MANAWA ENERGY

Climate Statement

FY24

MANAWA ENERGY

9 July 2024

This document was prepared in accordance, and complies, with Part 7A of the Financial Markets Conduct Act 2013 (**FMCA**) and the Aotearoa New Zealand Climate Standards (**NZ CS**) published by the External Reporting Board (**XRB**), and forms the climate-related disclosure for Manawa Energy Limited (**Manawa Energy** or the **Company**) for the FY24 reporting period (Climate Statement).

The NZ CS are aligned with the internationally recognised Taskforce on Climate-related Financial Disclosures (**TCFD**) framework.

Under Part 7A of the FMCA, Manawa Energy is a climate reporting entity for the FY24 period and is required to publish climate-related disclosures as part of our FY24 reporting.

This Climate Statement is a group climate statement for the purposes of Part 7A of the FMCA. References to Manawa Energy include its subsidiaries, as they are identified at **pages 49–50** of the **FY24 Integrated Report** available on our website.

Welcome to our Climate Statement FY24

Message from the Board

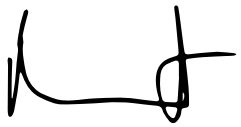
Manawa Energy recognises that a changing climate will necessitate changes to the way the New Zealand energy sector operates, and that it will be increasingly important for all energy market participants to consider the impacts of climate change on their businesses. Those impacts are already creating, and will continue to create, both risks and opportunities for Manawa Energy and New Zealand's energy sector generally.

With extreme weather events predicted to increase in the near to medium-term future, the physical impacts of these weather events – including flooding, high winds, and heat waves – will increase the risks to our business. New Zealand's hydropower schemes and other renewable generation assets (including solar and wind generation facilities) are all weather reliant and therefore will be affected, to some degree, by the weather-related impacts of climate change. Manawa Energy's assets are geographically diverse across New Zealand, which creates a level of resilience to individual extreme weather events.

The efforts to mitigate and adapt to the effects of climate change also present opportunities for Manawa Energy. As a large independent power producer, with a high-quality development pipeline, we are well positioned to support the national ambition for a low-emissions and climate-resilient future. A significant increase in demand for renewable electricity is expected as the economy transitions to Net Zero GHG emissions by 2050.

This is Manawa Energy's first year reporting against the NZ CS. In this Climate Statement we outline our progress towards greater resilience against climate-related impacts on our business, how we intend to deliver for our shareholders and stakeholders and how we will continue to play our part in the decarbonisation of the electricity sector.

This Climate Statement is dated 9 July 2024 and is signed on behalf of Manawa Energy by:



Deion Campbell
Board Chair

Sheridan Broadbent
Chair, Audit and Risk Committee

Introduction

This Climate Statement sets out how climate change is currently impacting Manawa Energy, as well as identifying the possible climate-related risks and opportunities (CRROs) that could impact our business in different climate-related scenarios in the future. It is designed to facilitate assessments about how Manawa Energy is responding to climate change, and how it will do so in the future, in order to assess the resilience of our business model and strategy.

We have had regard to our primary users when preparing this Climate Statement. Primary users include existing & potential investors, customers, lenders and other creditors, and our wider stakeholders who are predominantly based in New Zealand. Manawa Energy has also considered how our primary users might change in the future.

FY24 is the first period during which Manawa Energy has prepared a climate-related disclosure in accordance with the NZ CS. We previously considered climate change in our governance, strategy, and risk management approach, which included disclosing against the TCFD Framework in FY21 (as Trustpower) and in FY22 (as Manawa Energy). We also voluntarily disclosed against aspects of the NZ CS in FY23 (see our **FY23 Integrated Report** available on our website for further details).

In FY23 and FY24, we engaged specialist climate consultancy thinkstep-anz to help us prepare for reporting against the NZ CS. This work has not only helped us to report against the NZ CS, but also to better understand our risks in relation to various climate-related scenarios and integrate this knowledge and information into our future business planning.

We have also undertaken foundational work for climate reporting in FY24 – including exploring and understanding stakeholder motivations, finalising our Sustainability Strategy & Plan, and working to better understand the CRROs for our business.

NZCS Compliance and Adoption Provisions

This Climate Statement complies with the requirements set out in the NZ CS issued by the XRB, as they apply in respect of the FY24 reporting period.

