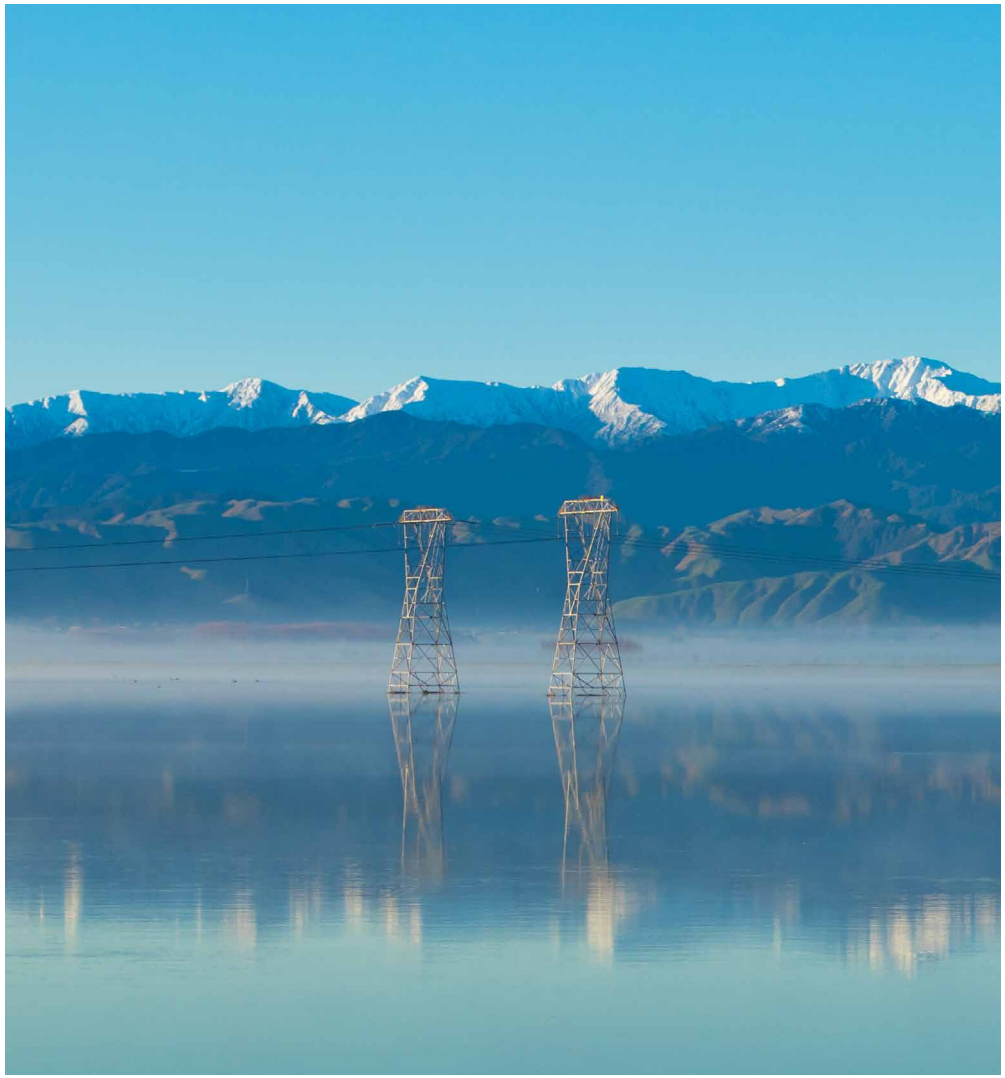
TRANSPOWER

Climate Statement

FY25

Contents



Climate Statement

Transpower New Zealand Limited (Transpower) is the owner and operator of Aotearoa New Zealand's electricity transmission network, the National Grid[1], and the System Operator – responsible for managing the real-time power system and operating the wholesale electricity market. The Grid is nationally significant infrastructure, and a lifeline utility under the Civil Defence Emergency Management Act 2002.

Transpower is a State-Owned Enterprise and a Climate Reporting Entity (CRE) under the Financial Markets Conduct Act 2013 (Act). This Climate Statement has been prepared in compliance with the Aotearoa New Zealand Climate Standards[2] and covers the period 1 July 2024 to 30 June 2025. It includes disclosures for Risk Reinsurance Limited (RRL), Transpower's "captive" insurance subsidiary.

Transpower has disclosed information where it is material as defined in NZ CS 3, namely that "information is material if omitting, misstating or obscuring it could reasonably be expected to influence decisions that primary users make on the basis of an entity's climate-related disclosures". Primary users of the Climate Statement are defined as Transpower's current and future investors, lenders and other creditors, and insurance companies.

1. To operate the Grid, Transpower also owns and operates an extensive nationwide telecommunications network.
2. Aotearoa New Zealand Climate Standards » XRB

Important Notice

This Climate Statement contains disclosures that rely on early and evolving assessments of current and forward-looking information, incomplete and estimated data, and our related judgements, opinions, and assumptions. Transpower has sought to provide accurate information in respect of the year ended 30 June 2025 as at the date of publication 28 August 2025, but it cautions reliance being placed on representations that are necessarily subject to significant risks, uncertainties and/or assumptions. Climate change is an evolving challenge, with high levels of uncertainty and significant data challenges, particularly over long-term horizons. Descriptions of the current and anticipated impacts of climate change on Transpower are therefore necessarily estimates only.

In particular, the Climate Statements contain forward-looking statements and opinions, such as potential impacts, climate scenario narratives, targets, forecasts, potential global responses to climate change, government policy, regulatory developments, the development of various technologies, the future plans, strategies and objectives of management, and statements of Transpower's current intentions. Words such as "likely", "looking forward", "expect", "predict", "will", "may", "intend", "seek", "would", "continue", "plan", "estimate", "potential", "anticipate", "believe", "risk", "aim", "forecast", "assumption", "projection", "target", "goal", "guidance" or other similar words, are used to identify forward-looking statements.

Forward-looking statements and opinions are based on historical experience, internal business data, external sources, and various other factors that Transpower believes are reasonable in the circumstances and based on its current understanding. These statements and opinions necessarily involve assumptions, forecasts and projections about our present and future strategies and the environment in which Transpower will operate in the future. They reflect Transpower's current views on future events and are subject to change due to known and unknown risks, uncertainties, assumptions, estimates and other factors which are, in many cases, beyond Transpower's control, particularly as to inputs, available data and information which is likely to change. Risks and opportunities described in this report, and Transpower's strategies to achieve its targets, may not eventuate or may be more or less significant than anticipated. Many factors can affect Transpower's actual results, performance, or achievement of climate-related targets (or other metrics), and these may differ materially from what is described in this report, including due to economic and technological viability, government, consumer, and market factors outside Transpower's control.

Accordingly, while Transpower has made every effort to fairly present this climate-related disclosure, it provides no representation, guarantee, warranty, or assurance about the future business performance of Transpower, or that the outcomes expressed or implied in any forward-looking statement made in this document will occur. Actual outcomes may differ materially from those expressed or implied in this disclosure document. Transpower does not accept any liability whatsoever for any loss arising directly or indirectly from any use of the information contained in this disclosure report.

Transpower expects that some forward-looking statements made in this disclosure document may be amended, updated, recalculated, and restated in future documents as the quality and completeness of its data and methodologies continue to evolve and improve. Transpower does not:

- represent those statements and opinions will not change or will remain correct after publishing this report, or
- represent that it will revise or update those statements and opinions if events or circumstances change, or unanticipated events happen after publishing this report.

This Important Notice should be read along with the limitations, dependencies, uncertainties, barriers, and risks set out in full in this disclosure document. This report is not an offer document and does not constitute an offer or invitation or investment recommendation to distribute or purchase securities, shares, or other interests. Nothing in this report should be interpreted as capital growth, earnings or any other legal, financial, tax or other advice or guidance. For detailed information on our financial performance, please refer to our Integrated Annual Report, available at: www.transpower.co.nz/our-work/investors/reports-and-reviews.

Letter from the Chair

On behalf of the Board of Transpower, I am pleased to present the second Transpower Climate Statement, as required by the Aotearoa New Zealand Climate Standards.

Climate change remains a significant driver for Transpower's business, both as a risk to its infrastructure and performance but also in the opportunity it presents for the role of electrification as Aotearoa New Zealand decarbonises its economy. Transpower sits at the heart of this transition.

This Climate Statement presents in detail Transpower's evidence-based approach to defining potential outcomes, identifying risks and opportunities, planning future activity and in setting targets and key performance indicators. We are confident Transpower monitors, evaluates and is responding to the risks and opportunities presented by climate change. As well as fulfilling our statutory reporting requirements as a Climate Reporting Entity (CRE), this Climate Statement reflects our Board's commitment to support the electrification of our economy and mitigate climate-related transitional and physical impacts on the grid and real-time power system.

Statement of Compliance

Transpower New Zealand Limited (together with its subsidiaries) is a CRE for the purposes of the Financial Sector (Climate-related Disclosures and Other Matters) Amendment Act 2021 (the Act).

This report, which constitutes our Climate Statement in accordance with the Act, covers the period 1 July 2024 – 30 June 2025 and has been prepared in compliance with the Aotearoa New Zealand Climate Standards (NZ CS 1, NZ CS 2 and NZ CS 3) issued by the External Reporting Board (XRB) in December 2022.

Michele Embling
Board Chair
28 August 2025

Kevin Palmer
Audit and Risk Committee Chair
28 August 2025

Overview

Aotearoa New Zealand has a target of net-zero emissions by 2050, which is driving the increasing electrification of its economy and communities. Transpower has a significant role to play in enabling the transition from a predominantly fossil-fuel based energy sector, to one that is based on renewable resources.

This country has a highly renewable electricity system by international standards 86 per cent for the 12 months ended 30 June 2025[3]. However, when looking at energy consumption overall, fossil-fuel based sources still fulfil approximately 70 per cent of overall energy, mainly through transport and process heat[4]. This stark contrast underscores the challenge of transitioning from fossil fuel-based sources to renewable sources to support the achievement of Aotearoa New Zealand's net zero targets. Transpower's dual roles as owner-operator of the national grid, and operator of the real-time electricity system, place it at the centre of this transition.

Rather than producing a separate climate change risk strategy, climate change is a core assumption underpinning Transpower's business strategy Transmission Tomorrow, which was refreshed in 2023, following the 2020 publication of Whakamana i Te Mauri Hiko – Empowering our Energy Future (Transpower's strategic context). It identifies the different energy demand and supply pathways Aotearoa New Zealand could take in its transition journey through to 2050, and the implications of each for Transpower, the community in which it operates, and the electricity industry.

In May 2025, Transpower has launched a new initiative (Te Kanapu) to guide strategic discussions across the electricity sector and with key stakeholders to inform its planning for its national electricity transmission grid investments to 2050 and beyond. Te Kanapu looks towards an increasingly electrified future for Aotearoa New Zealand that is powered by increasing amounts of renewable generation. It will envision a range of possible scenarios and asks what the grid will need to look like to enable the reliable and affordable electricity supply necessary for a thriving, net zero economy by 2050.

In 2023 and in line with the Aotearoa New Zealand Climate Reporting Standard, Transpower developed temperature-rise based scenarios consistent with Whakamana i Te Mauri Hiko, which provide further contextual clarity for how Transpower should govern, manage, measure, and respond to the climate risks and opportunities it faces.

The way Transpower identifies, manages, governs, and responds to climate change-related risks and opportunities is embedded in its business operations and asset management approach.

Transpower needs to enable the rapid connection of new energy sources and increase the capacity of the grid to meet increasing demand. At the same time the system as a whole will face challenges in matching demand – both peak and overall energy need – and in integrating new technology through the transition.

In the role of system operator, Transpower will consequently face challenges in communicating and mitigating system stability and market transition risks. Transpower, as system operator needs to continue to operate a stable power system that seamlessly integrates more highly distributed and intermittent energy sources as the system transition ensues and adapt operations to changing system security risks. The system operations risk review and management processes identify operationally-focused threats, risks and controls, and those related to climate change are included within this Climate Statement.

Transpower's physical risks are associated with the increasing frequency and severity of extreme acute weather events, but also chronic hazards such as sea level rise. The risks are characterised by the impact that these events and hazards have on the operation of assets and the market system. Transpower's assets are subject to a diverse range of natural hazards. Climate change is increasing both the frequency and magnitude of many of the natural hazards that already occur.

Transpower's asset planning accounts for this changing dynamic by incorporating resilience to major hazards into its grid investments with awareness of climate change projections. Transpower's asset risk review process identifies and collects information for asset management purposes on all major hazards including those related to climate change. This enables Transpower to make informed decisions about asset health and network risk, so that Transpower can maintain a safe and reliable network and realise improvements in resilience to natural hazards and climate change.

Transpower anticipates supply chain and other procurement issues resulting from the global transition to electrification and the impact of climate change on manufacturing and supply chains – these cover both physical and transition risks.

In this Climate Statement, each of these areas are outlined in more detail, and provide supporting evidence for the position taken. Every part of Transpower's value chain is covered in this Climate Statement.[5]

3. Transpower's System Operator Market Operations Update Week Ended 29 June 2025
4. Energy in New Zealand 2024 (mbie.govt.nz)
5. Refer FY25 Integrated Report page 7

Documents that form part of the Climate Statement

Below is the only document acknowledged and linked in the Climate Statement that forms part of the Transpower Climate Statement FY25:

- FY25 Greenhouse Gas Inventory Report

Documents that provide background context to the Climate Statement

The following (being Transpower's own documents, which are publicly available on its website) and any other documents mentioned, referenced or linked within this Climate Statement are included only to provide background context. No such documents form part of the Climate Statement.

- Climate Adaptation Plan
- FY25 Integrated Report
- FY25 Statement of Corporate Intent
- FY26 Sustainability Strategy
- Net Zero Grid Pathways programme
- RCP3 updates and disclosures including the Integrated Transmission Plan suite of documents
- RCP4 proposal
- Service Measures Report 2023
- System Operator Strategic Plan
- Te Kanapu
- Transmission Tomorrow
- Whakamana i Te Mauri Hiko – Empowering our Energy Future

SECTION 1

Governance

The way in which climate risks and opportunities drive strategic decisions and are managed within Transpower's operational footprint, is fully integrated into governance and management structures.

1.1 The role of the Transpower Board

Transpower's Board is the body responsible for governance of its strategic direction including oversight of climate-related risks and opportunities and their impact on the strategic direction.

Through the reporting period the Board has been largely comprised of seven Directors, and from 1 August 2025 the Board will have eight Directors. As a State-Owned Enterprise, Transpower's shareholding ministers, the Minister for State-Owned Enterprises and the Minister of Finance, appoint Directors. The Board reviews Transpower's strategic context annually, before refining and confirming Transpower's strategy and business plan. Both the strategy and business plan are reflected in Transpower's FY25 Statement of Corporate Intent, which was provided to shareholding ministers, and is available on the website – covering the three-year period commencing 1 July 2024.

Transpower's Statement of Corporate Intent includes its budget and key asset health and network risk service measures, performance against which is monitored by the Board monthly. The grid-related outcomes and targets relate to Transpower's performance in delivering the work programme agreed with one of its regulators, the Commerce Commission, for its five-year regulatory control period (RCP).

Transpower also delivers an annual System Operator Strategic Plan to a second regulator, the Electricity Authority, with a five-year outlook with reference to Transpower's role as System Operator. This includes a focus on the operation of the power system as it evolves to meet the future of increasing electrification with increased renewable and intermittent generation, and the introduction of new technologies and distributed energy resources.

In August 2024, on recommendation from the Audit and Risk Committee (ARC), the Board considered and approved Transpower's first Climate Statement, followed by the ARC's and then Board's consideration and approval of this Climate Statement. Throughout the year, the Board and relevant committee of the Board consider and respond to climate-related transitional and physical impacts on the grid and real-time power system.

In September 2024, the Climate Adaptation Plan was approved, following Board feedback and approval which is focused on Transpower's key physical climate-related risks and how Transpower is prepared to enhance the resilience of the grid in response. The ARC will be updated at least annually on Transpower's progress implementing the actions comprised in the Climate Adaptation Plan. Transpower provides an update on its Sustainability Programme, which underpins its Sustainability Strategy, at least annually to the Board. The Sustainability Programme is refreshed annually and outlines the key initiatives to address Transpower's key sustainability risks, challenges, and opportunities.

1.2 Board committees

Climate-related risks are reported to the ARC quarterly via the risk management dashboard, and subsequently to the entire Board. The ARC also reviews risk appetite settings, climate scenarios and climate-related reporting before it recommends these for Board approval.

The System Operator Committee meets quarterly and governs Transpower in its role as System Operator, including consideration of the particular risks and challenges to operating the power system arising from climate-related risks such as winter security of supply challenges during the transition. Transpower, in its role as system operator, also works with the Electricity Authority and reports to the Electricity Authority's Board and Market Operations Committee on the system operator risk management approaches, with a recent focus on emerging risks associated with technology change.

Broader climate-related opportunities are discussed with the relevant Board committee and then the Board, or with the Board directly. Our current climate-related opportunities are aligned with Transpower's key areas of strategic focus for the business as a whole.

1.3 Board skills and competence

The Board ensures appropriate skills and capability are available through a regular assessment of each Director's skills and competencies in core governance areas, including climate change. This is published in Transpower's Integrated Report. Education is provided to boost members' relevant skills and competencies where required, delivered by subject matter experts both internally and externally.

Climate change is an area of focus for Transpower's induction and ongoing education for its Directors. Some of Transpower's Directors have completed formal climate- and sustainability-related professional development and courses such as the Harvard Kennedy School–Climate Change & Energy: Policy Making for the Long-Term; and New Zealand Institute of Directors – Addressing the Climate Urgency. One Director is a member of Chapter Zero. One Director is the Chair of the XRB and Board member of Toitū Tahua: Centre for Sustainable Finance.

Climate-related risks and opportunities are regularly discussed at Transpower's Board meetings, which means Directors are continually sharing and building additional knowledge and expertise in this area.

1.4 The role of management

The Chief Executive has overall responsibility for the management of Transpower. Day-to-day management is delegated to nine Executive General Managers (Executive GMs) who together make up the Executive Leadership Team (ELT). Executive GMs are responsible for assessing and managing risks in their respective divisions. Managers at each level are responsible for evaluating the risk environment and putting controls in place to prevent these risks from occurring or, once they have eventuated, to mitigate their impact.

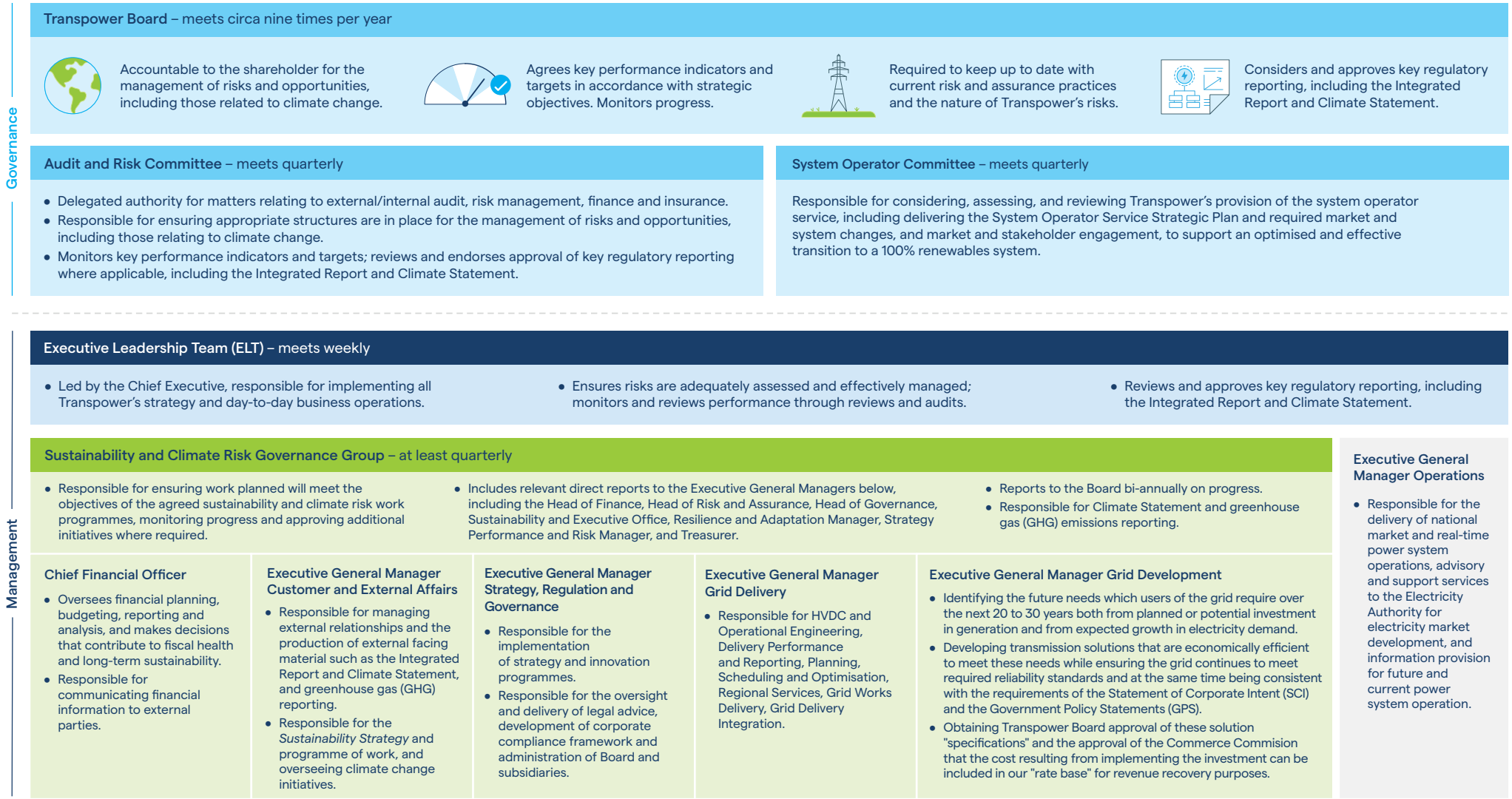
The ELT is responsible for directing and providing assurance over Transpower's Enterprise Risk Management Framework, including climate-related risks and opportunities, for which the Chief Financial Officer has overall responsibility. On a quarterly basis, the ELT reviews and updates all strategic, external, and key operational risks before these are reported to the ARC. The impact of a changing climate is reflected in all three of these risk categories, particularly external.

The climate-related disclosure process is undertaken by a cross-business management group including members of the Strategy, Sustainability, Strategy, Performance and Risk, Asset Management, Risk and Assurance, Procurement, Operations, Grid Delivery, People, Finance, and Treasury functions. This cross-functional group coordinates the annual update of the Climate Statement and monitors climate-related risks and opportunities, including new and emerging opportunities and risks as well as changes to the materiality of existing ones.

Transpower's key risks and related strategic priorities are published annually in the Integrated Report.

