchased electricity consumed by a company.
Emissions	Emission sources are categorised by scope to manage risks and impacts of double counting. There are three scopes in greenhouse gas reporting.	Mbps	Megabits per second – a measure of the average rate of data transfer.	Scope 3	Indirect emissions from the value chain of a company.
Fluvial	River flooding.	ONT	Optical Network Terminal, or the termination point of fibre in the home or business.	UFB	Ultra-Fast Broadband refers to the Government and industry programme to build a FTTH network to 87% of New Zealanders. UFB1 refers to the original phase of the rollout to 75% of New Zealanders. UFB2 and UFB2+ were subsequent phases announced in 2017 extending the network to 87%.
FTE	Full Time Equivalent.	P2P	Where two parties or devices are connected point-to-point via fibre.	VDSL	Very High Speed Digital Subscriber Line – a copper-based technology that provides a better broadband connection than ADSL.
FTTH	Fibre-to-the-home.	PB	A petabyte is equivalent to 1,024 gigabytes	WFH	Working from home.
FWA 4G / 5G	Fixed Wireless Access 4th/5th generation.	pKm	Passenger-kilometre (unit of measure for transport).		
FY	Financial year – twelve months ended 30 June. FY23 is from 1 July 2022 to 30 June 2023.	Pluvial	Surface water flood.		
GHG	Greenhouse gas.	RAB	Regulatory Asset Base refers to the value of total investment by a regulated utility in the assets which will generate revenues over time.		

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