Manawa Energy has relied on adoption provisions available under NZ CS 2 in this first year of reporting, which provide exceptions from NZCS disclosure obligations that Manawa Energy would otherwise be required to comply with. For this FY24 Climate Statement we have relied upon the following adoption provisions:

Adoption Provisions 1 and 2

Current and Anticipated Financial Impacts

Manawa Energy is in the process of quantifying the financial impacts of our current & anticipated physical and transition impacts, risks & opportunities as set out in the Strategy section of this Climate Statement. Completing this financial analysis requires separating the impacts from climate change from the impacts of other weather variability. We will report on the current and anticipated financial impacts from FY25.

Adoption Provision 3

Transition Planning

Manawa Energy has not completed transition planning in accordance with the requirements of NZ CS 1. We are working to validate and align our approach. Our progress towards developing the transition plan aspects of our strategy is described in the Strategy section of this Climate Statement.

Adoption Provision 4

Scope 3 GHG Emissions

Manawa Energy is applying Adoption Provision 4 in respect of the following material Scope 3 GHG emissions categories – purchased goods and services, capital goods, employee commuting and downstream leased assets (note there also are a number of other immaterial Scope 3 categories that we have not reported for FY24). We continue to refine our Scope 3 emissions data collection and will report on these expanded categories in FY25.

Adoption Provisions 5 and 6

Comparatives

Manawa Energy is relying on Adoption Provisions 5 and 6 and has not disclosed comparatives for Scope 3 GHG emissions or other metrics disclosed.

Adoption Provision 7

Analysis of Trends

Manawa Energy has not undertaken an analysis of trends in this Climate Statement as we have set FY24 as our base year. We will report on trends in our FY25 reporting.

Sections of this Climate Statement

Governance

Pages 7 to 11

This section details the role of Manawa Energy's Board and management team in overseeing, assessing, and managing CRROs.

Strategy

Pages 12 to 27

This section sets out the current climate-related impacts Manawa Energy has experienced, the scenario analysis that Manawa Energy has undertaken in FY24, the CRROs that Manawa Energy has identified, the anticipated impacts of those CRROs on Manawa Energy's business and the progress Manawa Energy has made toward preparing a transition plan to address those CRROs in the future.

Risk Management

Pages 28 to 32

This section describes the process by which Manawa Energy identifies, assesses, and manages climate-related risks and how that process is or will be integrated into existing risk management processes in the future.

Metrics and Targets

Pages 33 to 42

This section sets out Manawa Energy's Scope 1, Scope 2 and a subset of its Scope 3 GHG emissions for FY24 as well as the processes by which Manawa Energy measures and manages those GHG emissions.

Disclaimer

Manawa Energy has used our best efforts to ensure the information provided in this Climate Statement is accurate and correct as at the date of publication, and that it includes all information (other than described in Adoption Provisions above) as at the date of publication that could reasonably be expected to influence decisions that primary users reasonably make on the basis of this Climate Statement.

Given the inherent uncertainty of the subject matter, accuracy in this context does not mean certainty of outcome, but rather that Manawa Energy has implemented adequate processes and internal controls to be confident that the information presented is free from material error or misstatement.

This Climate Statement contains statements that are, or may be deemed to be, forward-looking statements, including climate-related scenarios, CRROs, estimated climate projections, assumptions, and statements of Manawa Energy's future intentions.

Forward-looking statements are inherently uncertain and subject to limitations, particularly as to inputs, available data and information which is likely to change.

Descriptions of the current and anticipated impacts of climate change on Manawa Energy are underpinned by assumptions that are subject to inherent risks and uncertainties, many of which are beyond Manawa Energy's control.

In particular, the CRROs described in this Climate Statement may not eventuate or may be more or less significant than anticipated, and there could be significant climate-related impacts that eventuate, which have not been identified in this Climate Statement. There are many factors that could cause Manawa Energy's actual results, performance, risks, or opportunities to differ materially from those described in this Climate Statement, including climatic, government, consumer, technological and market factors.

Nothing in this Climate Statement should be interpreted as capital growth, earnings or any other legal, financial, tax or other advice or guidance.