1.5 Climate governance and management structure

Figure 1: Climate Governance and Management Structure



SECTION 2

Strategy

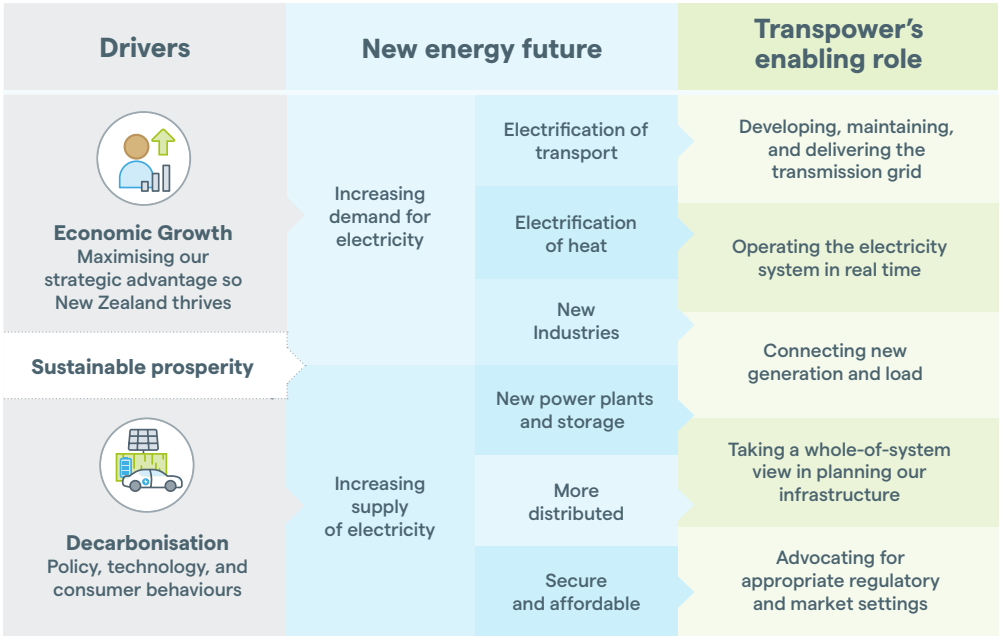
Climate change is central to Transpower's strategy, planning, and operations. Scenario analysis is used to identify and manage climate-related risks and opportunities to support electrification with resilient grid infrastructure and the operation of a distributed and highly-renewable electricity system.

2.1 From strategy to planning

Electrification is a major contributor to meeting the Government's target of reaching net zero carbon by 2050. It also presents Aotearoa New Zealand with a clear opportunity to grow our economy in new ways.

With the increased focus on electrification, Transpower plays three key enabling roles in Aotearoa New Zealand's electricity sector as shown in Figure 2.

Figure 2: Strategic Operating Context



Transpower's Accelerated Electrification pathway, outlined in Whakamana i Te Mauri Hiko, is consistent with meeting the Government's electrification ambitions. Our initial assessment of easy-to-electrify energy use forecasts a 68 per cent increase in electricity demand and 137 per cent increase in installed generation between 2020 and 2050. Transpower will further assess the required change for harder-to-electrify sectors such as shipping and aviation, as technologies evolve.

Transpower's strategies and plans position Transpower for this pathway and provide clear line-of-sight between climate change mitigation and adaptation needs, and Transpower's business, operations, and investments. Key Transpower strategies and plans are outlined in Figure 3 and are supported by Transpower's asset management and risk management approach.

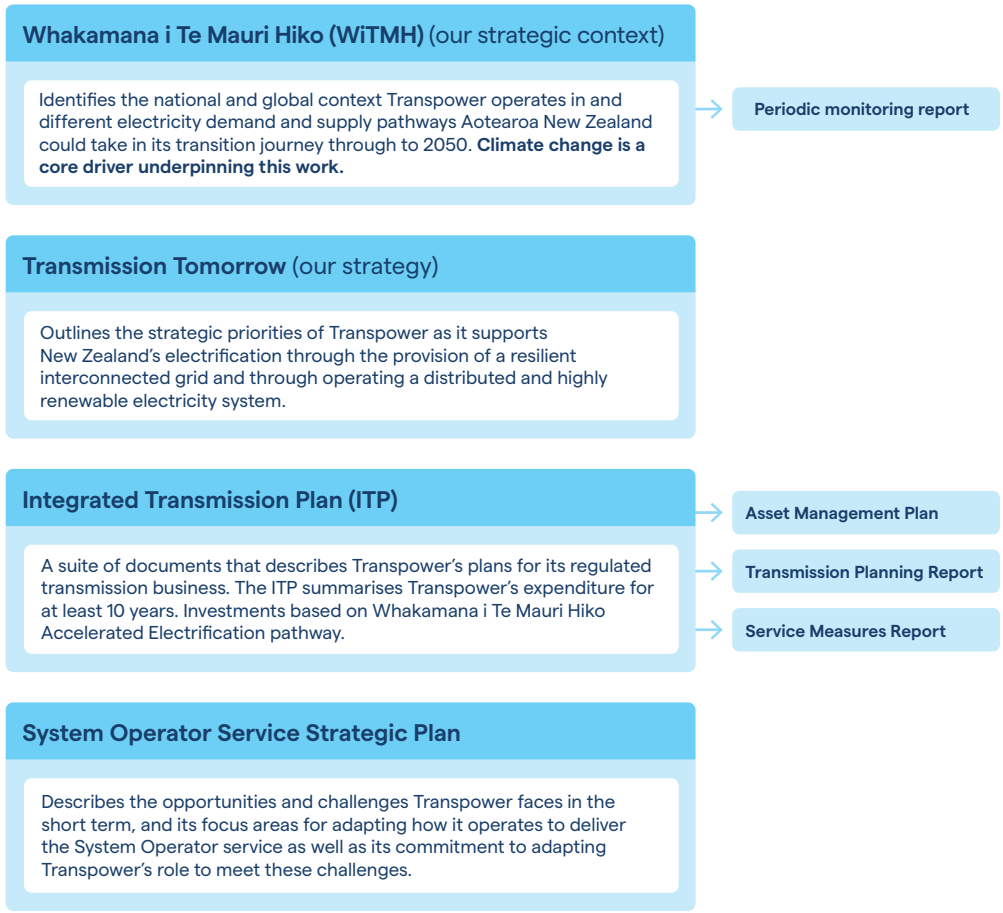
Transpower regularly seeks input from customers and wider stakeholders in developing its plans to ensure the transmission system meets the country's needs.

Through Te Kanapu, Transpower is tapping expertise and insights from the electricity sector and interested stakeholders to guide Transpower's investment into the future of electricity transmission in this country. With electrification well underway and set to pick up the pace as New Zealand transitions to low-carbon energy sources to power the way Kiwis live and work, Transpower needs to determine what the transmission grid will need to look like to enable the reliable and affordable electricity supply necessary for a thriving, net zero economy by 2050.

Transpower periodically produces a monitoring report that assesses progression relative to the Accelerated Electrification pathway. Monitored indicators include: core drivers of electricity supply and demand, such as population and economic growth; emissions reduction and climate policy; industrial energy use; vehicle electrification; renewable generation development; and trends in distributed energy resources.

In Transpower's System Operator role, the core priority is to operate the electricity system securely and efficiently in real-time. To do this Transpower must deliver a broad range of activities which span time horizons from second-to-second real-time operations out to a decade into the future.

Figure 3: From Strategy to Planning



2.2 Scenario analysis

Transpower has developed, and uses, three standalone climate change scenarios to help identify its climate-related risks and opportunities and to better plan for the resilience of its assets to climate change.

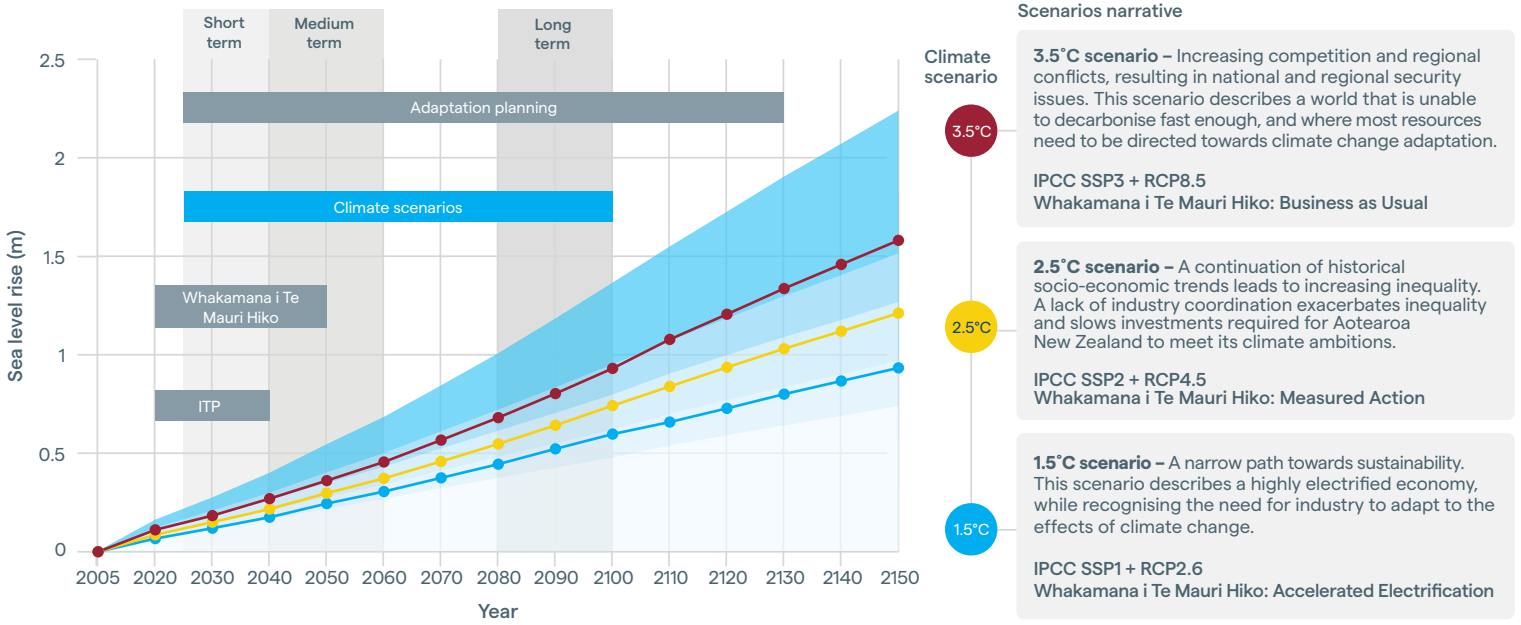
Scenarios represent a plausible, dynamic, and challenging range of possible futures, and allow key uncertainties and assumptions to be explored. They are not probabilistic predictions, nor snapshot descriptions of an end point in time. Scenarios support Transpower's decision-making and better understanding of the resilience of its business model, strategies, and plans.

Transpower's climate change scenarios are based on degrees of temperature rise due to global warming out to 2100 and consider a wide range of information[6] to represent possible global, national, and industry-specific developments. Figure 4 illustrates relative sea level rise projections in Aotearoa New Zealand under Transpower's climate scenarios, with shading representing confidence intervals of the projection. Importantly, a noticeable divergence in scenarios is not expected until 2050, which is a broad proxy for other climate-related impacts.

They are split into three-time horizons in accordance with the Intergovernmental Panel on Climate Change simulations[7]:

- Short term (2025 – 2040)
- Medium term (2041 – 2060)
- Long term (2081 – 2100)

Figure 4: Overview of Transpower's Three Climate Scenarios (1.5˚C, 2.5˚C and 3.5˚C degrees warming)



Transpower uses these scenarios and timeframes to identify:

- **Transition risks and opportunities**, which are linked to Aotearoa New Zealand's ability and speed to decarbonise and electrify, and Transpower's ability to enable increased electrification. To analyse transition risks and opportunities, Transpower's climate scenarios use its Whakamana i Te Mauri Hiko scenarios alongside the Intergovernmental Panel for Climate Change (IPCC) Shared Socio-economic Pathways (SSPs) and the International Energy Agency's World Energy Outlook 2023 report which outlines relevant trends and developments for the sector.
- **Physical risks**, which are directly dependent on the intensity of global warming. To analyse physical risks, Transpower's climate scenarios use the IPCC's Representative Concentration Pathways (IPCC's RCPs) and associated climate projections.

6. This included global, New Zealand and Transpower data sources such as: Intergovernmental Panel on Climate Change (IPCC), International Energy Agency (IEA), Global Environmental Change Journal, Ministry for the Environment, and Transpower datasets underlying Te Mauri Hiko, Whakamana i Te Mauri Hiko and Enabling New Connections (ENC).
7. IPCC Fifth Assessment Report.

This Climate Statement provides information for material risks and opportunities, based on assessment of the most challenging scenario. Transition risks and opportunities focus on the 1.5˚C scenario (Whakamana i Te Mauri Hiko Accelerated Electrification), and physical risks focus on the 3.5˚C scenario (IPCC's RCP8.5).

More information relating to the scenario development process can be found on the Transpower website.

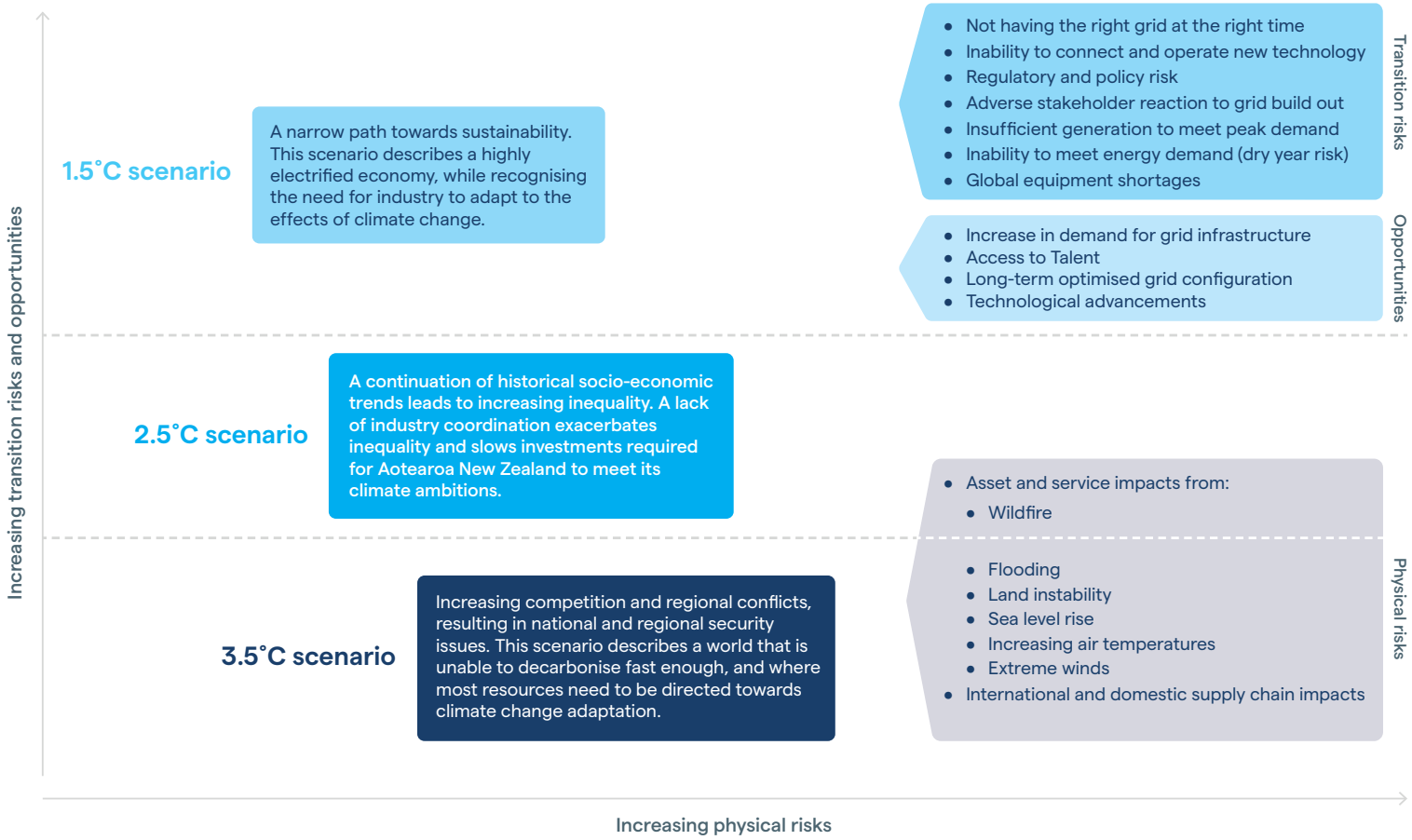
Figure 4 also shows how our climate scenario time horizons compare to other time horizons considered by Transpower in its strategy and planning:

- to 2040: Integrated Transmission Plan (ITP) sets out the plans for Transpower's regulated transmission business.
- to 2050: Whakamana i Te Mauri Hiko provides strategic context, including Aotearoa New Zealand's energy future scenarios.
- to 2150: Climate adaptation planning considers a greater than 100-year period. Our first Climate Adaptation Plan was released in September 2024.

For specific asset investments, Transpower considers the operating context and timeframes relevant to those decisions.

Figure 5 right provides an overview of the risks and opportunities identified through the scenario analysis process.

Figure 5: Key transition risks, opportunities, and physical risks assessed by climate scenario



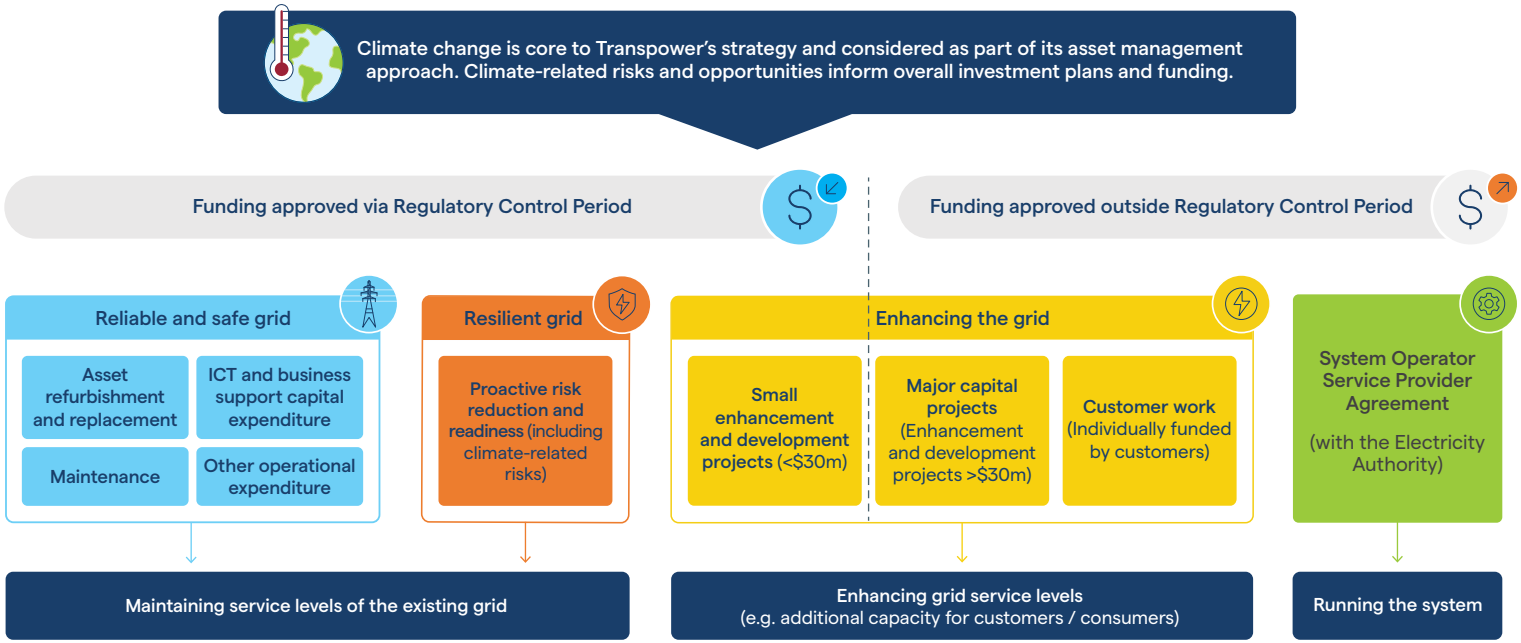
2.3 Financial planning and capital deployment

The majority of expenditure is funded by grid revenue Transpower recovers from its customers. This revenue is regulated by the Commerce Commission and is set every five years for RCPs. Specific funding for resilience has been obtained for our next five-year regulatory period commencing 1 April 2025.

For major capital projects (MCPs) that cost over $30 million, Transpower must make a separate application to the Commerce Commission for projects involving expansion of the grid. In developing its MCPs, Transpower is required to use Electricity Demand and Generation Scenarios (EDGS) produced by the Ministry of Business, Innovation and Employment (MBIE), although it may in some instances use variations. These variations would be informed by Whakamana i Te Mauri Hiko (which inherently incorporates transition planning).

The diagram (Figure 6), right, provides an overview of Transpower's main funding streams and work types. Transpower's understanding of its climate-related risks and opportunities is an essential input to determine the necessary investment in the grid and systems, whether for regular maintenance, resilience, or for refurbishment and replacement. Transpower's climate-related risks also inform any work commissioned by its customers on its sites.

Figure 6: Investment and Funding Framework



2.3.1 Transpower invests in the transition

To support the country's commitment to net zero emissions by 2050, the Government has an interim target that 50 per cent of total final energy consumption will come from renewable energy by 2035 and a doubling of renewable electricity by 2050. Electrification will play a key role in achieving both objectives, particularly in the electrification of two of the country's most carbon-intensive sectors: transport, and process heat. Based on current modelling, powering this change will mean increasing installed generation from about 10 GW today to approximately 22 GW by 2050, to meet electricity demand under the Whakamana i Te Mauri Hiko Accelerated Electrification scenario.

Transpower needs to build and enhance the transmission grid to ensure it can continue to deliver electricity from where it is generated to where it is needed; enable the rapid connection of new renewable energy sources; increase the capacity of the grid to support these connections and increasing demand; and finally, continue to operate a stable power system that seamlessly integrates more highly distributed and intermittent energy sources.

Transpower recently launched Te Kanapu. With the goals of supporting New Zealanders to grow the economy and achieve a net zero carbon future, Te Kanapu is a strategic discussion across the electricity sector and key stakeholders to inform actionable, least-regrets investments for a future transmission grid that is reliable, resilient, and affordable well into the 2050's and beyond. We are building from the Whakamana i te Mauri Hiko research in 2020, which highlighted the electrification opportunity, to deliver a range of refreshed scenarios and ask what the transmission grid needs to look like out to 2050 to enable the reliable and affordable electricity supply needed to power our energy future. Informed by insights gained through wide engagement and tapping into other initiatives underway, Te Kanapu will deliver a Grid Blueprint to provide those who plan to generate, move, buy, and sell electricity better information and enable the energy industry to coordinate and optimise their plans. Transpower is developing the Grid Blueprint over 2025 and 2026.

The investment required to maintain the existing grid and existing service levels for customers must be approved by the Commerce Commission, which occurs through a submission process for funding of five-year regulatory control periods following customer consultation and independent verification. This includes a modest amount for grid enhancement and development. Separate approval is required for MCPs. These costs are recovered from customers (electricity distributors, generators, and certain load customers) through the Transmission Pricing Methodology determined by the Electricity Authority. Specific connections for customer projects are funded under separate bilateral contracts.

Transpower's Net Zero Grid Pathways programme is a multi-year programme of work through which it will investigate, plan, consult on, and seek Commerce Commission approval for the required MCPs to deliver these requirements. This suite of documents sets out the projects that, if delivered, would double the regulated asset base (RAB) over the next 10 years. The programme is driven by key tactical decisions informed by broader long-term planning, including the Transmission Planning Report and Asset Management Plan.

Transpower's Green Financing Framework ensures its funding strategy is aligned with its sustainability objectives. It also supports its ability to source the finance required to enable the investment needed. The Green Financing Framework covers both existing and future issuances of Transpower's debt instruments – a gross debt book of approximately NZ$4.1 billion as of 30 June 2025.

2.3.2 Transpower continues to build resilience into its planning

Climate-related risks are managed as part of Transpower's overall asset management approach. An asset-risk review process identifies and collects information on all major hazards including those related to climate change. This enables informed decisions about asset health and network risk, so that Transpower can maintain a safe and reliable network and realise improvements in resilience to natural hazards and climate change.

Risk reduction for climate-related risks regularly occurs through upgrades and asset replacement. However, Transpower needs to proactively invest in risk reduction and readiness where those upgrades or replacements are insufficient to manage the risk. Transpower's 2025-2030 workplan contains a proactive resilience programme which includes risk reduction and readiness initiatives for climate-related risks. Transpower has also developed a Climate Adaptation Plan, which builds on recent work, and identifies the next phase of improvements relating to climate change adaptation.