Many of the assumptions, metrics and measurements used in preparing this Climate Statement involve the exercise of Manawa Energy's judgement or are based on our estimate of the current or future position, which we considered to be reasonable at the time this document was prepared. No information presented in this document that is based on our judgements or estimates should be taken as a guarantee of future outcomes.

Manawa Energy's selected three climate-related scenarios are intended to provide plausible future scenarios that can assist with identifying and assessing CRROs, and with testing our strategy and business model for climate resilience. The climate-related scenarios are not Manawa Energy forecasts – they are scenarios developed by Manawa Energy with the assistance of expert and independent peer review and advice. Manawa Energy's Board and management team carefully considered and approved these climate-related scenarios for the purpose stated.

Governance

Overview

The governance diagram below sets out a broad overview of the risk and governance relationships and responsibilities of Manawa Energy's board of directors (Board), Audit and Risk Committee (ARC), People and Remuneration Committee (PRC) and management team.

These relationships and responsibilities are set out in more detail in the sections below.

Governance	**Manawa Energy Board** The governance body responsible for setting Manawa Energy's overall strategy, direction, and approach to risks and opportunities. The Board is responsible for oversight of CRROs, Environmental, Social & Governance (**ESG**) our Sustainability Strategy & Plan and for approving Manawa Energy's climate-related disclosures.	
	Audit and Risk Committee (ARC) The ARC is a standing subcommittee of the Board. The Board has delegated specific functions and responsibilities to the ARC with respect to climate-related disclosures and climate-related risks, including overseeing climate-related strategy, the preparation and verification, of Manawa Energy's climate-related disclosures.	**People and Remuneration Committee (PRC)** The PRC is a standing subcommittee of the Board. The PRC has specific responsibilities related to remuneration, including the incentive arrangements for the Chief Executive and management team, which include determining appropriate ESG and climate reporting KPIs.
Executive	**Chief Executive and Management Team** The Board (via the ARC) delegates responsibility for assessing and managing CRROs to the management team, which includes the Chief Executive. The management team has overall accountability for embedding CRROs into risk management, business strategy and planning, budgeting processes and frameworks and regular reporting to the ARC and Board on those matters.	
Operations	**Business Functions** Manawa Energy manages the identification and day-to-day management of CRROs on a devolved basis, with accountability for specific CRROs allocated to particular business functions and responsible members of the management team.	**Risk Owners** Climate-related risks are identified, and Risk Owners assigned within certain risks categories that they have been allocated. Risk Owners are responsible for monitoring and managing those climate-related risks using Totum (Manawa Energy's enterprise risk management tool).

Board Oversight of CRROs

Manawa Energy's Board is the governance body responsible for overseeing our approach to risks and opportunities (including CRROs). The Board sets the Company's overall strategy and direction including considering how CRROs impact strategy. The Board Charter sets out the Board's core roles and responsibilities, including:

- ensuring appropriate audit and risk management systems are in place to manage risk within the Board's approved risk framework;
- adopting appropriate procedures to ensure compliance with all laws, including accounting standards;
- overseeing the Company's commitment to our values, sustainable development, the environment and the health and safety of employees, contractors and the communities in which Manawa Energy operates; and
- ensuring that the Board is and remains appropriately skilled to meet the changing needs of the Company, consistent with NZX requirements.

With respect to climate change specifically, the Board is ultimately responsible for the oversight of CRROs, ESG and our Sustainability Strategy & Plan, and for approval of this Climate Statement.

Audit and Risk Committee

Manawa Energy's ARC is a standing committee of the Board. The ARC's role is to oversee and assist the Board to comply with its legal obligations in relation to risk management and provide oversight of climate and ESG strategy (including CRROs) and financial reporting.

The **ARC Charter** was amended in November 2023 to reflect the specific responsibilities that the Board has delegated to the ARC with respect to climate-related disclosures and climate-related strategy. In practice, these include:

- regular reporting on climate-related risks (as described below);
- oversight of Manawa Energy's climate strategy and risk management framework;
- ensuring the appropriateness of Manawa Energy's climate-related disclosures and associated processes;
- engaging with the management team (and any independent assurance providers) on Manawa Energy's climate-related disclosures; and
- recommending this Climate Statement and subsequent annual Climate Statements to the Board for approval.