2.3.3 Climate-related financial impacts in FY25

The ongoing impacts of both the FY23 Auckland anniversary weekend flooding and Cyclone Gabrielle, along with the impacts of movement to the braided Clarence River in Canterbury in FY25, were determined to be the only material climate-related events resulting in a financial impact on Transpower in FY23, FY24 and FY25. Remedial works for all of these impacts are ongoing and will result in FY26 costs too. The actual financial impact of damage caused will be predominantly covered by insurance. Transpower procures insurance cover to mitigate financial risks associated with damage to Transpower property and provide cover for damage it might inadvertently cause to others in the normal conduct of its business. Insurance primarily covers the financial consequences of catastrophic event risk as well as higher frequency risks which are commercially appropriate to insure. Transpower operates a captive insurance company through its subsidiary RRL which reinsures most risks with external markets.

Flooding events in the north of the South Island in late-June 2025 will require repair work in FY26 (which as at 30 June 2025 has yet to be quantified).

2.4 Climate-related risks and opportunities assessment

2.4.1 Physical risks

To enable consideration and identification of the most material climate-related hazards Transpower considered a wide range of possible hazards over four categories: temperature, water, wind, and solid mass, with each category further divided into chronic and acute hazards. From this list, six hazards were assessed as being material due to their potential ability to significantly impact assets.

Assessment of the climate-related physical risks was carried out in accordance with the Hazard, Exposure, Vulnerability, Impact (HEVI) methodology, outlined in Section 3.3.

Table 1 outlines each material hazard, providing an assessment summary, overview of current and anticipated impacts and a summary of preventative and mitigative management actions. All physical risks were assessed against the 3.5-degree scenario, or as close as possible to this scenario, which was deemed to be the upper end of the risk.

The anticipated financial impact, and other quantitative information, has been provided where possible.

The focus of these physical risks is on the impact on the assets. In addition, managing the grid and power system securely gets increasingly difficult with increasing asset vulnerability.

2.4.2 Transition risks

Assessment of climate-related transition risks considered where Transpower's value chain is most exposed to the pressures and uncertainties associated with transitioning to a decarbonised economy.

Table 2 outlines each transition risk, providing an assessment summary, overview of current and anticipated impacts and a summary of preventative and mitigative management actions.

In contrast to the physical risks, Transpower anticipates all its transition risks will be most prominent in the 1.5-degree scenario where the nation electrifies rapidly. Therefore, all future impacts were assessed against this.

Failure to manage Transpower's transition risks could result damage to our social licence to operate, but financially quantifying the impact of this is not meaningfully possible. Legislative and regulatory frameworks around managed retreat for communities and critical infrastructure are still emerging and how it could strand Transpower's asset base is uncertain. For these reasons Transpower has taken the decision not to quantify the anticipated financial impact of transition risks.

Instead, Transpower has provided a broad percentage of business activities vulnerable to transition risk (which is different to current and anticipated financial impact), determined by the proportion of forecast capital expenditure spend on major and customer capital compared to overall capital expenditure spend (base, major and customer). This percentage broadly captures the relative spend on enhancing grid service levels, compared to maintaining them. For 2025 -2030 this is forecast to be 44 per cent, up from 22 per cent over the previous five years.

2.4.3 Opportunities

Assessment of climate-related opportunities considered areas within Transpower's value chain where climate change could enhance its operations or provide additional benefits to the organisation.

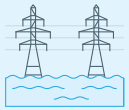
Table 3 outlines each opportunity, providing an assessment summary, overview of current and anticipated impacts, and a summary of management actions.

Transpower anticipates that the 1.5-degree scenario where the nation electrifies rapidly is where its opportunities will be most prominent. Therefore, all future impacts have been assessed against this.

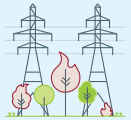
Transpower's primary opportunity relates to expanding the grid to enable electrification and the anticipated financial impact of this opportunity has been quantified. Other opportunities are less tangible and subject to significant uncertainty, so Transpower has not quantified the anticipated financial impact of these.

Instead, Transpower has provided a broad figure of business activities aligned to climate-related opportunities (which is different to the current and anticipated impact). Transpower's view is that this figure is equivalent to its vulnerability to transition risks set out above, as they equally relate to enhancing grid service levels through the expansion to enable electrification. For 2025-2030 this is forecast to be 44 per cent up from 22 per cent for the previous five years.

2.4.4 Table 1: Physical risks

Assessment Summary	Impacts in FY25	Future Impacts	Management Actions
Acute hazard – Flooding of rivers, waterways, estuaries, coastal locations, lakes, hydro dams, storm water, and local drainage systems			
 Heavy rainfall is increasing in both intensity and frequency. This presents a risk to assets on substation sites, transmission line structures, accessways, bridges and culverts. **Exposure threshold:** For a substation with an inundation greater than 0.2m and with a current return period[8] of less than 450 years. **Grid asset locations exposed to hazard:** Approximately 20% of substation sites and 2.1% of transmission line structures are exposed to varying vulnerabilities. Structures are exposed near braided rivers in the South Island and rivers in Hawke's Bay, on the West Coast, Fiordland, and north of Auckland. **Commentary on asset vulnerability:** Station asset vulnerability is dependent on inundation depth, whereas structures are vulnerable to water velocity and debris.	Movement of the braided Clarence River in 2025 resulted in work to protect the foundations for a tower, with a financial impact of $1m. Transpower continues to address the impacts of Cyclone Gabrielle in February 2023. This caused: • flooding of Redclyffe and other Hawke's Bay substations resulting in damage, and financial impact of more than $20m to date; and • flooding of the Ngaruroro River resulted in loss of one tower and minor damage to several others, and a financial impact of $0.7m. Costs are actual to date and current forecasts from response and recovery activities as incurred by Transpower and external insurance providers. These costs relate to FY23, FY24 and FY25. Severe weather events in the north of the South Island in late-June 2025 will require repair work in FY26 (which as at 30 June 2025 has yet to be quantified).	**Scenario:** 3.5-degree scenario. **Timeframe for impact:** 2025 - 2090. **Future impact commentary:** It is anticipated the frequency and severity of flooding events will increase, this is expected to lead to more frequent impacts on vulnerable assets. **Anticipated financial impact:** For substation flooding, the anticipated cumulative financial impact[9] from 2025 to 2090 is estimated to increase from $60m to $86m due to climate change, an increase of $26m. Future financial impacts for transmission line structures, accessways, bridges and culverts have not yet been quantified for a future scenario due to insufficient data. **Related indicators (i.e., metrics without targets):** Resilience history. **Related targets (i.e., metrics with targets):** Grid Performance 1 and 2[10].	Transpower is undertaking targeted flood resilience works where a credible flood risk has been identified. Transpower has $53m for its 2025 to 2030 work programme to strengthen substation resilience to flooding risks and mitigate risks for towers near braided rivers. Delivery investigations are underway. Transpower will continue to undertake detailed flood analysis to refine assumptions on the impact of climate change on event return periods, and asset vulnerability at a site level, and progress desktop and detailed flood analysis on the severity of flood events. Transpower will work to further understand the vulnerability of transmission line structures, access ways and bridges and culverts.
Acute and chronic hazard – Land instability through direct movement of the land and erosion over time			
 Poor ground stability can threaten the integrity of towers, poles, substations, accessways, bridges and culverts. **Exposure threshold:** Transpower has not been able to set an exposure threshold due to the difficulty in quantifying the size and likelihood of site-specific land instability risks. **Grid asset locations exposed to hazard:** Approximately 1% of the tower and pole assets are recorded on our national register of all known land instability issues. Areas most likely affected are Northland, Tairāwhiti-East Coast, Rangitikei, and Nelson-Marlborough. **Commentary on asset vulnerability:** Approximately 0.2% of towers require remedial action to protect our assets.	Transpower continues to address the impacts of Cyclone Gabrielle in February 2023, which impacted a total of 60 transmission line structure locations in Northland, Auckland, and Tairāwhiti-East Coast, with a financial impact of $13m. Costs are actual to date and current forecasts from response and recovery activities as incurred by Transpower and external insurance providers. These costs relate to FY23, FY24 and FY25. Severe weather events in the north of the South Island in late-June 2025 will require repair work in FY26 (which as at 30 June 2025 has yet to be quantified).	**Scenario:** 3.5-degree scenario. **Timeframe for impact:** 2025 - 2090. **Future impact commentary and anticipated financial impact:** It is anticipated that the frequency of land instability events will increase, this is expected to lead to more frequent impacts on vulnerable assets. **Anticipated financial impact:** Financial impacts have not been quantified for a future scenario due to the lack of available scientific models to predict the change in land instability hazards due to climate change. **Related indicators (i.e., metrics without targets):** Resilience history. **Related targets (i.e., metrics with targets):** Grid Performance 1 and 2.	Over the last year Transpower has completed $4m of mitigation works. Transpower also has $12m allocated for its proposed 2025 to 2030 programme of slope instability mitigations. Transpower will continue to monitor these risks and maintain a national register of all known land instability issues to our assets to facilitate planning and prioritisation of mitigations. Transpower continues to be actively engaged in the Landslides National Advisory Group (LNAG) and actively involved in research and sharing of technologies and probabilistic modelling to improve its ability to quantify impacts.

8. Average time or an estimated average time between events.
9. The net present value of costs expected each year. These figures will continue to change as new information becomes available.
10. See Section 4.2.4 for information on Grid Performance 1 and 2.

Assessment Summary		Impacts in FY25	Future Impacts	Management Actions
Acute hazard – Wildfire: Increased frequency of very high and extreme weather fire days				
	Overhead transmission lines can be damaged by, or start, a fire – either from proximity to vegetation and debris, or from equipment failure. Under certain conditions, a fire can become sustained and have wide impacts on land, property and people, and Transpower could be liable for these impacts if its assets are the cause of the fire. **Exposure threshold:** greater than 5% of days per year with Very High and Extreme fire weather days. **Grid asset locations exposed to hazard:** Currently 25% of transmission spans are exposed. **Commentary on asset vulnerability:** All exposed assets are considered vulnerable to starting a fire.	No material financial impact in FY25.	**Scenario:** Due to available fire weather data the climate change scenario used is between the 2.5-degree and 3.5-degree scenarios. **Timeframe for impact:** 2050 - 2090. **Future impact commentary:** This impact is solely related to damage caused to third party property from fires ignited by Transpower assets. Damage to Transpower assets is considered not material and mostly relate to wooden structures which are less than 10% of all our structures. From analysis of records since 1998, Transpower assets are not known to have caused any sustained widespread fires. **Anticipated financial impact:** The anticipated cumulative financial impact from 2025 to 2090 is estimated to increase by $16m (from $24m to $40m). **Related indicators (i.e., metrics without targets):** Resilience history. **Related targets (i.e., metrics with targets):** Grid Performance 1 and 2.	Transpower has invested in an aerial LiDAR[11] survey of the network nationwide to obtain a baseline to understand vegetation risks. This modelling improves the ability to identify risks and undertake vegetation control, in addition to ongoing vegetation clearance inspections. A future program of aerial survey is also in place. Ongoing investment in conductor inspection and conductor joint testing to reduce the probability of failure. The roll out of improved protection equipment helps to identify fault locations, so potential defects can be found before there is a repeat fault or equipment failure.
Chronic hazard – Sea level rise due to fresh water from melting ice sheets and glaciers, and ocean expansion as it warms				
	Sea level rise primarily presents risks to low-lying transmission line structures (poles and towers), underground cables, and substations. **Exposure threshold:** Assets in locations potentially exposed to coastal flooding with a current return period of less than 100 years, and up to 1.1m of sea level rise. **Grid asset locations exposed to hazard:** Less than 1% of transmission line structures are exposed. Substation exposure has been quantified under the wider flooding risk to avoid duplication, please refer to flooding hazard. **Commentary on asset vulnerability:** Transpower has assumed that all structures exposed to extreme coastal flooding may be vulnerable.	No material financial impact in FY25.	**Scenario:** 3.5-degree scenario. **Timeframe for impact:** 2041 - 2100. **Future impact commentary**: Assets may be inundated or affected by coastal hazards, resulting in impacts such as destabilisation of foundations, chloride damage to concrete, and accelerated corrosion around the water line. **Anticipated financial impact:** Financial impacts have not been assessed as additional information and analysis of coastal hazards and asset vulnerability is required. Vulnerability is complex because it needs to consider factors such as foundation types and depths, soil types, structure loads, groundwater levels, wave action and erosion. **Related indicators (i.e., metrics without targets):** Resilience history. **Related targets (i.e., metrics with targets):** Grid Performance 1 and 2.	Transpower will improve understanding of this hazard and our asset vulnerabilities as well as develop cost effective options to manage the risks for impacted assets. Given that this is a chronic hazard there is expected to be expenditure required to mitigate this risk in the medium term. Transpower will explore opportunities to align with, or learn from, wider replacement, refurbishment, enhancement and development work, such as the innovation initiative to replace some towers with poles.

11. Light Detection and Ranging (LiDAR), is a remote sensing method that uses light in the form of a pulsed laser to measure ranges (variable distances) to the Earth.

Assessment Summary		Impacts in FY25	Future Impacts	Management Actions
Chronic hazard – Increasing ambient air temperature				
	Increasing air temperature has the potential to reduce the rating of overhead transmission lines, primary stations equipment, and high-voltage direct current (HVDC) equipment. A reduction in rating means that equipment could not carry as much electrical current, limiting ability to move power around the country. **Exposure threshold:** No exposure threshold defined at this stage. **Grid asset locations exposed to hazard:** All current carrying assets are exposed to increases in ambient temperature. **Commentary on asset vulnerability:** Lines and equipment which have previously been optimised, and those where the maximum operating temperature is lower, are anticipated to be the most vulnerable.	No material financial impact in FY25.	**Scenario:** 3.5-degree scenario. **Timeframe for impact:** 2081 - 2100. **Future impact commentary:** On average, these climate change scenarios may result in a 2-6% decrease in line ratings by 2090. As temperatures rise, it might become necessary to improve or replace overhead transmission lines and equipment at stations may need upgrades to cooling systems. **Anticipated financial impact:** Financial impacts have not been assessed due to large uncertainties associated with assessing long-term system needs and ratings, and the wide range of potential solutions for possible climate impacts. **Related indicators (i.e., metrics without targets):** None. **Related targets (i.e., metrics with targets):** None.	Transpower will gain insights from performance of primary stations and key HVDC equipment, which is already monitored during extreme temperature events, allowing determination of the need and timing of any associated equipment modifications. A detailed review of impacts to overhead transmission line ratings is planned to identify those lines most vulnerable. Options will then be considered, such as the use of variable line rating, or existing physical works to achieve safe clearances or capacity issues. The clearance work and capacity upgrades are part of wider programmes, which can be leveraged to manage the impact of future increases in air temperature.
Acute hazard – Extreme winds from cyclones and other storms, including tornadoes				
	Extreme wind presents risks to overhead transmission lines from increased structural loading or damage from debris or vegetation. **Exposure threshold:** An exposure threshold for extreme wind has not been applied as there is low confidence associated with climate change projections for increases in extreme wind speeds. **Grid asset locations exposed to hazard:** Until further information is available, all lines are considered exposed. Assets in the South Island and lower North Island are more likely to be exposed to increases in extreme wind speeds. **Commentary on asset vulnerability:** Some older transmission lines are more vulnerable where they have been designed to lower design standards. While extreme winds can also impact substations, these impacts are not considered material.	No material financial impact in FY25.	**Scenario:** 3.5-degree scenario. **Timeframe for impact:** 2081 - 2100. **Future impact commentary:** Future impacts may include higher rates of asset failure, and associated impacts on reliability and repair costs. **Anticipated financial impact:** Financial impacts for this hazard have not been assessed due to low confidence in the wind projections, and the complexity given site specific variations related to both the assets and the hazard. **Related indicators (i.e., metrics without targets):** Resilience history. **Related targets (i.e., metrics with targets):** Grid Performance 1 and 2.	Transpower is undertaking targeted tower and foundation strengthening works on existing assets, where higher reliability and resilience is required than can be provided by the relevant historic design standards. The Commerce Commission approved $14m for Transpower's 2025 to 2030 work programme to strengthen HVDC towers. Transpower has emergency response structures and steel poles available to minimise the impacts of possible structural failures and undertakes regular readiness exercises to ensure it can respond quickly. Transpower will develop transmission line modelling and information, as higher confidence climate projections become available. This will be used for wider asset management decision-making and be an enabler for network risk assessments.

Assessment Summary	Impacts in FY25	Future Impacts	Management Actions
Acute and chronic hazards – Various impacting International and Domestic Supply Chains			
 The resilience and reliability of Transpower's supply chains may be affected by various physical hazards. Extreme weather events may disrupt productions at factories, transportation networks, damage infrastructure, and halt operations at key nodes along international supply chains. Rising sea levels may impact coastal infrastructure, including ports, and shipping terminals and result in closure, delays, and loss or damage of inventory. Rising temperatures and heatwaves may impact operational efficiency of supply chain infrastructure and transportation vehicles. Climate change may alter global trade routes and shipping lanes due to changing weather patterns, sea ice melt, and shifts in ocean currents. Geopolitical tensions may create climate migrants and may result in responses including disruption to international supply chains. **Exposure:** All supply chains. **Comment on vulnerability:** For some asset classes there is inadequate geographic diversity in suppliers.	No material financial impact in FY25.	**Scenario:** 3.5-degree scenario. **Timeframe for impact:** 2041 – 2100. **Future impact commentary:** Increasing disruption of production at factories, transportation networks, damaged infrastructure, and halting of operations at key nodes along supply chains. This would prevent timely and reliable access to critical equipment. **Anticipated financial impact:** The financial impacts of this risk have not been estimated due to large uncertainties and a lack of specific information regarding where and how these impacts might eventuate, but it is expected that shipping costs will be higher as sustainable fuels are adopted and newer vessels are launched to accommodate alternative fuels. Sustainable fuel is more a transition risk, but is mentioned here for completeness of disclosure as industry modelling shows sustainable fuels (if available) will be three to five times more expensive in 2030 than today's fossil fuels. Shipping's main challenge over the current decade is to prepare for and start on a decarbonisation pathway. Alternative carbon-neutral fuels are essential for achieving International Maritime Organization (IMO) greenhouse gas (GHG) emissions reduction goals in 2050. Additionally, the European Union Emission Trading Scheme will likely increase ocean freight rates due to the cost of carbon allowances, potentially impacting the price of goods and supply chains. **Related indicators (i.e., metrics without targets):** • Global shipping costs and sailing durations. • Supply chain lead times for key equipment and materials. **Related targets (i.e., metrics with targets):** None.	Transpower performs regular assessments of the relevant supply markets and maintains close management of relationships with key international and domestic suppliers of critical equipment and materials. For critical equipment, such as sub-sea HVDC cables, requirements are assessed, and suppliers are engaged with well ahead of time to ensure Transpower's needs (which are relatively small in global terms) can be met with surety. Transpower has increased stock levels and advanced ordering in response to material shortages and shipping delays. Additional warehouse space is being constructed in Bunnythorpe and Christchurch to support the anticipated increased work programme and associated demand for equipment and materials. Transpower continues to explore and implement opportunities for geographic diversity in critical suppliers where practicable.

Case Study

Adaptation Plan

Our first Climate Adaptation Plan, released in late 2024, was developed to enhance the resilience of Aotearoa New Zealand's electricity transmission system in response to climate change over time.

Our adaptation plan builds on years of effort across Transpower on asset management and resilience. The plan includes:

- **A high-level overview** of how we are integrating climate adaptation into our asset management approach and decision-making, in the context of the wider electricity industry and other critical infrastructure, and our regulatory framework.
- **Climate change impacts on the national grid.** This links to our climate change scenarios and Climate Statement, with our first Climate Adaptation Plan focusing on key physical climate-related risks.
- **Our adaptation responses.** We outline the PARA framework (Protect, Accommodate, Retreat, Avoid) and other wider adaptation responses to manage the impacts of climate change on our infrastructure.
- **Our actions for the next five years.** This includes integrating climate adaptation into our asset management, better understanding climate-related risks and opportunities, connecting and collaborating with stakeholders, and delivering climate resilience and adaptive capacity.
- **Implementation planning** – how we will implement, monitor, and report on our progress over the next five years.

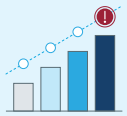
Transpower Adaptation Plan 2024

2.4.5 Table 2: Transition Risks

Summary	Impacts in FY25	Future Impacts	Management Actions
Not having the right grid at the right time to respond to rapid electricity demand changes			
 Transpower may struggle to keep up with rapid growth in electricity demand while maintaining secure and reliable service. This relates both to our core grid infrastructure and connection assets enabling new load and generation to access the grid. This could stem from slow planning or delivery, funding, environmental approvals, access right acquisition processes, supply chain issues, regulatory barriers or inaccurate forecasting. Failure to deliver the grid fast enough to keep up with demand could result in Government intervention, including potential restructure of the market and/or the loss of Transpower's position as the incumbent provider. Conversely, overbuilding could lead to higher costs for consumers – this, in turn, could lead to loss of social licence.	While annual electricity demand growth has been slightly lower than expected in recent years, peak demand has been growing as expected. Grid connection work has also increased significantly and there is now a queue to connect. Transpower's customer connection pipeline and integrated transmission planning process allows good visibility of growth across a range of demand and generation connection location points and volumes. **Current financial impact:** No financial impacts as service levels have been maintained to the required levels.	**Scenario:** 1.5-degree scenario. **Timeframe:** 2025 – 2060. **Future impact commentary:** Potential risk of power outages especially during peak demand. Potential risk of regulatory and structural intervention. Risk to social licence. **Anticipated financial impact:** If Transpower failed to deliver grid infrastructure fast enough or lost its incumbency position, the main financial impact would be a deficit to the asset base on which a regulated return could otherwise be derived. The amount of lost potential to the RAB is highly uncertain; it represents a loss of demand that might otherwise have been built had there been greater investor confidence or potentially the loss of business to an alternative provider. **Related indicators (i.e., metrics without targets):** • Generation and demand customer enquiries. • Twenty highest daily peaks each year. • Annual electricity demand. **Related targets (i.e., metrics with targets):** • Hiring targets. • HVDC capacity increase. • Central North Island capacity increase. • Wairakei ring capacity increase. • New Generation connection targets.	Transpower produces detailed forecasts for demand and potential transmission needs whilst operating the grid through an asset feedback loop. Transpower has developed its Net Zero Grid Pathways initiative. Initially under Phase 1 it will enable electrification through upgrades to the existing grid. $393m of least regrets grid backbone work has commenced as part of Net Zero Grid Pathways Phase 1. Transpower's newly established Future Grid Division will model the long-term transmission needs and develop a Grid Blueprint to guide and coordinate grid investment – that is, the larger scale investment in new grid infrastructure expected from the 2030's to respond to the expected increase in demand. This will be supported by advocacy to assist with the evolution of regulatory tests and case for grid investment. Transpower is also actively scaling up the internal and external resources needed to support the growing planning and investigation workload.