The ARC's general risk management mandate includes climate-related risks. The ARC maintains oversight of climate-related risks within the risk parameters defined by the Board as part of Manawa Energy's Enterprise Risk Management (**ERM**) system.

Throughout FY24, the ARC assisted the Board in considering and recommending changes to Manawa Energy's ERM system, reviewing the Sustainability Materiality Matrix, considering Manawa Energy's Sustainability Strategy & Plan, and developing Manawa Energy's climate reporting processes.

The ARC meets at least four times per year. All Manawa Energy directors (including those that are not members of the ARC) have a standing invitation to attend ARC meetings and attendance by the full Board is a regular occurrence. The Chair of the ARC reports to the Board by way of updates at Board meetings. The ARC Chair updates include the content of ARC meetings and reporting on any CRROs that have been considered by the ARC.

FY23 Materiality Assessment

In FY23, Manawa Energy undertook a materiality assessment that included seeking views from a selection of the Manawa Energy's directors, shareholders, employees, community, wider industry participants, regulators, and customers on the most important sustainability issues they see facing Manawa Energy. The results were plotted to produce a Sustainability Materiality Matrix, which indicated the most critical issues in terms of business impact and stakeholder importance.

Manawa Energy selected 15 priority topics from the Sustainability Materiality Matrix to form the basis of our Sustainability Strategy & Plan – this included climate-related business risk and opportunities. Going forward, the Sustainability Strategy & Plan will inform decision-making across Manawa Energy, including by the Board, the ARC and the management team.

An overview of the Sustainability Strategy & Plan is set out on page 19 of the **FY24 Integrated Report**.

Board Skills and Competencies

The Board is committed to ensuring that Manawa Energy operates responsibly, ethically and in compliance with our company values – including in relation to CRROs. The Board Charter sets out the specific roles and responsibilities of the Board as they relate to CRROs.

When the Board is considering appointing a new or replacement director, Manawa Energy undertakes a rigorous evaluation process. This process considers the current skillset of the Board and identifies the skills and experience that prospective directors will ideally possess. In particular, the climate expertise, skills and competencies of prospective directors are considered and evaluated against the Board Strategic Skills Matrix, which includes ESG and Sustainability as a core Board competency.

All newly appointed directors undertake a comprehensive induction, which includes site visits to see Manawa Energy's generation assets and operating environments first hand.

Time is regularly set aside in Board meetings to upskill directors on key issues facing Manawa Energy, including CRROs, developments in legal obligations and best practice with respect to climate reporting and climate change generally. Directors also have access to training funds, which can be used to support their continuous education on matters relevant to their role at Manawa Energy.

The Board utilises climate-related expertise – both internally and from external advisors – to discharge its roles and responsibilities. For example, climate-related presentations, legal advice, and reporting on climate-related legislative updates all contribute to the Board's (and the wider management team's) ongoing education in climate-related matters. Individual Board members are also able to access climate-related materials and knowledge via their other roles and membership of organisations such as the Institute of Directors, the Trans-Tasman Business Circle and Chapter Zero.

The Board is committed to continuous improvement and in FY24 undertook an externally facilitated Board governance and performance review. The resulting report provided an assessment of current capability against the Board Strategic Skills Matrix and included feedback for individual directors and the whole Board. The report will serve as the cornerstone for Board performance and assist in identifying professional development priorities and targeting future Board appointment processes, including in relation to further developing climate-related expertise and skills.

Our Strategy and CRROs

The Board is committed to building a climate-resilient business and considers CRROs when reviewing, developing, and overseeing the implementation of Manawa Energy's overall strategy.

Consideration of CRROs in Strategy Review and Development

Manawa Energy reviews its strategic framework annually. CRROs that have been identified and assessed by the management team, the ARC and the Board during the preceding year are considered in this context.

All aspects of Manawa Energy's current and future strategy are impacted by CRROs. For example:

- More intermittent wind and solar generation is built in response to decarbonisation goals, with hydropower generation continuing to play a role in firming the variable supply from these intermittent sources. The profitability of all Manawa Energy's existing assets (being both the volume of electricity these assets generate, and the price achieved for the electricity generated) is dependent on the weather and therefore is influenced by climate change.
- As a developer of renewable energy assets, Manawa Energy's growth strategy is aligned with key components of the country's response to reducing emissions, being the electrification of New Zealand's economy and large-scale decarbonisation.
- The management of Manawa Energy's assets is informed by how resilient they are to climate change impacts.