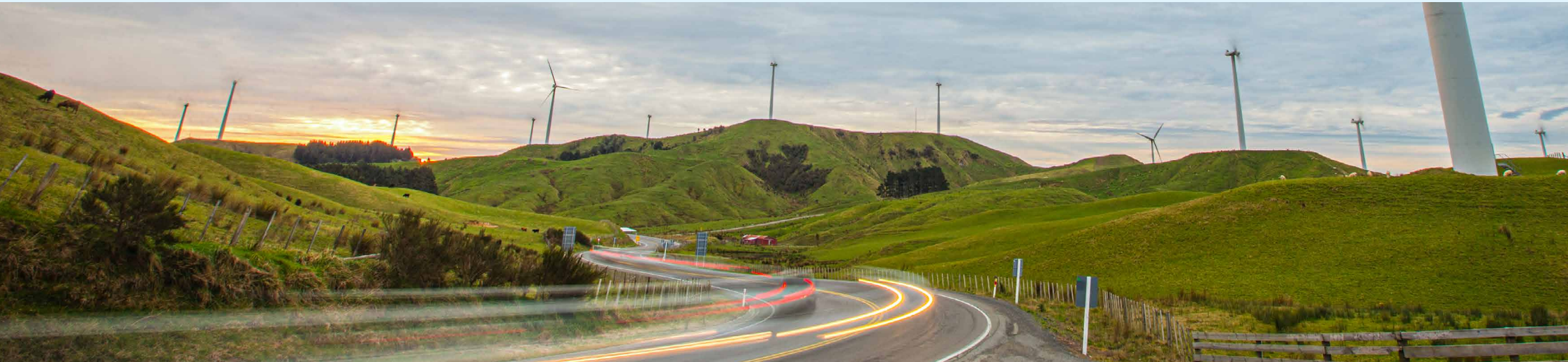
Summary	Impacts in FY25	Future Impacts	Management Actions
Inability to connect, integrate and operate a secure system with new technologies			
 In the role of System Operator, Transpower may face challenges integrating new generation and supporting technologies promptly, complicating system security management. These technologies may demand different modelling and analysis, new processes, or market design changes. They can also change the behaviour of the power system and introduce new challenges in terms of power system stability and health. Connection uncertainties might deter new market entrants from developing in Aotearoa New Zealand and joining the power system, as they may opt for other overseas markets instead.	Integrating assets that use new technologies is increasing with the first grid-scale batteries and solar. Whilst they are not yet at a scale that is causing issues, the risks are increasing, but so too is industry experience. **Current financial impact:** No significant financial impact currently. No immediate revenue impacts or liabilities, whilst we maintain compliance. Compliance impact primarily includes fines of up to $200,000.	**Scenario:** 1.5-degree scenario. **Timeframe:** 2025 – 2060. **Future impact commentary:** Higher risk of power system security events and potentially slower transition lead to consumer and industry impacts. This is in turn leads to reputational impacts for Transpower. **Anticipated financial impact:** Whilst there are direct financial impacts that may arise from this risk realising (in terms of compliance fines), there is an intangible dimension to the impact of trust in Transpower's operation (as system operator) of the real-time power system and its social licence. The potential financial impact of this intangible aspect of this risk cannot be accurately quantified. Further, reputational impacts could lead to regulator or government intervention which could risk separation or loss of the system operator service (approximately $50 to $60 million per annum of revenue). **Related indicators (i.e., metrics without targets):** New resources connecting to the power system (grid and lines companies). **Related targets (i.e., metrics with targets):** None.	Transpower is working with the Electricity Authority on the Future Security and Resilience programme. This programme recognises that the transition to a low-emissions power system is expected to bring increasingly distributed sources of generation, and more new renewable generation technologies. This multi-year programme includes a broad suite of actions to assist in maintaining a secure and resilient power system with much higher penetration of solar, batteries, and other renewables. It also aims to address issues around the Electricity Industry Participation Code, technology standards, market settings, and the operational visibility of distributed energy resources (DER). Transpower regularly conducts its own studies to understand the impact of new technologies and the changing power system. Other countries are experiencing these challenges ahead of Transpower, providing opportunity to utilise learnings from elsewhere.
Adverse stakeholder reaction to grid build-out			
 Stakeholder opposition to grid expansion may lead to delays, litigation and longer, more frequent outages. This can create tension and complicate relationships. Adverse reactions can increase negotiation time and costs for land access and may pose safety risks for Transpower and service provider staff. Exercising compulsory acquisition could harm Transpower's community reputation; it might also create challenges in accessing sites for grid projects and maintenance. Some grid investments may involve higher upfront costs to avoid litigation, while disputes may arise where negotiations fail.	The Clutha to Upper Waitaki Lines Project (CUWLP) was the last major new lines upgrade project to be undertaken. It was completed in FY22 with strong community support, so there are no current impacts. However, internal research on awareness and attitudes towards electrification reveals a low understanding of the need for electrification and transmission. As in other countries, people in Aotearoa New Zealand tend to support renewable energy, but do not support transmission infrastructure being built near their homes. Reforms are underway to the Public Works Act that will improve the processes to facilitate access rights and the Resource Management Act to enable quicker consenting processes for electrification. **Current financial impact:** No current financial impact.	**Scenario:** 1.5-degree scenario. **Timeframe:** 2025 – 2060. **Future impact commentary:** Inability to ensure appropriate access rights and environmental approvals for existing and ongoing works could increase costs and project delays. **Anticipated financial impact:** Due to a very wide range of outcomes and the intangible dimension to the impact of social licence on our work, the potential financial impact of this risk cannot be accurately quantified. **Related indicators (i.e., metrics without targets):** None. **Related targets (i.e., metrics with targets):** None.	Transpower employs a comprehensive approach to engaging with industry, communities, and stakeholders. It seeks to build long term relationships with communities and landowners. This includes proactive outreach, awareness raising, regular audits to gauge perceptions, and planned communication strategies considering potential risks. Transpower's Sustainability Strategy encompasses iwi and community programmes, and it maintains dialogue with mana whenua especially in sensitive areas. Transpower maintains social media presence and proactive media efforts to enhance awareness and acceptance, including educational materials for landowners helping inform them about Transpower's activities on their land. Initiatives such as the Community Care Fund support community acceptance of Transpower assets. Transpower's Future Grid initiative will also develop a body of evidence to support the need for least cost transmission infrastructure.

Summary	Impacts in FY25	Future Impacts	Management Actions
Regulatory and policy risk			
 Transpower is a highly regulated business, so is significantly impacted by the various regulatory frameworks to which it is subject. There is a risk policy and regulation may be too slow to support effective climate change mitigation, adaptation, and effective connection/integration of new energy technologies, hindering Transpower's role in decarbonising New Zealand's economy through electrification. Transpower's grid investments to enable New Zealand's electrification transition require regulatory approval. Transpower's proposals to build a resilient grid and enable a timely, optimised transition may be rejected by the Commerce Commission (Transpower's economic regulator) or by other regulators (e.g. failure to grant resource consents, failure to change market rules to enable the effective incorporation of new technologies into the real-time power system).	Transpower's expenditure and revenue allowances for Grid related work are set by the Commerce Commission. If insufficient funding is provided for expenditure to meet electrification or resilience needs, then we may not be able to adequately support the country's electrification needs on a timely basis. The Commerce Commission has regard to climate change legislation, however its overarching determinant of Transpower's allowances is the long-term benefit of electricity consumers. Therefore, transitional requirements must be reflected in demand forecasts and financial consequences of lost load. **Current financial impact:** The Commission sets Transpower's revenue based on the building blocks for allowable revenue. This is based on, amongst other things, the capex and opex allowances and the Weighted Average Cost of Capital (WACC) to derive a Return on Investment (ROI). The allowances for RCP4 (2025 - 2030) have been set by the Commission.	**Scenario:** 1.5-degree scenario. **Timeframe:** 2025 – 2060. **Future impact commentary:** The Commission has approved Transpower funds for its 2025 – 2030 workplan. **Anticipated financial impact:** The allowances for RCP4 (2025 - 2030) have been set by the Commission. One change made, to index the RAB for inflation, has the impact of reducing upfront cashflows for investments. Increased equity (retained earnings) and/or debt will be required to ensure prudent and efficient investments to meet electrification can be made. **Related indicators (i.e., metrics without targets):** None. **Related targets (i.e., metrics with targets):** Transpower is incentivised to operate within the allowances set by the Commerce Commission.	Transpower actively works with its regulators to ensure alignment on potential issues arising from the various regulatory frameworks. Transpower proactively seeks appropriate regulatory change by continually engaging with its regulators and advocating for changes to input methodologies and Government policy statements / Government energy strategy, so that investment criteria enable having grid in place to meet demand ahead of need. Ongoing monitoring of regulatory developments in Aotearoa New Zealand and other jurisdictions and maintaining relationships in the operational environment. Ongoing engagement with various agencies on non-electricity industry specific regulation affecting Transpower such as the National Adaptation Plan or the Emissions Reduction Plan.

Summary	Impacts in FY25	Future Impacts	Management Actions
Industry failure to manage peak demand			
 The industry faces challenges in meeting winter peak demand due to insufficient generation sources that can provide peaking generation at times of high demand. Coordinated efforts are needed during cold winter evenings and mornings, which could result in supply shortfalls and power outages. Increased wind and solar generation since 2019 create supply challenges when wind drops on dark winter mornings or evenings, reducing available generation at peak demand periods. Few new variable renewable generators have batteries to handle these situations, although we are seeing plans from participants for hybrid plant with generation and storage. About half of the country's thermal capacity is slow-start and not designed for peak demand, requiring advance notice. As thermal generation declines, there will be less thermal generation available at peaks. In our role as System Operator Transpower must inform the industry when margins are low and provide market information on when supply (generation) is required. Poor communication and poor management of the situation risks fines and reputational damage.	Winter 2024 bucked the existing[12] and forecast[13] trend towards higher peak loads. The main reasons for this were low rainfall and a shortage of natural gas, which resulted in high spot prices and consequently reduced industrial demand. Winter 2024 was also relatively mild. Demand at peak periods has been met comfortably in winter 2025 (up to 30 June) with few major generation outages, no extreme cold snaps, and slow-start thermal generation units running consistently. **Current financial impact:** No significant financial impact currently. No immediate revenue impacts or liabilities, whilst we maintain compliance. Compliance impact includes fines of up to $200,000.	**Scenario:** 1.5-degree scenario. **Timeframe:** 2025 – 2060. **Future impact commentary:** Higher risk of increased power outages during peak times, and the associated reputational and financial (through fines) impacts of this, if managed sub-optimally. **Anticipated financial impact:** Whilst there are direct financial impacts that may arise from this risk realising (and future compliance impacts (fines) could increase beyond $200,000), there is an intangible dimension to the impact of trust in Transpower's operation (as system operator) of the real-time power system and its social licence. The potential financial impact of this intangible aspect of this risk cannot be accurately quantified. For example, the impact of the peak demand power outage on 9 August 2021 has resulted in significant change in the manner in which Transpower approaches tight peak periods, and has led to material political and stakeholder focus on any such pending periods. Further, reputational impacts could lead to regulator or government intervention which could risk separation or loss of the system operator service (approximately $50 – $60 million per annum of revenue). **Related indicators (i.e., metrics without targets):** • Twenty highest daily peaks each year. • Annual electricity demand. • North Island Winter Capacity Margin. **Related targets (i.e., metrics with targets):** • HVDC capacity increase. • Central North Island capacity increase. • Wairakei ring capacity increase.	Transpower has implemented improved information provision to industry to enable decision making from both demand and supply participants to help address risk periods. This includes both live data and industry notices. Our most recent review of our process for issuing these notices was in December 2024.[14] The final phase of the real-time pricing project went live in 2023 enabling participants to make efficient real-time decisions about their consumption and generation which helps manage periods of high peak demand. Transpower initiates and participates in regular emergency preparedness exercises held in collaboration with industry partners, to address the risk of major loss of supply should it occur. However, Transpower has limited levers to address peak demand issues. It cannot own or build generation, nor instruct generators to run, and must follow market rules set by the regulator, the Electricity Authority. Transpower supports the broader industry in the development and connection of demand response mechanisms that could be used for emergencies e.g. Battery Energy Storage Solutions (BESS) and continues to advocate that the industry needs a broader and long-term solution.

12. Transpower, Winter Review 2024 (Page 15)
13. Transpower, Security of Supply Assessment 2024 (Page 20)
14. Transpower, Invitation to Comment: Low Residual Review Consultation

Summary	Impacts in FY25	Future Impacts	Management Actions
Industry failure to manage energy demand (dry-year risk)			
The industry must ensure there is enough electricity to meet demand, especially during dry years when low rainfall affects hydro generation. Transpower assesses supply outlooks regularly and provides information to market participants to inform them of potential shortages. Rising risk stems from growing electricity demand due to electrification and the retirement of baseload thermal generation that currently supplements shortfalls. The System Operator's responsibilities include managing and coordinating market support, such as providing regular energy supply reports and administering conservation campaigns during periods of potential shortage like dry years. This risk intensifies with increasing demand.	Over Winter 2024 Aotearoa New Zealand experienced a significant shortage of both gas and stored water for hydro generation. This resulted in a period of very high spot prices for electricity and gas, and concerns about a possible electricity shortage. This was resolved in August and September by increased rainfall and demand response agreements with two large industrial energy users. After an initial period of very low rainfall in 2025, security of supply concerns for winter 2025 have been alleviated by significant coal generation and industrial gas demand response. **Current financial impact:** No significant current direct financial impact to Transpower, although costs associated with additional work to provide information and to manage dry year events.	**Scenario:** 1.5-degree scenario. **Timeframe:** 2025 – 2060. **Future impact commentary:** Higher risk of low energy years where consumers are asked to conserve power, and in extreme cases, experience rolling outages. **Anticipated financial impact:** There is an intangible dimension to the impact of trust in Transpower's operation (as system operator) of the real-time power system and its social licence. The potential financial impact of this intangible aspect of this risk cannot be accurately quantified. Further, reputational impacts could lead to regulator or government intervention which could risk separation or loss of the system operator service. **Related indicators (i.e., metrics without targets):** • Annual electricity demand. • New Zealand Winter Energy Margin. • South Island Winter Energy Margin. **Related targets (i.e., metrics with targets):** • HVDC capacity increase. • Central North Island capacity increase. • Wairakei ring capacity increase.	Transpower has implemented improved information provision to industry to enable decision making from both demand and supply participants to help avoid risk periods but does not have the levers to otherwise address this itself. Solving this issue requires an all of industry approach that is supported by regulators and the market. Transpower continues to assess and publish its security of supply annual assessment (for both energy and capacity) and has reviewed the inputs and approaches to assessing both energy and capacity sufficiency. Transpower maintains and regularly reports electricity risk curves that look approximately two years out and are designed to reflect the risk of extended energy shortages in a straightforward way using a standardised set of assumptions. These set out the trigger points for national alerts on when an Official Energy Conservation Campaign is required. Transpower has also reviewed and consulted on the System Operator Rolling Outage Processes in the event it needs to manage demand carefully during periods of shortages.



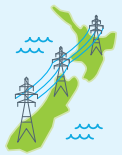
Summary	Impacts in FY25	Future Impacts	Management Actions
Global shortages of critical equipment and capabilities			
 As global demand for renewable energy and related infrastructure increases, the pressure on supply chains has intensified. Transpower may experience challenges in procuring essential equipment and capabilities, leading to potential delays in upgrading and expanding the network. This could impact Transpower's ability to reliably support the nation's growing renewable energy sector and accommodate future increases in electricity demand. The situation poses risks of increased costs and project delays, potentially hindering Transpower's role in enabling the energy transition.	Heightened demand for renewable energy infrastructure worldwide has resulted in supply chain bottlenecks, increasing the lead times and cost of equipment and capabilities. **Current financial impact:** Transpower has experienced increased prices across all equipment categories throughout FY25, as a result of increased raw materials pricing, supply and shipping constraints, and foreign exchange fluctuations: • Transformers: 10 – 15%. • Primary: 5 – 8%. • Secondary: 5 – 30%. • Lines and cables: 5 – 10%. Determining the impact the heightened demand for renewable energy infrastructure worldwide has played to the increase in equipment costs requires significant assumption about the magnitude of such impact relative to several other contributing factors. The range of possible outcomes and probabilities is too large to make a relevant estimate. Consequently, the degree of measurement uncertainty involved in estimating these financial effects is so high the resulting quantitative information would not be useful.	**Scenario:** 1.5-degree scenario. **Timeframe:** 2025 – 2060. **Future impacts commentary:** Heightened demand for renewable energy infrastructure worldwide may cause further supply chain bottlenecks, decreasing the availability and increasing the cost of equipment and capabilities. **Anticipated financial impact:** Shortages of critical equipment and spare parts could result in unplanned outages and/or delays in delivering key projects relating to new grid connection points. The regulated nature of Transpower's business – operating within an approved allowance – along with the current dynamics of the global economy and the impact of the finite regulated allowance on an accurate materials demand forecast, means the anticipated financial impact of this risk cannot be accurately quantified. Further, there is an intangible dimension to the impact of this risk – that is global shortages of critical equipment and capabilities also may impact Transpower's ability to reliably support the nation's growing renewable energy sector and accommodate future increases in electricity demand. Such failure would degrade Transpower's social licence. The potential financial impact of this intangible aspect of this risk also cannot be accurately quantified. **Related indicators (i.e., metrics without targets):** • Impact of foreign exchange rates on costs. • Global shipping availability. • Metals pricing. **Related targets (i.e., metrics with targets):** • Improved geographical location of inventory (closer to demand) through reduction in inter-island transportation. • Increased warehouse capacity. • Reduction in stock shortages. • Improved material lead times.	Transpower performs regular assessments of the relevant supply markets and maintains close management of relationships with key international and domestic suppliers of critical equipment and materials. For critical equipment, such as sub-sea HVDC cables, needs are assessed, and suppliers are engaged with well ahead of time to ensure Transpower's needs (which are relatively small in global terms) can be met with surety. Transpower has increased stock levels and advanced ordering in response to material shortages and shipping delays. Additional warehouse space is being constructed in Bunnythorpe and Christchurch to support the anticipated increased work programme and associated demand for equipment and materials. Transpower continues to explore and implement opportunities for geographic diversity in critical suppliers where practicable.

2.4.6 Table 3: Opportunities

Summary	Impacts in FY25	Future Impacts	Management Actions
Increase in demand for grid infrastructure			
 Electrification increases demand for transmission infrastructure. Accordingly, Transpower's regulated asset base will grow which will generate returns to debt and equity holders.	Although year-on-year demand growth has been slower than anticipated, peak demand is trending upwards. Post Cyclone Gabrielle, pressure has also been increasing to ensure that critical infrastructure assets are resilient in a way that meets expectations. **Current financial impact:** Transpower's asset base has increased by $242m over FY25. Transpower secured approval for $393 million in upgrades to the existing grid under Phase 1 of its Net Zero Grid Pathways initiative to enable further renewable generation to supply the North Island.	**Scenario:** 1.5-degree scenario. **Timeframe:** 2024 – 2060. **Future impact commentary:** Opportunity to grow and enhance resilience of the grid to meet the electrification needs of the country. **Anticipated financial impact:** Transpower's asset base is forecast to increase from $5.8 billion in 2025 to $13.2 billion by 2035, an increase of 125%. The increased asset base will generate returns to debt and equity holders and enable the addition of additional load and generation assets to contribute to the growth of other New Zealand businesses. **Related indicators (i.e., metrics without targets):** • Generation and demand customer enquiries. • Customer enquiries by generation type. • Twenty highest daily peaks each year. • Annual electricity demand. • Resilience history. **Related targets (i.e., metrics with targets):** • Hiring targets. • HVDC capacity increase. • Central North Island capacity increase. • Wairakei ring capacity increase.	Transpower is actively seeking regulatory change by advocating for changes to input methodologies and government policy to ensure that its investment criteria enable the right grid to be in place ahead of need. Future Grid is developing an overall optimised view of required grid expansion to 2050, with advocacy to support the evolution of regulatory tests and the case for grid investment ahead of need. Workforce planning and scaling up of internal and external resources is occurring to support the growth in planning and investigation workload. Resource Management Act reform advocacy regarding the need for a regulatory framework to support upgrading existing assets and building of new lines and substations to support electrification. Transpower is considering what is needed to streamline the land access rights, the acquisition process for upgrading existing assets and building new lines and substations to support electrification, as part of the advocacy strategy. This includes changes in Government's current review of the Public Works Act. Maintenance of its green certification of Transpower's debt enables Transpower to have a wide range of markets through which it can access and retain the debt it needs, at least cost, for anticipated investment requirements.

Summary		Impacts in FY25	Future Impacts	Management Actions
Access to talent				
	Transpower can position itself as a trusted decarbonisation leader, attracting and retaining talent interested in these initiatives. By promoting knowledge sharing and working closely with others in the sector to build the workforce, Transpower can enhance its reputation with stakeholders and benefit the communities where it operates. Accessing talent also enables Transpower to secure additional funding for its regulated allowance to ensure it is in a strong position (talent and revenue) to deliver the electrification for New Zealand (as each additional headcount is expected by the Commerce Commission to deliver increased throughput of work for Transpower triggering an allowance adjustment).	Transpower has noted a recent increase in the number of responses for job advertisements. Anecdotally, many applicants are driven by a desire to work in a sector contributing positively towards decarbonisation. **Current financial impact:** There is no current negative financial impact, since Transpower is able to attract the workforce required to deliver the work programme. Based on Transpower's workforce growth to 30 June 2024, an allowance uplift of $22m was secured from the Commerce Commission for the FY26 year.	**Scenario:** 1.5-degree scenario. **Timeframe:** 2025 - 2060. **Future impact commentary:** Transpower is working with its Service Providers to promote careers in the electricity sector in order to access a workforce with the required skills, capability and gender diversity. **Anticipated financial impact:** Based on Transpower's workforce growth in FY25, an allowance uplift of $44.9m is expected from the Commerce Commission for the FY27 year. If Transpower continues to meet the expected workforce growth requirements, additional allowance uplifts totalling $149m would be available for the FY28 to FY30 period. Given the regulated nature of Transpower's business, with five-yearly regulatory periods, there is no data available to accurately quantify the anticipated financial impact of this opportunity following FY30. **Related indicators (i.e., metrics without targets):** • Exit interview responses. • Recruitment market and hiring data. • Internal appointments. **Related targets (i.e., metrics with targets):** • Employee Engagement Score. • Turnover. • Annual leave balances Unplanned Leave. • Gender Pay Gap. • Training Spend. • Gender targets. • Hiring data. • Workforce FTE targets.	Transpower has developed, and is expanding on, its Employee Value Proposition to deliver a compelling message "powered by you". It is being deployed in recruitment campaigns to attract employees and more broadly generate Transmission awareness. A workforce plan has been developed. Engagement with Service Providers is being undertaken to define the suite of initiatives which will support an increase in the Service Provider workforce to meet the anticipated increased work programme. Transpower is an Accredited Employer with IMNZ. Immigration settings continue to change and are positive, enabling transmission and non-NZ transmission workforce types to be engaged. Transpower's Chief Executive[15] is involved in the Champions for Change initiative aimed at engaging more people (greater gender diversity) in STEM and engages with electricity sector CEs in the initiative through a dedicated working group. The Electricity Industry Gender Pay Gap Analysis was released in June 2024, as part of the Champions for Change initiative. Transpower's diversity programme has been refreshed to promote a "diverse first" approach to attracting, selecting, developing and progressing women at Transpower. Divisional gender targets have been established to achieve the company target of 40:40:20 by 2030. Transpower's graduate programme has been extended to provide a pipeline for engineering roles. The internship programme has also been extended to create a pipeline of future graduate engineers for the graduate programme.

15. James Kilty was appointed Chief Executive in February 2025 and remains committed to Champions for Change.

Summary	Impacts in FY25	Future Impacts	Management Actions
Long term optimised grid plan to enable electrification through Net Zero Grid Pathways			
 The electrification of major parts of the energy system will require a significant increase in grid infrastructure. This contrasts with the previous two decades, in which demand had been stable and grid infrastructure build tended to be tactical and minor. The scale of the build required for electrification presents an opportunity to plan an optimal grid that maximises security, sustainability and affordability.	**Current financial impact:** Transpower secured approval for $393 million in upgrades to the existing grid under Phase 1 of its Net Zero Grid Pathways initiative to enable further renewable generation to supply the North Island.	**Scenario:** 1.5-degree scenario. **Timeframe:** 2025 – 2060. **Future impact commentary:** Future Grid exists to develop the evidence base to support long-term planning as well as the advocacy required to achieve it. **Anticipated financial impact:** As noted above, electrification will result in an increase of Transpower's asset base by over 125% by 2035. However, this opportunity is more than just asset base increase; it's also about building the asset base optimally and thereby delivering greater value to our customers. This will help build social licence, but the benefits are largely intangible beyond increases to asset base. The intangible benefits are unable to be accurately quantified. **Related indicators (i.e., metrics without targets):** • Twenty highest daily peaks each year. • Annual electricity demand. • Resilience history. **Related targets (i.e., metrics with targets):** None.	Establishment of the Future Grid Division with the objective over the next two years to develop an optimised grid and power system blueprint to enable electrification out to 2050 and beyond. This will support and inform the advocacy required for appropriate regulatory, consenting and land access arrangements to ensure timely delivery of new grid infrastructure. Transpower's work will address the wider social licence required to build out the grid and seek to develop awareness including through Te Kanapu of the key role of electricity transmission in enabling electrification.
Technological advancements help Transpower to deliver a secure and reliable service			
 As electrification increases more investment will be channelled into technology that helps Transpower perform its role better.	The real-time pricing project went live in late FY23, integrating dispatchable demand and less onerous dispatch notification products with the real-time wholesale market pricing system that Transpower launched in collaboration with the Electricity Authority and NZX. **Current financial impact:** The real-time pricing project delivers wide industry and consumer financial benefit through efficient prices, rather than financial opportunity to Transpower.	**Scenario:** 1.5-degree scenario. **Timeframe:** 2024 – 2060. **Future impact commentary:** Technology investments to better inform asset condition monitoring, outage management systems, extending the use of situational information for decision making, usability of operational tools and improvements in operational data quality will be needed to enable Transpower to successfully manage the power system through a period of accelerated change. Investments will also enable the system operations service to adapt and enable increased electrification and consumer participation. Again, benefits will largely be delivered to wider industry and consumers. **Anticipated financial impact:** We are unable to quantify the anticipated financial impact given the integrated, multiple systems comprising the complex operating model utilised by Transpower to perform its roles as grid owner and system operator. **Related indicators (i.e., metrics without targets):** • Length of conductor inspected using Unmanned Aerial Vehicles (UAV) each year. • Number of poles/Towers inspected using UAVs. • Number of digital substations commissioned.	Technology developments such as LiDAR are being utilised to reduce and manage vegetation wildfires that could impact, or be caused by, transmission lines to better inform protective vegetation control to avoid wildfires. The use of satellites and geospatial overlays to detect "hot spots" where an undetected wildfire in a remote location is at risk of interrupting electricity supply. Transpower's digital substation initiative will enable new substations to be delivered more efficiently and at lower cost. This reduces the reliance on rare metals such as copper through the use of fibre optic cables and decreased the need for concrete in control room buildings. Transpower currently uses drones and machine learning to undertake elements of its inspection program, displacing the use of helicopters and other inspection methods. Further use cases for this technology is actively being assessed to expand the range of applications. Technology Developments, such as data and IT systems advancements (including AI) will assist the system operations service, with main benefits to wider industry and consumers arising by enabling increased competition through demand response and changes in flexibility services.

Case Study

Preparing the industry to implement rolling outages following a supply shortage declaration

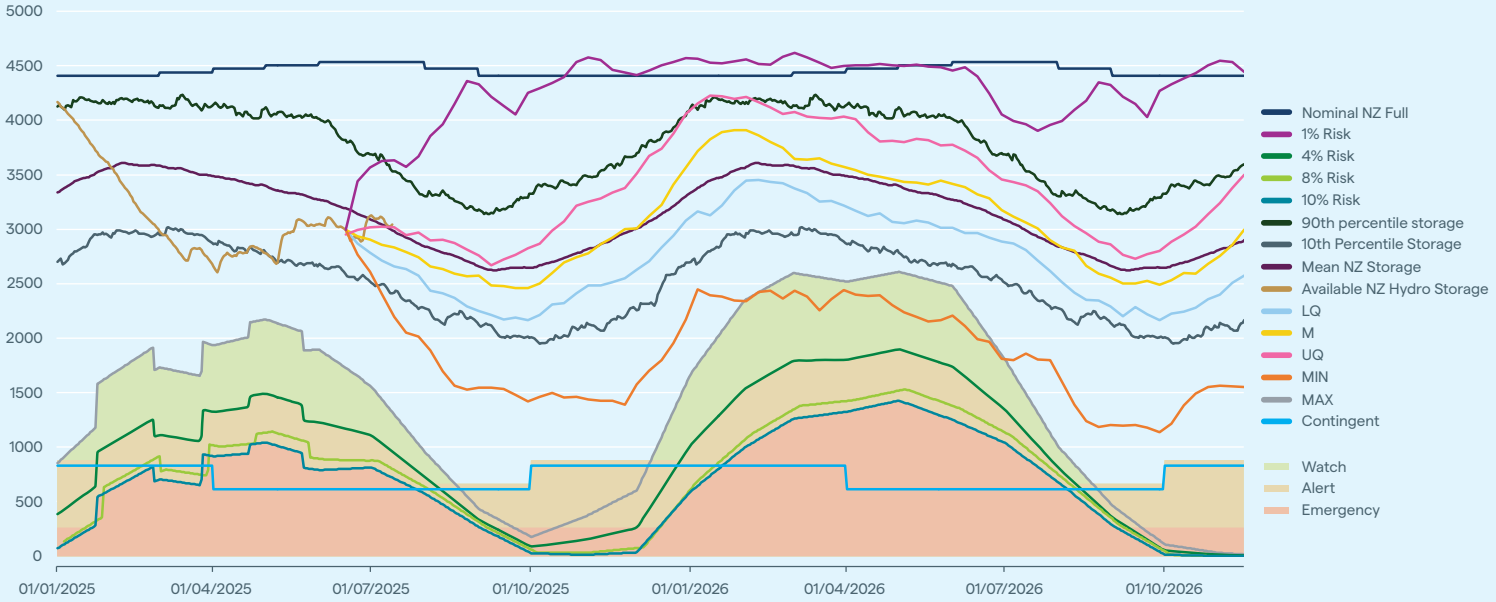
Rolling power outages are an extreme measure of last resort that would only be used in exceptional circumstances that coincide with significant times of stress on the electricity system. Rolling outages only apply following a formal supply shortage declaration as described in the System Operator Rolling Outage Plan and Part 9.14 of the Electricity Industry Participation Code. It is paramount any processes relating to rolling outages are robust, efficient and straight-forward.

In April 2025, Transpower along with almost 50 other organisations from across the sector and government came together online to test rolling outage processes and related communications with consumers and key stakeholders.

Industry Exercise 2025 was planned over six months and involved Transpower's Operations, Communications, and the Electricity Authority and risk planning experts Risk Logic.

The exercise started with two webinars in March that took participants through an extended dry sequence in the lead up to the simulation of rolling power outages across the country. This included operations teams at Transpower's lines company partners and direct connects developing rolling outage schedules that would meet savings targets set by the system operator.

Figure 7: New Zealand Electricity Risk Status Curves (Available GWh)



Communications teams set out their stakeholder communications and engagement approach in the lead up to and during power cuts across their networks.

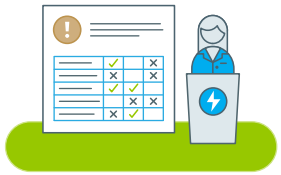
It's critical for an event like this that messaging is aligned from national level down through to consumers, and Transpower had NEMA involved to make sure we coordinated with any civil defence requirements.

Transpower is now more prepared to implement rolling outages if we are in a situation where they are needed.

SECTION 3

Risk Management

Climate-related risks have long been considered as part of Transpower's overall risk management, and it continues to evolve and mature its processes.



3.1 Identification and assessment

Transpower identifies and assesses climate-related risks continually through a range of tools and techniques as part of its regular risk management process.

Transpower conducts a comprehensive climate risk assessment with a range of internal stakeholders across the Grid Owner and System Operator on an annual basis. These assessments are facilitated in accordance with the approach set out by the IPCC. All identified risks are assessed in detail by relevant subject matter experts and business owners of the risk. Where feasible and practical, risk is quantified in dollar terms.

Quantification of physical risks is undertaken using the HEVI methodology. Quantification of transition risk at present is challenging due to a lack of available data, or a significant degree of uncertainty surrounding the data. As an alternative, metrics that relate to transition risks and opportunities are identified.

As Transpower matures its understanding of climate-related risks and opportunities and acquires better information, the level of financial quantification provided will increase.

3.2 Prioritisation and management of climate-related risks and opportunities

Climate-related risks are viewed as external threats to existing risks. They are prioritised in the same manner as all other external threats and managed in a similar fashion to all other risks at Transpower.

Risks are assessed against the enterprise-wide, corporate risk management matrix which is derived from the Board's Risk Appetite Statement, and includes environmental, social responsibility and good governance as key exposure categories.

Transpower's Risk and Assurance function oversees an annual internal audit programme to provide assurance to management and the Board. The assurance function also includes undertaking self-assessments on critical controls for risk management.

Climate related opportunities are prioritised in line with all other business opportunities as part of the strategy setting and review process.

3.3 Tools and techniques

Transpower uses bowtie risk analysis and semi-quantitative risk assessment, enabling a comprehensive understanding of the risks faced and control environment used to manage them.

Physical climate-related risks are assessed additionally using the HEVI methodology, illustrated in figure 7.

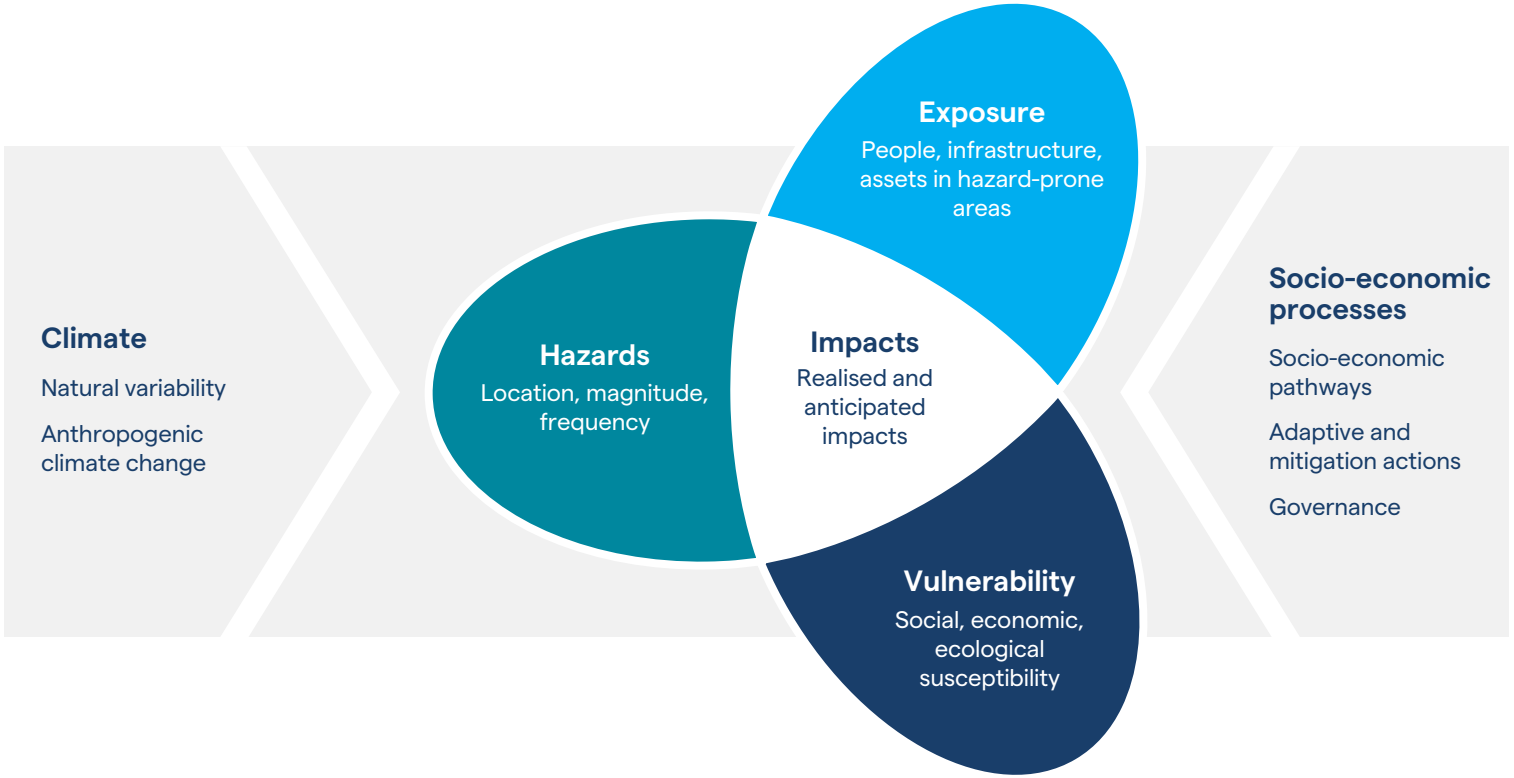
Both approaches are consistent with the standard AS/NZS ISO 31000:2018 and are codified within the risk management framework.

Given the unique long-term nature of climate-related risks and opportunities, scenario analysis is applied to better understand Transpower's exposure to a range of possible futures.

Transition risks and opportunities are tested against Transpower's 1.5°C climate scenario as they are most prevalent where Aotearoa New Zealand electrifies rapidly in the short–medium term.

Climate-related physical hazards were identified, and a materiality assessment undertaken to identify the physical risks. They are assessed against the 3.5°C climate scenario as this represents the upper end of physical risk spectrum, and against the long-term timeframe, consistent with the expected life of the assets.

Figure 8: The Hazard, Exposure, Vulnerability and Impact Process



Anthropogenic climate change in combination with natural variability poses **hazards** which in combination with **exposure** and **vulnerability** could cause risks to eventuate and/or pose future risks.

3.4 Frequency of assessment

Strategic and external risks are assessed on a quarterly basis by the relevant business owners before review by the ELT and presentation to the ARC. These assessments are at a Transpower-level but also include System Operator-specific risks. A comprehensive re-evaluation using the HEVI methodology of all climate risks with all key stakeholders present is conducted on an annual basis.

Critical operational risks are re-assessed at a minimum of once every five years. However, a selection of the critical controls applied to these are self-assessed at least once every six months. Results are reported to the ELT and the ARC bi-annually.

Climate risk management also occurs as a part of Transpower's asset management approach, and general mode of operation. For example:

- Risk assessments are conducted for these hazards as part of the asset management strategy.
- Transpower has ongoing management plans for proactive resilience investment into risk reduction and readiness.
- Climate considerations are being embedded within design standards for asset classes, which are reviewed periodically.
- Transpower undertakes ongoing assessments of the environmental and stakeholder risks associated with the development of new grid infrastructure on a project-by-project basis.

Case Study

Redclyffe

Redclyffe Substation in Hawke's Bay was badly damaged by flood waters during Cyclone Gabrielle in February 2023.

Post cyclone, Transpower committed to investigate what actions could be taken to make the power supply to Hawke's Bay more resilient including ensuring our 220kV switchyard is strengthened against extreme weather events.

Our plans* will mean that the Redclyffe substation will be flood resilient to a 1-in-450-year flooding event. The substation will also be more earthquake resilient by meeting both modern design and engineering standards.

One of the ways we will improve the flood resilience is with raised switchyard structures that provide "wet feet" protection for all critical equipment. "Wet feet" means that while some parts of the substation equipment will get wet during a flood event, the critical components will remain dry and be able to keep functioning, keeping the lights on for the communities we serve. In this way we can provide flood resilience without having to resort to "dry feet" protection, which would involve additional elevation of equipment and much greater cost.

*Subject to Commerce Commission approval.

3.5 Integration with overall risk management processes

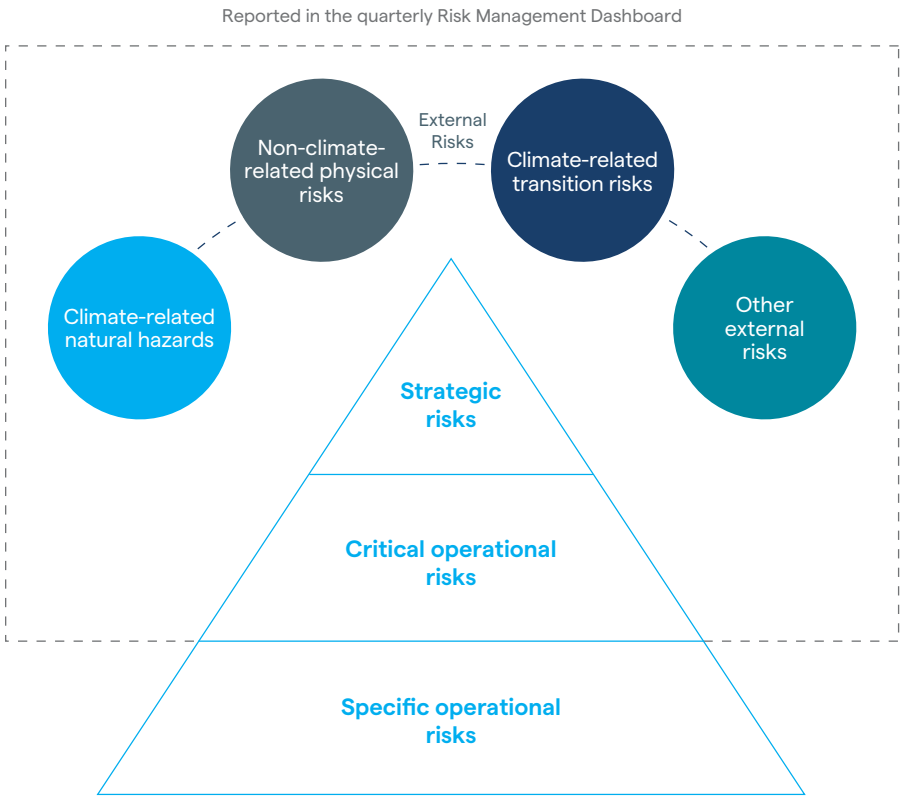
Climate-related risk management sits within Transpower's enterprise risk management framework. It is well understood how the effects of climate change can exacerbate existing risks. For example, flooding of substations has always been a risk to Transpower, but climate change is expected to increase the likelihood and potential consequence of this risk.

Climate-related physical and transition risks are considered external risks, alongside non-climate-related physical risks such as seismic and volcanic risks, and other external risks such as a global economic crisis or geopolitical instability. Some climate-related risks are also strategic risks. External and strategic risks are assessed qualitatively by the relevant subject matter experts quarterly and are informed by quantitative and semi-quantitative methods.

Transpower's critical operational risks are also impacted by climate change. For example, one of Transpower's critical operational risks relates to major hazards at substations. This risk comprises both climate-related factors such as flooding, and non-climate-related factors such as seismic risk or sabotage threat. The additional annual HEVI and scenario analysis process applied to the climate-related aspects provides a richer understanding of how climate change is altering the profile of these risks.

Figure 8 depicts the different categories of risk under active management. The ELT and ARC receive quarterly reporting on all Transpower's identified strategic, external, and critical operational risks. This includes all the risks presented in this document in Section 2: Strategy.

Figure 9: Risk Management Framework



3.6 Integration of impacts into the asset management framework

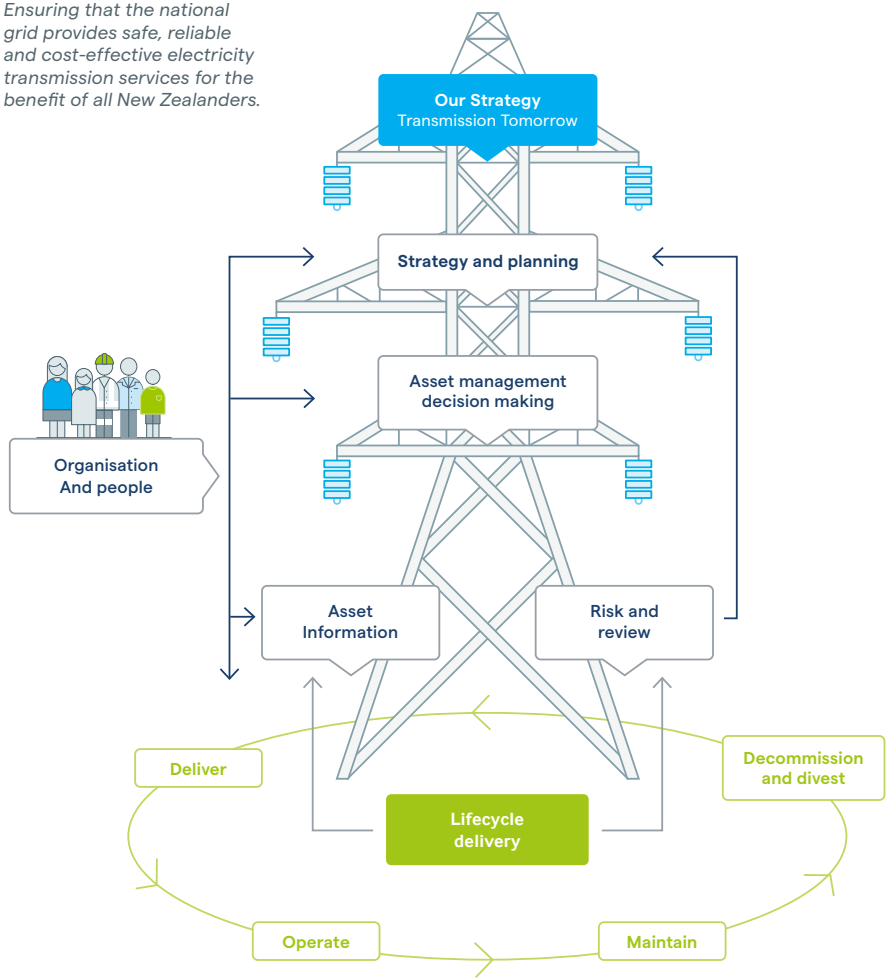
Transpower's Asset Management Plan sets out the framework for how asset-related risks are evaluated, prioritised and addressed. This informs the basis of both the five-yearly regulatory submission for replacement and refurbishment, as well as the decision framework on prioritisation of asset risk mitigations. The strategic approach to asset management has matured considerably over the last five years and has been independently verified.

Asset risk consequences from climate change are included in the framework as these risks are assessed and better understood. For instance, the understanding of substation flooding impacts or risk to towers near braided rivers has led to specific programmes being developed based on risk as well as a wider network criticality view of the impacted assets.

Transpower has a resilience strategy, and a resilience portfolio management plan. Funding of mitigations is prioritised accordingly within the overall framework. Mitigations can include both risk reduction or elimination through upgrading or building new assets, or having a tolerance of the risk, particularly where response and recovery relies on the use of spare equipment that can be quickly deployed and operational measures to work around any impacted assets.

Figure 10: Transpower's Grid Asset Management System

Ensuring that the national grid provides safe, reliable and cost-effective electricity transmission services for the benefit of all New Zealanders.



SECTION 4

Metrics and Targets

Transpower is a key enabler of Aotearoa New Zealand's electrification. It monitors a range of metrics to inform its understanding of potential energy futures and where action is needed.

The following contains a summary of the metrics and targets that Transpower monitors, aligning to the required categories set out in NZ CS 1. Each metric is elaborated on in this Section including performance against set targets, and trend analysis if applicable.

Section 4.1 sets out Transpower's greenhouse gas (GHG) metrics and targets. Given Transpower's pivotal role in enabling Aotearoa New Zealand's transition to a net zero carbon economy it is vital that it is transparent and vigilant in the way that it monitors, reports and reduces its carbon footprint. In FY25, Transpower adopted a new baseline year (FY21), long-term targets for Scope 1 and 2 emissions, short- and long-term targets for Scope 3 emissions and a short-term overall emissions target. See Section 4.1 for further detail on the new metrics and targets.

Section 4.2 sets out estimates of vulnerability to physical, transition risks and opportunities, expressed as an amount or percentage of business activities, as required by the Aotearoa New Zealand Climate Standards. These metrics were developed based on capital deployment forecasts, and Transpower has also identified commensurate targets where appropriate. Transpower has also identified additional related metrics and targets that inform the management of climate-related risks and opportunities.

Additional indicators that Transpower does not set targets for are provided in Section 4.3.

Transpower does not use interim targets for any of its metrics.

Table 4: Metrics and targets

FY25 Metric	Target	Timeframe	FY25	FY24	FY23	Base year	Description of Performance Against Targets / Trend Analysis	NZ CS 1 Metric and Target Categories									
								Physical Risks	Transition Risks	Opportunities	Capital Deployment	Impacts Remuneration	GHG Scope 1	GHG Scope 2	GHG Scope 3	Industry Based Metric
4.1: Greenhouse Gases				(Restated)[16]	(Restated)[16]	(Restated)[16]										
Scope 1 GHG Emissions (tCO_2e)	44% Reduction by FY30 (excluding transmission loss emissions)	FY21 – FY30	3,847	3,548[17]	6,529	FY21	32% decrease compared to the FY21 baseline, achieved 72% towards the stated reduction target.						■			
Scope 2 GHG Emissions (excluding transmission loss emissions) (tCO_2e)			383	279	249	FY21								■		
Total Scope 1 and 2 Controllable Emissions (tCO_2e)			4,230	3,827	6,779	FY21							■	■		
Scope 2 GHG Emissions: Transmission Losses (tCO_2e)	N/A	N/A	153,775	135,928	88,158	N/A	Fluctuates based on the amount of thermal generation in the system over the year, which is largely determined by the amount of rain in hydro catchment areas.							■		
Scope 3 GHG Emissions (tCO_2e)	Less than 64% increase by FY30		66,351	53,009	35,906	FY21	Increasing as expected due to higher levels of construction and maintenance activities. 75% increase compared to the FY21 baseline.								■	
Total Gross Emissions (tCO_2e)	15% reduction by FY30		224,356	192,765	130,843	FY21	Largely determined by transmission loss emissions. A 7% decrease compared to the FY21 baseline; achieved 45% towards the stated reduction target.						■	■	■	
4.2: Other Metrics and Targets																
Amount or percentage of business activities vulnerable to physical risks	No targets have been set for these metrics. Refer to table 1: Physical risks for vulnerability assessments on a hazard-by-hazard basis.							■			■					
Amount or percentage of business activities vulnerable to transition risks	No target. Calculated as major enhancement and development customer capital expenditure as a percentage of total capital expenditure	N/A	30%	25%[18]	31%[18]	N/A	The percentage of business activities aligned to climate-related opportunities has increased in FY25 and will continue to increase as additional MCPs increasing the capacity of the National Grid are approved by the Commerce Commission and move into delivery phase. Over RCP3 (FY21 - FY25) the average equivalent spend is expected to be 28%, with current modelling suggesting this would increase to an average of 49% over RCP4.		■		■					
Amount or percentage of business activities aligned to climate-related opportunities										■	■					

16. See Sections 6 and 11, and Appendices 1 and 4, of the FY25 GHG Inventory Report for the detailed explanation for, and GHG emissions restatements associated with, Transpower's restated information on the restatement of Transpower's base year (FY21) through to FY24.
17. 3,109 tCO_2e of our Scope 1 emissions in FY24 were from SF_6. Our reported SF_6 emissions data were calculated using our gas transactions data reporting on the gas used to fill our assets or taken out of our assets when degassing them. The software and database we used also recognised situations where the cylinder weight we used for a transaction or in our stores weighs more or less than its finishing weight for the last gas transaction for which it was used or in a stocktake. The net delta differences of such anomalies was equal to 4.3kg of SF_6 gas or 101 tCO_2e. This delta amount was not included in our total reported SF_6 emissions for FY24 above. If it were, then our total SF_6 emissions would have increased by 3% to 3,192 tCO_2e, a 48% decrease from FY23's figures. We have worked through FY25 to improve the quality of our data to eliminate such deltas in the future.
18. Please note that these numbers reflect a change in methodology post-Climate Statement FY24.

FY25 Metric	Target	Timeframe	FY25	FY24	FY23	Base year	Description of Performance Against Targets / Trend Analysis	NZ CS 1 Metric and Target Categories									
								Physical Risks	Transition Risks	Opportunities	Capital Deployment	Impacts Remuneration	GHG Scope 1	GHG Scope 2	GHG Scope 3	Industry Based Metric
Base capital expenditure spend ($m nominal)	$2,366 million cumulative spend (nominal)	FY26 – FY30 (RCP4)	435	383[19]	272[19]	N/A	The Commerce Commission approval ~98% of proposed spend for the RCP4 (FY26 - FY30) period.									
Major capital expenditure spend ($m nominal)	No target.	N/A	75	37[19]	35[19]	N/A	In June 2025 Commerce Commission approved the Western Bay of Plenty MCP for $83m[20] and NZGP1.1 $393 million in 2024. MCP expenditure has increased from FY24 to FY25 as the MCPs move into delivery phase.									
Interisland HVDC transfer capacity	Increase transfer capacity north from 1070 MW to 1200 MW	FY24 – FY29	1070 MW	1070 MW	1070 MW	FY24	Part of NZGP1.1, this MCP was approved by the Commerce Commission in FY24 and is currently on track to deliver the targeted increased transfer capacity within the targeted timeframe.									
Central North Island (CNI) 220 kV capacity	Increase transfer capacity north from Bunnythorpe by 60 – 90 per cent	FY24 – FY29	0%	0%	0%	FY24	Part of NZGP1.1, this MCP was approved by the Commerce Commission in FY24 and is currently being delivered. It is on track to deliver the targeted increased transfer capacity within the targeted timeframe.									
Wairakei ring capacity transmission	Increase capacity by 25 percent to 300MW under typical operating conditions.	FY24 – FY29	240 MW	240 MW	240 MW	FY24	Part of NZGP1.1, this MCP was approved by the Commerce Commission in FY24 and is currently being delivered. It is on track to deliver the targeted increased transfer capacity within the targeted timeframe.									
GP1: Achieve collars for occurrence – unplanned interruptions	≥ 4 out of 6	Annually	6	6	6	N/A	Target achieved consistently.									
GP2: Achieve collars for occurrence – unplanned interruptions average duration	≥ 4 out of 6	Annually	6	5	5 (2)	N/A	Target achieved consistently. FY23 Transpower received approval for the Cyclone Gabrielle event from the Commerce Commission, giving an updated result of five. Without that approval, the result would have been two.									
Hiring targets	1003 headcount (FTEs)	Annually*	1050	936	845	N/A	Commerce Commission approved ~98% of Transpower's RCP4 proposal, contingent on Transpower achieving resourcing levels to deliver the increasing work programme required to enable the electrification of New Zealand's economy. Transpower has delivered the FY25 resourcing uplift target from the resourcing headcount in FY24.									

19. Please note that these numbers reflect a change in methodology post-Climate Statement FY24.
20. Excluding funding approved for any investment in non-transmission solutions associated with this MCP investment need.

FY25 Metric	Target	FY25	FY24	FY23	Base year	Description of Performance Against Targets / Trend Analysis	NZ CS 1 Metric and Target Categories								
							Physical Risks	Transition Risks	Opportunities	Capital Deployment	Impacts Remuneration	GHG Scope 1	GHG Scope 2	GHG Scope 3	Industry Based Metric
4.3 Other Key Performance Indicators															
Unplanned interruptions count - Excludes normalised events	No targets set for these metrics. Refer to the formal GP1 and GP2 targets above. Refer Section 4.2.4 for more information.	53	39	60	N/A	Long-term performance improvements are evident, indicative of continued growth in asset management maturity.									
Unplanned interruptions – average duration (minutes) – Excludes normalised events		84.9	105.8[21]	461.4	N/A										
Unplanned interruptions event count – normalised events		1	0	1	N/A	Long-term performance improvements are evident, indicative of continued growth in asset management maturity.									
Unplanned interruptions average duration (minutes) – normalised events		1760	0	7961.4	N/A										
Energy unserved	No targets set for these metrics. Refer Section 4.3.1 for more information on trends.														
Annual electricity demand	No targets set for these metrics. Refer Section 4.3.2 for more information on trends.														
Twenty highest daily peaks (demand) each year															
Customer enquiries by generation type															
Generation and demand customer enquirie															

21. Number differs from Climate Statement 2024 due to updated information received post publication.

4.1 Greenhouse gases

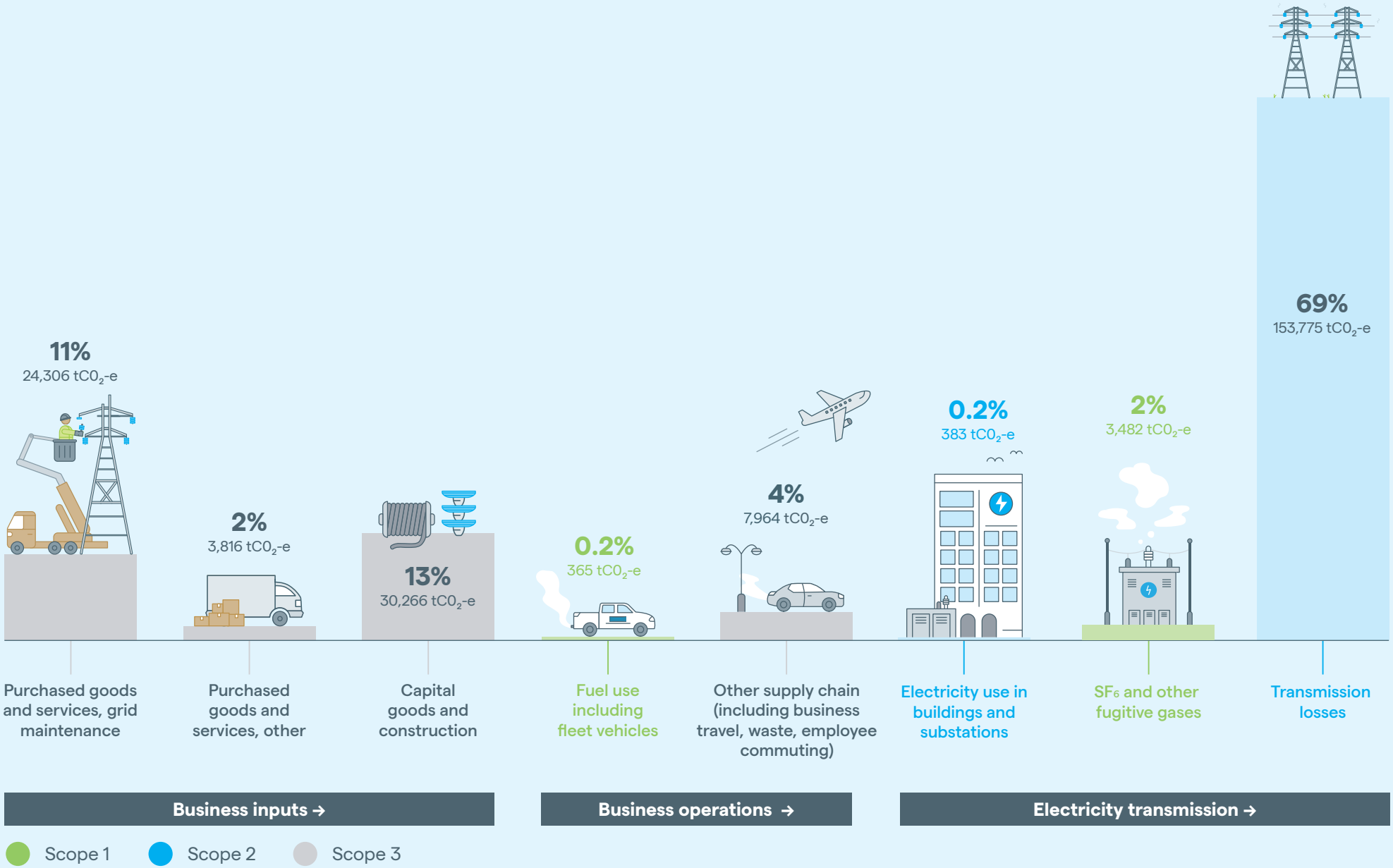
4.1.1 Overview

As outlined in the most recent IPCC report (4 April 2022), to achieve the 1.5˚C of global warming by 2050 target, almost all electricity would need to be from zero- or low-carbon sources and more activities would need to run on electricity. Modelling in 2020 predicted electricity demand will grow from 42 TWh (terawatt hours) to 70 TWh by 2050, primarily from electrifying transport and process heat[22]. Future electricity demand may be significantly higher if data centres and currently hard-to-electrify sectors such as aviation are included.

Transpower has a key role to play serving New Zealand in enabling its electrification. Enabling increasing electrification and the move towards an increasingly renewable electricity system are the biggest contributions Transpower can make to reducing New Zealand's, and in due course, Transpower's own emissions.

22. See *Whakamana i te Mauri Hiko.*

Figure 11: FY25 GHG Emission Inventory



4.1.2 FY25 Total GHG Emissions[23]

Transpower's total operational emissions for the financial year ending 30 June 2025 are estimated at 224,356 tCO_2e, an increase of 31,591 tCO_2e (or 16 per cent) from that reported in FY24.[24] A comparison of Transpower's total operational GHG emissions for the 2025, 2024, 2023, 2022 and 2021 financial years by GHG Protocol Scopes are shown in Figure 12 and Table 5.

Transpower is continuously working to improve its emissions reporting. In FY25 Transpower updated its refrigerant methodology, and emission factor sources for transmission losses and Scope 3 spend-based data. For consistency, Figure 12 shows the restated[25] GHG emission figures for FY21 to FY25, using the new methodologies for all years. For comparisons across the different data sets and more details of these changes and restatements, please see the FY25 GHG Inventory Report.

The overall increase in Transpower's total operational GHG emissions between FY24 (restated figures) and FY25 is largely due to an increase in combined Scope 1 and 2 emissions materially arising from increasing transmission loss emissions associated with higher amounts of thermal generation of electricity in FY25, and an increase in Scope 3 emissions, materially as a result of greater levels of construction and maintenance activity.

A more detailed analysis of annual GHG emission trends by scope can be seen in Section 10 of Transpower's FY25 GHG Inventory Report. See Sections 6 and 11 and Appendix 1 of the GHG Inventory Report for information on the methods (including any uncertainties and/or limitations), assumptions, emissions factors, global warming potentials, and standards Transpower used to measure, calculate, and/or estimate its GHG emissions, along with detailed explanation and GHG emissions restatements associated with Transpower's restated base year of FY21.

Figure 12: Total GHG Emissions by Scope

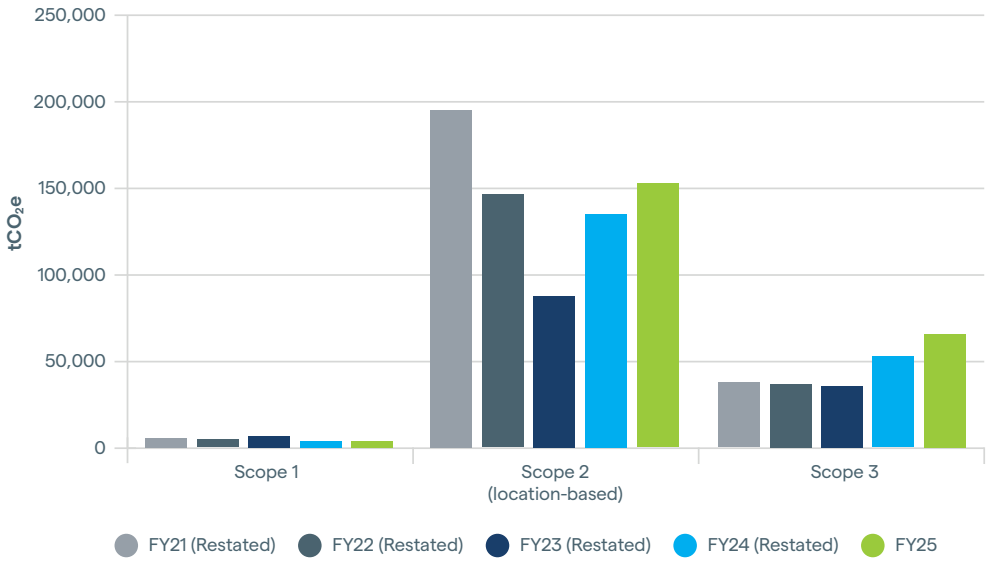


Table 5: Total GHG Emissions by Scope, and Impact of Restatements

		FY21 (tCO_2e)	FY22 (tCO_2e)	FY23 (tCO_2e)	FY24 (tCO_2e)	FY25 (tCO_2e)
Scope 1	Original	5,300	4,535	6,452	3,452	
	Restated	5,369	4,633	6,529	3,548	3,847
Scope 2 (location-based)	Original	204,699	169,318	111,572	107,851	
	Restated	197,352	147,786	88,408	136,207	154,157
Scope 3	Original	46,517	44,440	44,859	58,182	
	Restated	37,837	37,165	35,906	53,009	66,351

23. Transpower prepares an annual, externally assured, GHG emissions inventory report in accordance with the international Greenhouse Gas Protocol (World Resources Institute, 2004), the Greenhouse Gas Protocol Scope 2 Guidance (World Resources Institute, 2015), the Greenhouse Gas Protocol Corporate Value Chain Standard (World Resources Institute, 2011), and ISO 14046-1 Greenhouse Gases – Part 1 standard (published by the International Standards Organisation, 2006).
24. Transpower applies the operational control consolidation approach in accounting for the organisational boundary of its GHG emissions, in accordance with the methodology described in the GHG Protocol and the ISO 14064-1:2018 standard.
25. See Sections 6 and 11, and Appendices 1 and 4, of the FY25 GHG Inventory Report for the detailed explanation for, and GHG emissions restatements associated with, Transpower's restated information on the restatement of Transpower's base year (FY21) through to FY24.

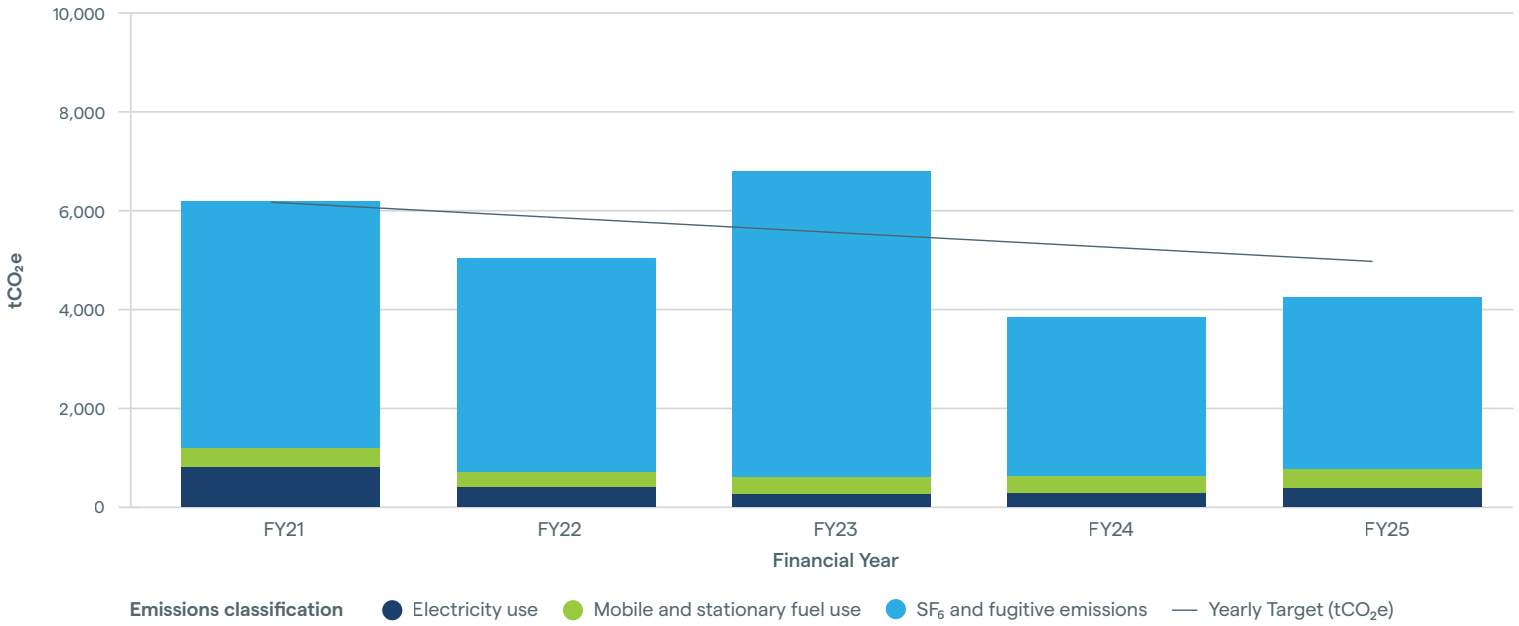
4.1.3 Scope 1 & 2 Emissions Targets

In previous years, Transpower's short-term Scope 1 and 2 absolute target was to achieve a 60 per cent reduction of direct and controllable emissions by 2030, against a FY06 baseline of 8,710 tCO_2e – meaning a controllable short-term Scope 1 and 2 emissions target of 3,484 tCO_2e by 30 June 2030. This excluded emissions arising from transmission losses as these are a function of the electricity generation mix, climatic conditions and electricity market bids in a given financial year – and so are largely outside Transpower's control.

In FY25 Transpower has reset the baseline year for its short-term controllable Scope 1 and 2 emissions target from FY06 to FY21. This change in the baseline year arises due to Transpower setting new Scope 3 targets in FY25 necessitating a baseline year selected in relatively close proximity in line with the Greenhouse Gas Protocol. FY21 was chosen as the baseline year as it is reflective of major projects undertaken, and of a typical year of forecasted activity. Transpower's role in the electrification of Aotearoa New Zealand means that major projects will increase. As in previous years, the Scope 1 and 2 short-term target excludes transmission losses.

Transpower's short-term absolute controllable Scope 1 and 2 emissions target of 3,484 tCO_2e by 30 June 2030 remains, but with a baseline year change to FY21 the headline targeted percentage reduction becomes a 44 per cent reduction of direct and controllable Scope 1 and 2 emissions by 2030, against a FY21 baseline of 6,177 tCO_2e.

Figure 13: Controllable Scope 1 and 2 GHG Emissions Against Short-term Reduction Target



In FY25 Transpower's controllable Scope 1 and 2 emissions totalled 4,230 tCO2e, a 32 per cent decrease compared to the FY21 baseline and an achievement of 72 per cent towards the stated reduction target. Figure 13 shows Transpower's current reduction progress towards its FY30 goal.

Transpower has also implemented a long-term absolute Scope 1 and 2 emissions target in 2025, which includes transmission losses. This reflects Transpower's focus on enabling New Zealand's electrification journey, including the increasing connection of additional renewable generation which will result in a decrease of GHG emissions from transmission losses in due course.

The long-term Scope 1 and 2 emissions target is to achieve net-zero Scope 1 and 2 GHG emissions by 2040 with an absolute target of a 90 per cent reduction, against a baseline of FY21 (202,721 tCO_2e). As at the end of FY25 Transpower is currently on track to meet this target.

For more detailed information on Transpower's Scope 1 and 2 emissions targets (including the change in baseline year), and it's perfomance against such targets see Section 11 of the FY25 GHG Inventory Report.

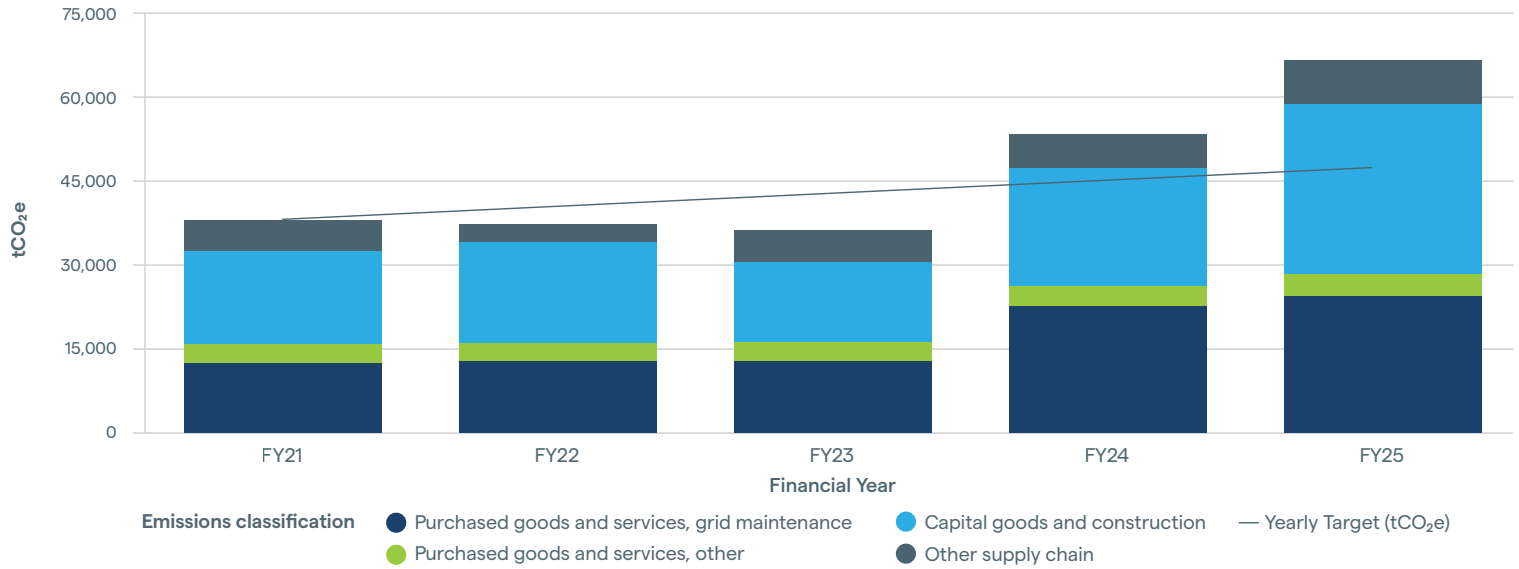
4.1.4 Scope 3 Emissions Targets

As Transpower enables electrification and the increasing connection of renewable generation and batteries by building new connection points and upgrading the national grid, its own Scope 3 carbon footprint is set to increase significantly.[26] This is due to the increase in embodied carbon and associated delivery works as part of the physical construction and upgrade of network infrastructure.

Transpower's increasing emissions are an essential byproduct of Aotearoa New Zealand's electrification and are required for the country to meet its net-zero by 2050 target. The expected increase of Transpower's Scope 3 carbon footprint in the near-term will ultimately be offset by the net benefit of electrification to the country. Transpower has engaged with the Climate Leaders Coalition on this challenge and received an exemption from an overall emissions reduction target under the Climate Leaders Coalition Statement of Ambition.

Despite the exemption, Transpower has set an absolute short-term Scope 3 emissions target with effect from FY25, which is to achieve less than a 64 per cent increase of Scope 3 emissions by FY30, against a FY21 baseline of 37,837 tCO_2e. This short-term Scope 3 target reflects Transpower's growing carbon footprint from its electrification work programme. It is a 35 per cent reduction against our forecast 2030 Scope 3 emissions of 90,220 tCO_2e.

Figure 14: Scope 3 GHG Emissions Against Short-term Target



Transpower's Scope 3 GHG emissions totalled 66,351 tCO_2e in FY25, a 75 per cent increase compared to its FY21 baseline (37,837 tCO_2e). As a result, FY25 Transpower Scope 3 GHG emissions exceed its stated short-term Scope 3 GHG emissions target for FY30 (58,643 tCO_2e). Figure 14 depicts historical Transpower Scope 3 GHG emissions from the FY21 base year to FY25. As shown in Figure 14, Transpower's FY25 Scope 3 GHG emissions are currently not on track to meet this target.

Transpower's absolute short-term Scope 3 emissions target has been set alongside a new absolute short-term overall emissions target for 2030, as outlined in Section 4.1.5 below, and a new long-term Scope 3 emissions target of Transpower's Scope 3 emissions. The new long-term absolute Scope 3 emissions target effective from FY25 is Transpower having net-zero Scope 3 emissions by 2050, with an absolute target of a 90 per cent reduction of Scope 3 emissions by 2050, against a FY21 baseline of 37,837 tCO_2e. As at the end of FY25 Transpower is not on track to meet this target.

Transpower has a wide range of existing emissions reduction initiatives within its Sustainability Strategy to drive emissions reduction to meet this target.

For more detailed information on Transpower's Scope 3 emissions targets, and it's perfomance against such targets see Section 11 of the FY25 GHG Inventory Report.

26. Transpower modelled the forecast expenditure associated with base capital expenditure and forecast Capital Goods and Purchased Goods and Services categories to FY30 (based on RCP4, MCPs, and customer connections forecasting) using the Scope 3 GHG Protocol categories and applied estimated emission factors for each Scope 3 category. This has enabled forecasting of the corresponding growth in Scope 3 emissions through to FY30, which is estimated to be significant.

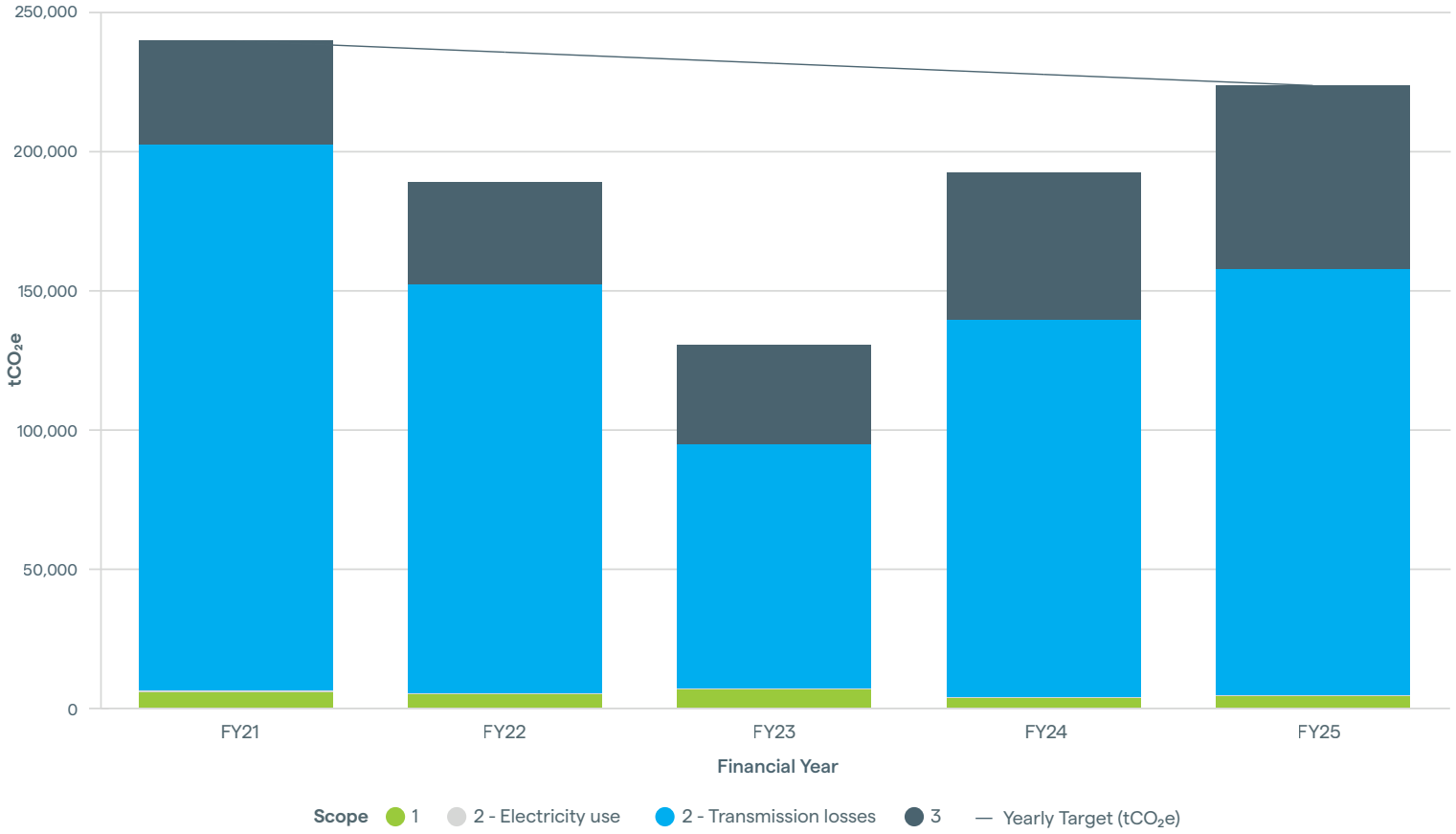
4.1.5 Overall Emissions Target

In time Transpower's overall net emissions will fall, as a result of emissions from transmission losses decreasing as thermal generation is utilised less and/or is retired. As such, Transpower has set an absolute overall Scope 1, 2 and 3 emissions target (including transmission loss emissions) with effect from FY25, which is to achieve a 15 per cent decrease of overall Scope 1, 2 and 3 emissions by FY30, against a FY21 baseline of 240,558 tCO_2e (including transmission loss emissions). Transpower's short-term emissions targets do not rely on any carbon offsets.

Transpower's overall gross GHG emissions totalled 224,356 tCO_2e, a 7 per cent decrease compared to its FY21 baseline. As of FY25, this equates to an achievement of 45 per cent towards Transpower's stated 15 per cent emission reduction target for FY30 (204,474 tCO_2e).

Figure 15 summarises historical Transpower gross GHG emissions from the FY21 base year to FY25. Transpower's FY25 gross GHG emissions shows Transpower is currently on track to meet its target.

Figure 15: Overall GHG Emissions Against Short-term Reduction Target



4.1.6 Emissions intensity

Transpower bears transmission loss emissions on behalf of the Aotearoa New Zealand electricity sector but has no control over the generation mix that determines the carbon intensity. Accordingly, Transpower does not have an emissions intensity target. However, Transpower actively measures and publishes an average carbon emissions indicator of Aotearoa New Zealand's electricity generation emissions intensity by trading period via a dashboard that shows, in real time, the carbon intensity of the system as shown in Figure 16.

The site also includes a breakdown of the current generation mix plus annual and monthly emissions intensity averages and current renewable generation (based on the sum of renewable generation divided by the total grid connected generation).

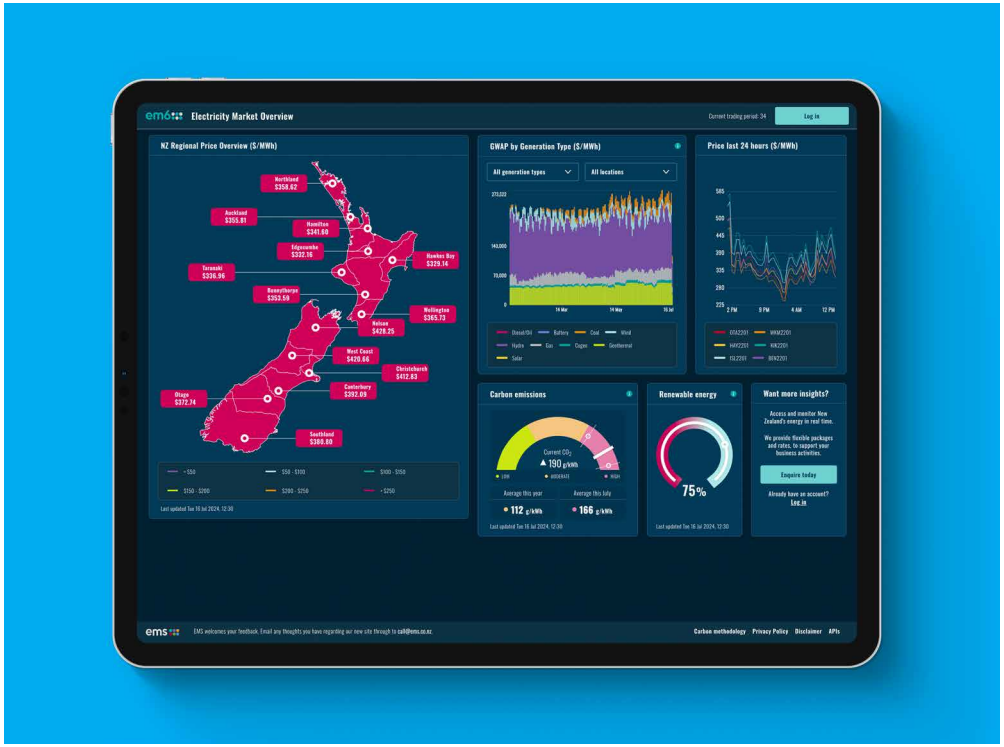
This information is published by Transpower's Energy Market Services, which provides electricity market related information services. More information is available on the em6 website along with information regarding the grid carbon intensity reporting methodology: em6 Carbon Intensity Methodology.

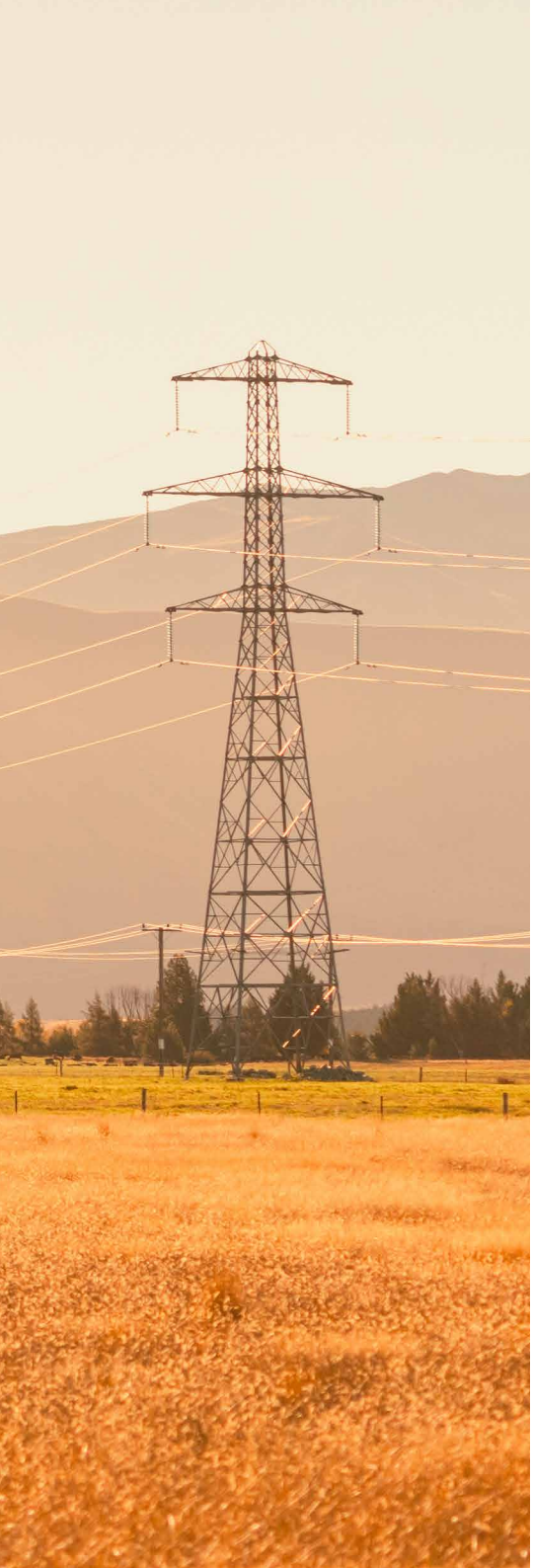
As required under Transpower's Green Financing Framework Transpower publicly reports on new generation capacity added to the system over a rolling five-year period, along with a calculation of percentage of the capacity of new generation below the generation threshold of 100g CO_2e/kWh (measured on a Product Carbon Footprint basis) to total new generation capacity.

Transpower measures the eligibility threshold at least annually using both external and Aotearoa New Zealand Government published statistics and internal data.

Transpower also publicly reports the impact of financing of Eligible Green Assets supporting increasing low emissions renewable generation and electrification, including 'Avoided CO_2 Emissions (tCO_2e/GWh)'. Avoided CO_2e emissions are estimated based upon the emissions factor of connected thermal generation plant offset by new renewable generation below the 100g CO_2e/kWh.

Figure 16: Electricity Market Overview Dashboard





4.1.7 Internal emissions price

The carbon footprint of particular equipment is considered in some investment decisions through the incorporation of equipment efficiency and life-cycle specifications. For example, Transpower's transformer specifications set out requirements for lower-loss transformers to improve efficiency through product lifecycle design.

Lifecycle costing frameworks for investment decision-making are formalised through Transpower's Asset Planning Decision Framework. For some specific investments, this Asset Planning Decision Framework includes consideration of the price of emissions, for example, SF_6-containing switchgear apply emissions pricing for avoided emissions and to assist with Marginal Abatement Cost analysis of various investment options.

By way of example, Transpower's RCP4 funding proposal in November 2023 applied the 2022 Aotearoa New Zealand Climate Change Commission modelled NZU price forecast to increase from a current price of around NZ$56/ tonne CO_2eq to $140/ tonne CO_2eq by 2030 as a basis to support investment in switchgear that would enable SF_6 reductions.

In the absence of an internal emissions price being applied across investments, an internal work programme is underway to consider a more consistent approach to incorporating emissions pricing into the Asset Planning Decision Framework. Appropriate targets for a future internal emissions price may be considered when it has been well defined.

4.2 Other Metrics and Targets

Transpower tracks a broad range of metrics to track its performance, many of which can be found in the Statement of Corporate Intent and the Integrated Report. A selection of metrics that are particularly relevant to the management of climate-related risks and opportunities have been identified below.

4.2.1 Percentage of activities vulnerable to physical risks

Transpower followed the HEVI process to assess exposure and vulnerability of its assets to a range of physical hazards. The results of this are found in the table of physical risks in the Strategy Section from Section 2.4.

4.2.2 Percentage of activities vulnerable to transition risks & aligned to opportunities

The percentage of activities vulnerable to climate-related transition risks and opportunities has been assessed as the percentage of major and customer capital expenditure as a proportion of overall capital expenditure ([Major capital expenditure + Customer capital expenditure] / Total capital expenditure).

Transpower's transition risks and opportunities relate primarily to its ability to build the infrastructure required to enable electrification, enhancing the grid service levels by adding additional capacity for customers and consumers. Major and customer capital are the main funding streams that achieve this end. This figure captures the relative composition of capital deployed towards enhancing grid service levels, compared to maintaining current service levels.

Over FY20 to FY25, this percentage was 28 per cent. In RCP4 it is forecast to rise to 49 per cent. The increase reflects the additional transition risk that Transpower anticipates responding to as it builds the grid required to enable electrification. Conversely this percentage is also used to reflect the increasing level of activities in alignment with climate-related opportunities, as Transpower's opportunities are commensurate to its transition risk.

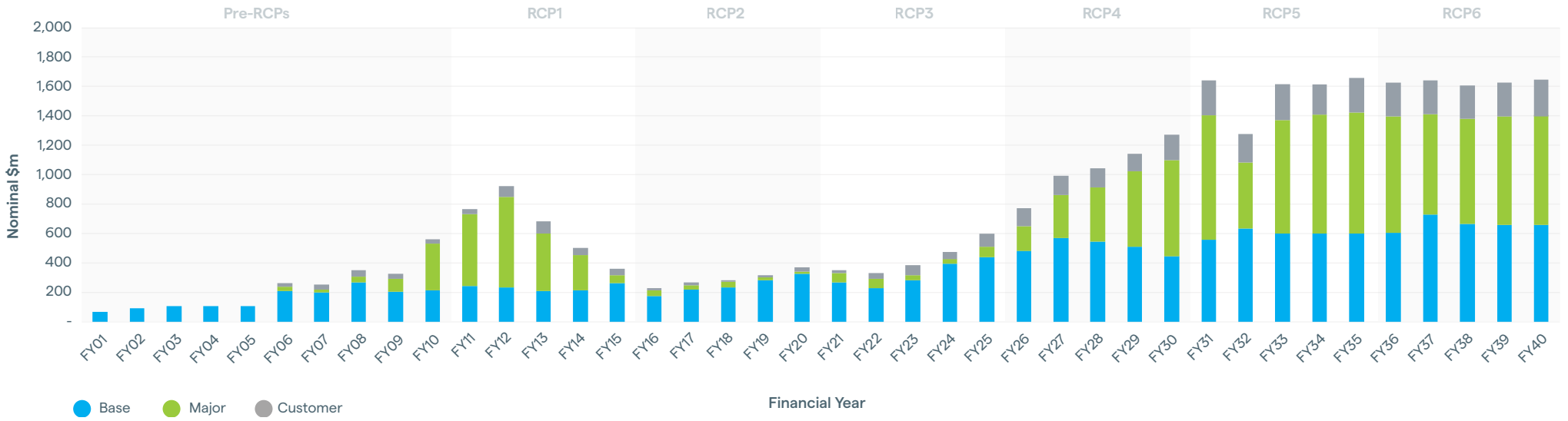
Transpower does not set targets for this percentage because major capital expenditure is subject to considerable uncertainties. Furthermore, an expenditure-based target disincentivises achieving the same outcome at lower cost. Alternatively, Transpower has defined targets based on investment outcomes for approved MCPs measured as capacity increases in megawatts (MW).

It is worth noting that while the relative amount of major capital expenditure is increasing compared to the base amount required to maintain current asset performance, base capital expenditure is still rising in absolute terms.

4.2.3 Capital deployment

Considerable capital investment is required to deliver the transmission infrastructure needed both to maintain current reliability and enable growth in electrification. The chart below depicts nominal historical and forecast capital expenditure. It shows the ramp up in spend in the early 2010s, and the larger growth (particularly in major capital spend) Transpower anticipates over the period to 2040.

Figure 17: Historical and Forecasted Capital Deployment



Base capital expenditure includes capital investments in grid replacement and renewal, information technology, business support, resilience and small enhancement and development projects. It is spending to enable Transpower to continue to provide the reliable and resilient service levels that its customers expect.

Many of Transpower's assets were installed between the 1950s and 1970s. These assets are aging and require replacement or refurbishment within the next 10-15 years. While Transpower relies on condition assessments to determine when to replace most assets, instead of relying solely on age, there is a strong correlation between age and condition.

Stakeholder expectations of a resilient electricity system are increasing, and there is growing reliance on electricity as it grows as a percentage of our energy mix. Simultaneously, climate change is exacerbating the effects of many natural hazards. There is a need for proactive resilience measures to harden vulnerable and critical assets.

Base capital expenditure also includes enhancement and development projects that increase the capacity, security, and operability in response to changes in demand and/or generation mix. This is a good indicator of transition risk, alongside major capital expenditure.

Base capital expenditure includes resilience spend, which helps measure how much investment is put towards proactive resilience for physical risks.

Major capital expenditure projects are large projects on interconnection assets to enhance the capability and/or capacity of the network. The Commission undertakes project-by-project assessments – recently approving Transpower's $83[27] million proposal for investments in the Western Bay of Plenty region, which will provide additional capacity into the growing region, and consist of upgrades to transmission lines and transformers. Powerco (one of Transpower's customers) is also planning a number of complementary customer investments in the region. As at 30 June 2025 Transpower is finalising the applications for two additional MCP Proposals to the Commission. The first for the upgrade of the 220kV switchyard at Redclyffe to provide resilience against extreme weather events, and the second to undertake a programme of works to cater for load growth in the Upper South Island. The latter proposal would see the construction of new switching stations at Orari and Rangitata, as well as associated upgrades to the surrounding transmission lines.

Transpower is actively investigating a number of other MCPs, three of which it intends to submit to the Commission within the next financial year. These are the:

- HVDC Upgrade works, which seeks to replace the Cook Strait HVDC cables and undertake upgrades to associated infrastructure, resulting in increased HVDC transfer capacity north and lifting current constraints on renewable South Island generation travelling north;
- Waikato and Upper North Island Upgrades phase 2 (WUNI2), which will increase capacity into Auckland, and install power electronics equipment for voltage support in the region; and
- Waikato Interconnection works, which will increase capacity on parts of the Waikato 110kV network through installation of new substation equipment.

If approved, the six projects would comprise an expected total of $2b, representing over half of the total forecast major capital expenditure over RCP4. Transpower will be submitting more investment proposals to the Commerce Commission for outcomes currently priced consistently with the chart in Figure 14 above. Such forecasts are continually being updated as new information comes to light, and it is likely that the forward view will change as Transpower endeavors to deliver value for money to its customers and to consumers.

Customer works agreements are customer-funded projects where investments are covered by a customer investment contract between Transpower and the customer (primarily covering connection assets). As such, these investments are not included in Transpower's regulatory submission. The decision on whether to investigate and invest resides with the customer. Transpower does not set targets for customer expenditure but does provide forecasts based on available information.

4.2.4 Grid Performance 1 and 2 (Industry-based metrics)

Grid performance measures – Grid Performance 1 and 2 (GP1 and GP2) – are used by Transpower, and monitored by the Commerce Commission[28] to assess grid reliability and is related to Transpower's ability to provide an uninterrupted transmission service. These measures enable electrification by enhancing confidence in the system:

- GP1 is the number of unplanned interruptions greater than one minute across all six supply and generation point of service sub-categories during a disclosure year.
- GP2 is the average duration of unplanned interruptions greater than one minute, across six supply and generation point of service sub-categories during a disclosure year.

Our grid performance metrics capture all causes of service outages, including non-climate-related events such as equipment malfunction or human error.

For both GP1 and GP2, there are six points of service categories. Transpower is financially incentivised to outperform the targets for the points of service, and we are financially penalised if our performance is below the targets. Collars' values are the level of performance that results in Transpower receiving the maximum financial penalty for the performance measure in question. Caps' values are the level of performance where we can earn the maximum financial reward. At a minimum, to avoid breaching of our quality standard,[29] Transpower must achieve beyond the collar amount for at least four of the points of service.[30] More detail about these can be found in the Service Measures Report 2023.

Both GP1 and GP2 targets have been met noting we had an approved normalisation event excluded (conductors being cut by the rotor and boom of a weed-spraying helicopter).

Transmission Tomorrow (2023) page 13 contains Transpower's historical performance of unplanned interruptions. A clear downward trend in unplanned interruptions is evident.

Resilience events that include but are not limited to major climate-related events, such as Cyclone Gabrielle, are excluded from this metric. Transpower can apply for the Commerce Commission to 'normalise' an interruption or outage that lasts 24 hours or more and meets certain additional criteria. The policy intention is the quality standards should not apply to such interruptions or outages beyond Transpower's reasonable control provided Transpower has exercised good electricity industry practice.

To be fully transparent with what has been excluded, the table below sets out the total unplanned interruptions and average duration across all points of service. Normalisation events are separated out. The only approved normalisation event in the period shown shown in Figure 16 (page 51) was Cyclone Gabrielle. Transpower does not set targets for normalisation events, but they do help to build an understanding around the scale of normalised interruptions, which are often related to climate change, compared to other interruptions.

27. Excluding funding approved for any investment in non-transmission solutions associated with this MCP investment need.
28. Transpower is subject to associated rewards or penalties for meeting or failing to meet GP1 and GP2.
29. Breaching the quality standard triggers a Commerce Commission investigation.
30. The test for breaching the quality standard is also assessed over at least two years.

4.2.5 Hiring targets – Internal workforce

A competent, motivated, and stable workforce is an essential prerequisite to our provision of a reliable and safe network and excellence in customer service. To deliver on our growing work programme to enable electrification, Transpower requires significant growth in its own workforce while actively supporting the recruitment of engineering consultants, service providers, and specialist contractors from offshore that support Transpower's work. Transpower forecasts adding approximately 16 per cent to its headcount over the 2025-2030 period against its FY24 baseline headcount.

Risks

Rapid electricity demand changes

Opportunities

Better access to talent

Increase in demand for grid infrastructure

4.2.6 Executive remuneration

The Chief Executive can earn an incentive payment of up to 50 per cent of salary, subject to company and individual performance targets being met and at the discretion of the Board. Any change to Chief Executive's salary is subject to approval by the Board following a review by the People and Performance Committee.

Members of the ELT can earn incentive payments, subject to company and individual performance targets being met. Such payments are at the absolute discretion of the Board. The Board may approve up to 120 per cent of the company performance component of the incentive where the company meets or exceeds 100 per cent of plan EBITDAIF (earnings before interest, depreciation, amortisation, asset write offs, impairment, and changes in fair value of financial instruments). Executive team salaries are informed by performance achievement as assessed by the Chief Executive against objectives. Incentives can be 30-35 per cent of their salary depending on job size.

There are seven measures that form the Company related executive at-risk component for their remuneration. Following are the related at-risk metrics that are included in the Climate Statement:

- Achieving GP1 and GP2 are the two measures comprising the customer category of the Company related component, which together were weighted 20% in FY25 (increasing to 30% in FY26).
- Delivery of the base capital expenditure plan (95 - 105 per cent spend basis) is one of two measures within the financial category of the Company related components, which is weighted 10 per cent.

For further background information refer to the Integrated Report Section entitled CE Remuneration. All remuneration is reviewed annually.

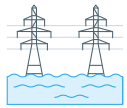
4.3 Other key performance indicators

4.3.1 Resilience History

Figure 18 depicts the relative size of natural hazards and significant common mode failure events that led to a loss of service. The bubbles indicate the amount of energy unserved, which is a measure of the energy demand that could not be met due to the event. Where there was no loss of service the cost of the impact is shown. The bubble size is made relative using the standard value of lost load of $25,000 per MWh.

Not all of them are climate-related, and it is difficult to ascertain the extent to which climate change exacerbated the weather-related events shown. However, climate change attribution studies are becoming increasingly common, such as the analysis referenced earlier relating to Cyclone Gabrielle. The maturity and availability of these studies is expected to continue to grow for future events. Transpower does not set targets for this specific metric, but it informs understanding of the impact of various events over time.

Risks



Flooding

Extreme wind

Increased temperatures

Wildfire

Sea level rise

Land instability

Rapid electricity demand changes

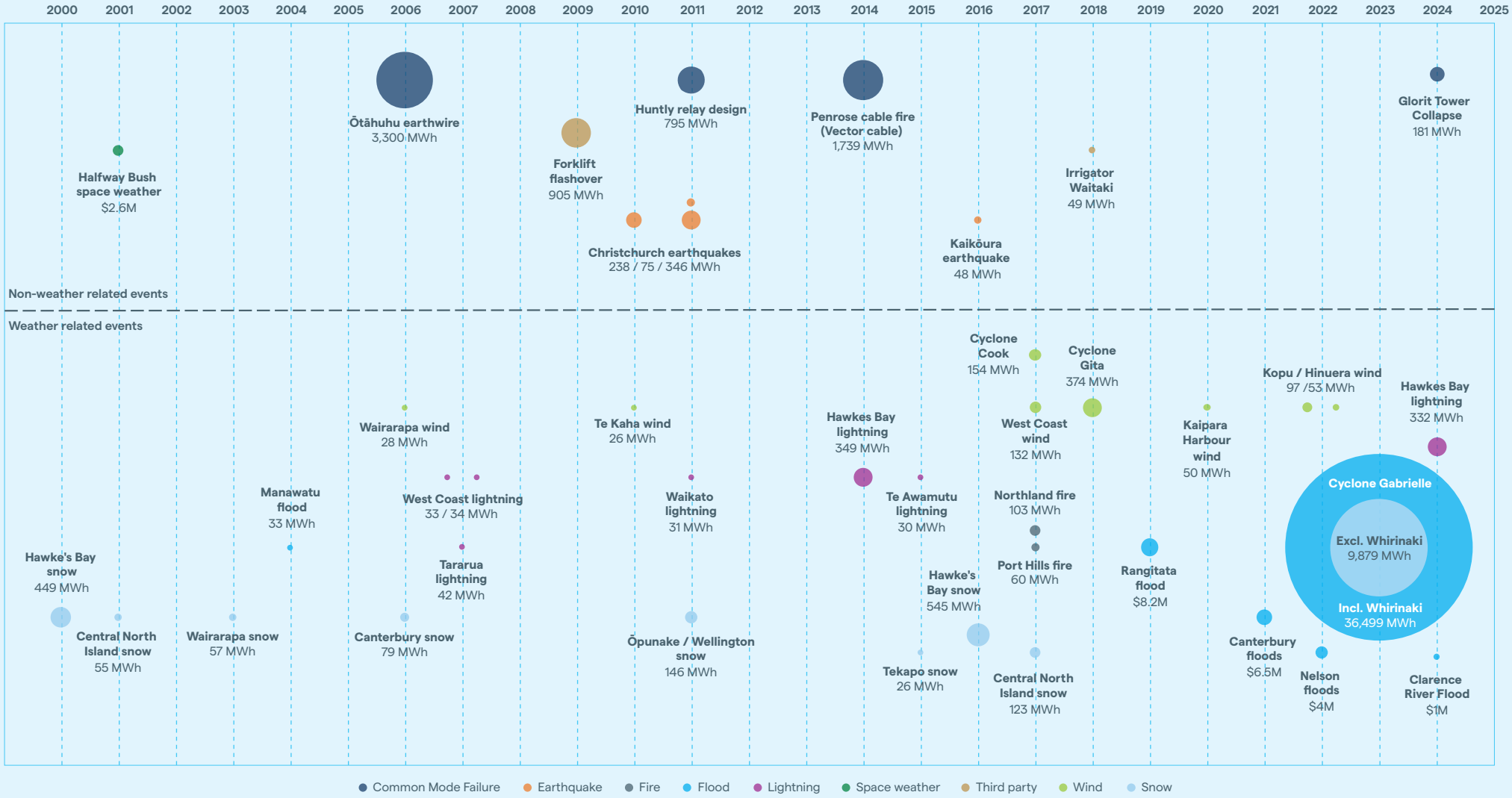
Inability to integrate new technologies

Opportunities

Increase in demand for grid infrastructure

Long-term optimised grid configuration

Figure 18: Resilience History of Natural Hazards and Significant Common Mode Failure (excluding other events)



The bubbles indicate the amount of energy unserved, which is a measure of the energy demand that could not be met due to the event. Where there was no loss of service the cost of the impact is shown.
The bubble size is made relative using a standard value of lost load of $25,000 per MWh.
Severe weather events in the north of the South Island in late-June 2025 will require repair work in FY26 (which as at 30 June 2025 has yet to be quantified so is not included in this chart).

4.3.2 Demand metrics

Transpower monitors developments across key drivers of change and how they are consistent with, or vary from, the expected course of its demand scenarios. Over the past four years, Transpower tracked this with its Whakamana i Te Mauri Hiko monitoring reports. We are now transitioning to a new format in line with an update to our scenarios, which is underway with Future Grid.

Transpower tracks metrics in these reports that inform the management of its climate-related transition risks and opportunities. Some are outlined below and mapped to the transition risks and opportunities they relate to.

Transpower cannot assign targets to these metrics. These are not within its scope of control and reflect trends that it must anticipate and respond to but cannot directly influence. They do not reflect how well Transpower is managing its risks and opportunities, rather they give context to the risk position and the environment they are managed in.

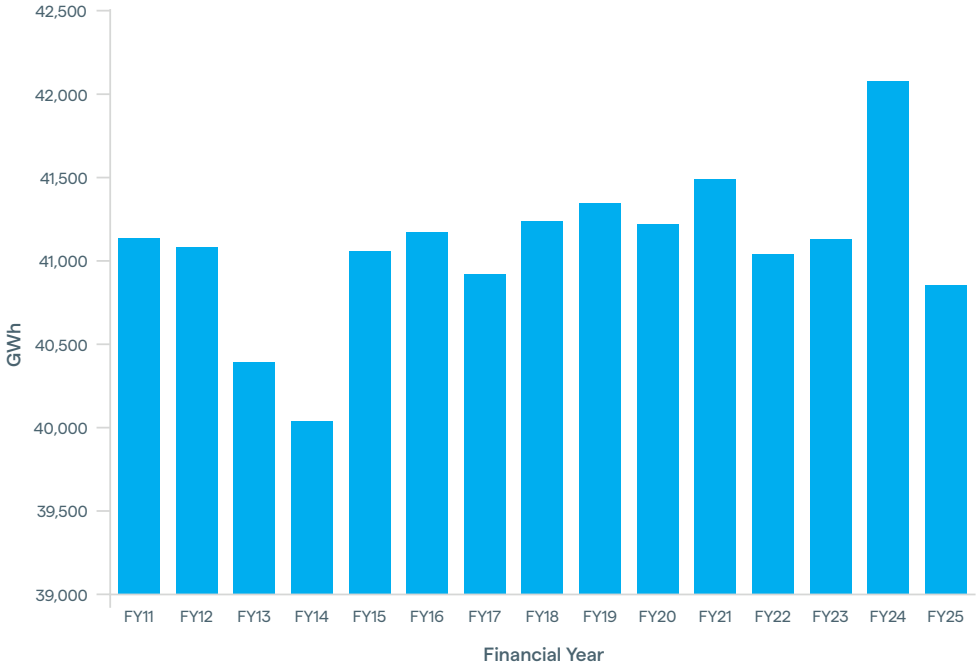
As System Operator, Transpower publishes weekly reports that provide up-to-date information on the electricity market, including security of supply, wholesale price trends and system capacity. Many of the metrics tracked here are important to how Transpower manages climate-related risks and opportunities.

Annual electricity demand

Electricity demand is met from grid connected and embedded generation, such as rooftop solar. Transpower's Accelerated Electrification scenario estimates a 68 per cent increase in electricity demand by 2050, primarily through the electrification of transport and process heat.

As shown in Figure 19, electricity demand has been relatively stable in recent years (note y-axis scale). Demand in FY25 was suppressed by high prices, caused by low hydro storage and a lack of gas. This included around 750 GWh of demand response from the Tiwai aluminium smelter alone. Although a ramp-up in annual demand remains to be seen, there are observable increases in peak demand. Indicators suggest that an increase in annual demand is imminent due to the increased electrification of process heat and the transport sector. Electricity distribution businesses are also reporting varying rates of growth, including some quite substantial increases.

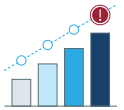
Figure 19: Annual electricity demand



Risks

Rapid electricity demand changes

Insufficient energy (dry year)



Peak demand

Opportunities

Increase in demand for grid infrastructure

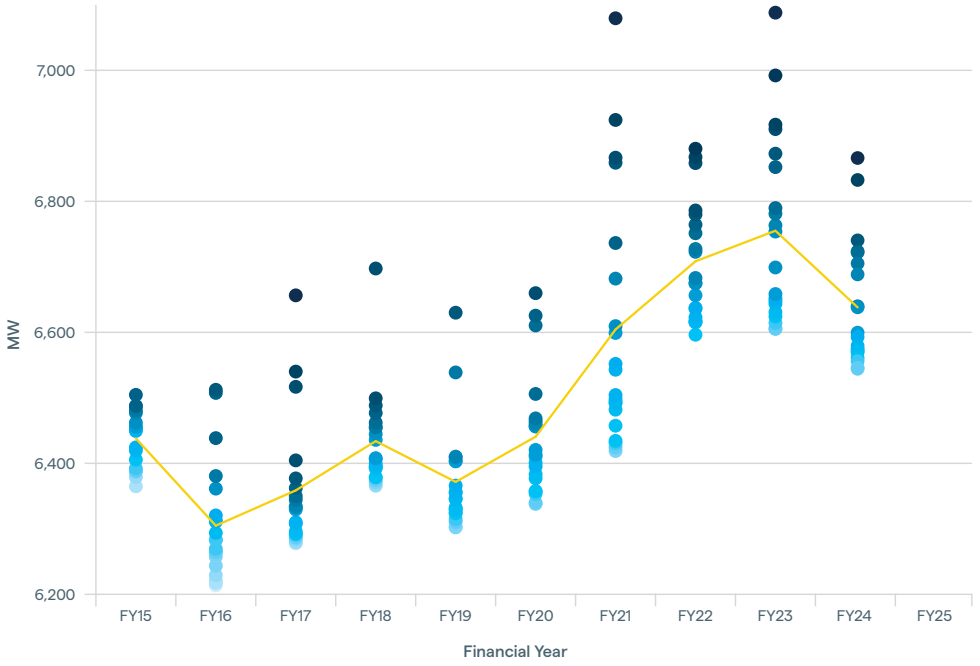
Long-term optimised grid configuration

Twenty highest daily peaks each year

There has been an increasing trend in peak demand, with several of the highest peaks on record occurring since 2021. This can be attributed to the growing electrification of transport, process heat and space heating. It is also attributed to the removal of regional coincident peak demand (RCPD25)[31] charges, with analysis published by the Electricity Authority confirming that this is associated with a 157 MW increase in average peaks – or 2.2 per cent of national demand.

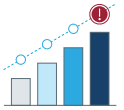
High electricity spot prices in winter 2024 resulted in reduced industrial demand, including an average reduction in Tiwai smelter demand by 130 MW in August. Winter 2024 was also relatively mild, resulting in fewer very high load peaks. However, demand is expected to continue to grow, largely met by new renewables such as wind and solar. Firming capacity (including from batteries) will be needed at peak times, as well as non-network solutions like demand response. This will take time to build and commission and have available on the power system.

Figure 20: Twenty highest daily peaks



Risks

Rapid electricity demand changes



Peak demand

Opportunities

Increase in demand for grid infrastructure

Long-term optimised grid configuration

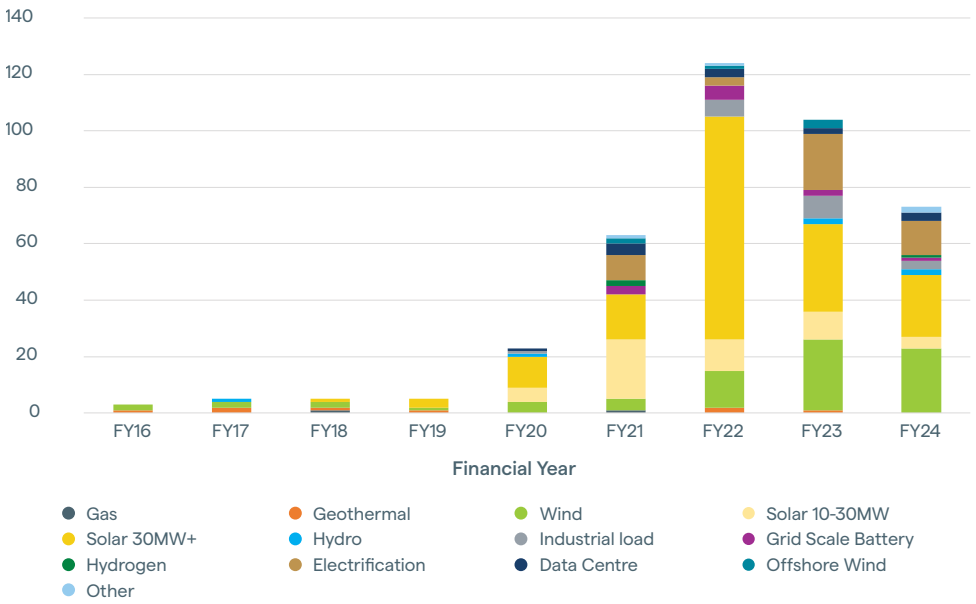
31. The RCPD price signal provided an incentive to reduce peak consumption for the purpose of minimising transmission charges. It was removed from September 2021 due to the transition to the new transmission pricing methodology.

Customer enquiries by generation type

Of the new generation in the pipeline, approximately half is for grid-scale solar followed by onshore wind generation. Offshore wind, if developed, has a very long lead time. 'BESS' data represents standalone Battery Storage projects. Many 'Solar' generation projects are also planning to co-locate BESS.

As at June 2025, 14.7GW of the generation pipeline has progressed to the investigation stage or later, representing 40 per cent of the total potential pipeline. All technology types except 'Hydro and Other' have seen strong increases in the number of advanced projects.

Figure 21: Breakdown of enquiries by generation type. Excludes projects in delivery.



Risks

Inability to integrate new technologies

Opportunities

Increase in demand for grid infrastructure

Generation and demand customer enquiries.

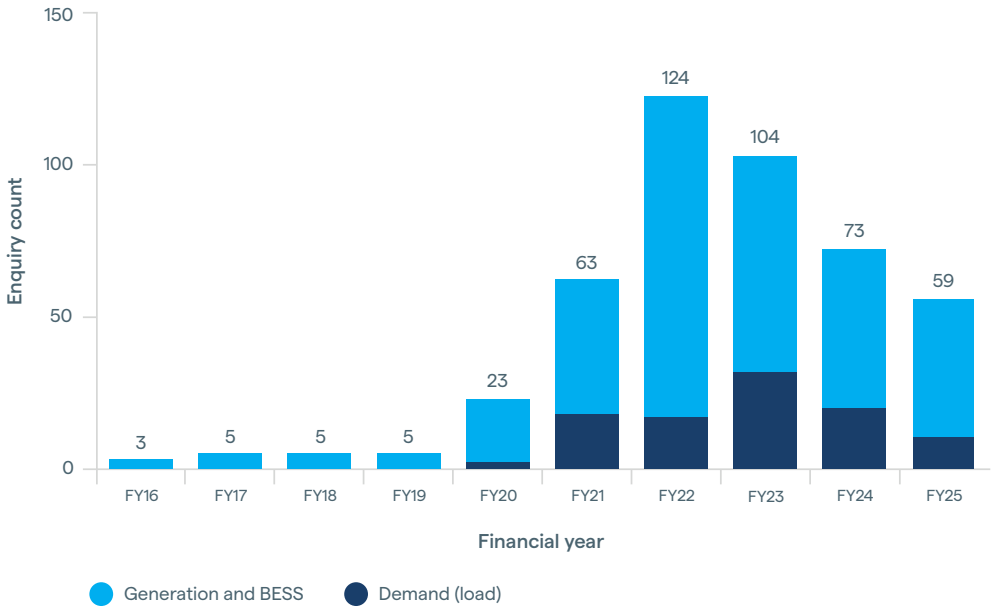
There has been significant growth in the number of connection enquiries, and although it appears generation enquiries have peaked, distribution enquires are increasing as a total share. While the quantity of enquiries is falling, the average size of each connection is increasing. Despite the current peak having passed, both the proportion and total count of demand-side enquiries remain notably higher than the position pre-FY21 as large industrials continue to electrify their processes.

Enquiries occur at the beginning of our customer connection pipeline of work. Transpower continues to have a large number of proposed generation connections to investigate and deliver, along with the growing number of proposed demand-side connections.

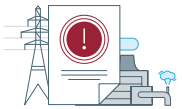
Once the connection and customer infrastructure is commissioned, Transpower in its role as System Operator also has a role in the commissioning process for such generation or distribution assets to be utilised in the market and power systems.

This commissioning work continues to grow in volume – both for grid and distribution connected assets – and is expected to continue to grow in the near-term.

Figure 22: Generation and demand customer enquiries. Count by financial year, excludes enquiries from electricity distribution businesses for upgrades to existing grid connection points.



Risks



Rapid electricity demand changes

Opportunities

Increase in demand for grid infrastructure

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Strategy Disclose the actual and potential impacts of climate-related risks and opportunities on the organisation's business, strategy, and financial planning.	Current impacts and financial impacts of climate change	Page 12 – 13, 18, 20 – 23, 25 – 33
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