The identification and consideration of CRROs is therefore an integral part of Manawa Energy's strategy development and review processes.

Consideration of other relevant Climate-Related Factors in Strategy Review and Development

In addition to considering CRROs in the strategic planning process, Manawa Energy also uses projections of electricity demand growth such as that from the Climate Change Commission and Transpower to inform our strategic planning and decisions.

Asset Management and its relevance to Strategy

As noted above, Manawa Energy's existing asset strategy centres on the ongoing reliability, safety and profitability of our 26 generation schemes.

Each year, Manawa Energy reviews our asset management plans for each of our generation assets. In addition, as part of Manawa Energy's dam safety program, the hydrology for each hydro catchment is routinely reviewed, to take account of the latest weather modelling and any recent extreme weather events. Any notable changes in rainfall patterns and hydrology are captured during this process. These changes identify risks to assets from extreme weather events and inform how Manawa Energy's project budget is spent, as well as identifying opportunities to capture additional revenue caused by increased rainfall.

These processes help Manawa Energy to not only identify and integrate CRROs into strategic planning, but to also understand the overall resilience of our assets to climate change and the counter-measures Manawa Energy might need to undertake – now and in the future – to sustain that resilience.

Understanding CRROs for future strategy consideration

In FY23 and FY24, Manawa Energy worked with thinkstep-anz – an environmental & corporate sustainability consultancy – to upskill and build Manawa Energy's capability in relation to identifying and assessing CRROs. The scenario analysis process that Manawa Energy undertook with thinkstep-anz to prepare the Strategy section of this Climate Statement will serve as a valuable input into our future strategy and overall risk identification and management processes.

Metrics and Targets for Managing CRROs

Manawa Energy currently has the following metrics for managing CRROs:

- Our Greenhouse Gas Emissions Inventory;
- Our Sustainable Finance Framework;
- Issuance of energy products such as Renewable Energy Certificates (RECs);
- Our electricity generation intensity; and
- Our new renewable energy development pipeline – progress against target development milestones

Metrics are considered and approved by the Board. We will continue to consider implementing further metrics and targets for managing CRROs as part of the climate and sustainability-related aspects of Manawa Energy's strategy and business operations.

Manawa Energy's Board oversees the monitoring of metrics for managing CRROs primarily via the operation of the ARC and Manawa Energy's existing strategy development and review processes. Manawa Energy's Board also has oversight over major capital investment projects and approves the business's capital investment budget, including the associated climate-related metrics for those. These processes provide the Board with oversight of metrics for managing CRROs, and will continue to do so into the future. Day-to-day responsibility for the operation and monitoring of these metrics is delegated to management. Manawa Energy has also implemented climate-related KPIs in respect of some roles that contribute to the management of CRROs and is further considering how the achievement of climate-related targets can be linked to the performance-based remuneration of relevant management team members. Further details in relation to these KPIs is set out in the section below.

More information about Manawa Energy's approach to climate-related metrics and targets is set out in the Metrics and Targets section of this Climate Statement.

CRRO Management Performance Linked to Remuneration

Manawa Energy's PRC is a standing committee of the Board. The PRC has specific responsibilities in respect of remuneration, including for benefits and incentive arrangements for the Chief Executive and members of the management team.

The PRC and Board review Manawa Energy's remuneration framework (including incentives) annually to determine appropriate linkages to ESG/ climate-related matters.

Manawa Energy's Chief Executive and management team have remuneration linked to the achievement of Manawa Energy's strategic goals and objectives, which include the following climate-related KPIs:

- Deliver and maintain existing renewable generation major asset projects – on time and within budget.
- Continue to progress new development options – with a core focus on moving these to Final Investment Decision stage.
- Progress and expand Manawa Energy's existing renewable development project pipeline.

Manawa Energy's General Manager Environment & Stakeholders also has a specific ESG goal to drive delivery, monitoring, and active engagement of Manawa Energy's Sustainability strategy.

More remuneration information is available in our **FY24 Integrated Report**, **Executive Remuneration Policy**, **People and Remuneration Charter** and **Corporate Governance Statement**.

Management Oversight of CRROs

As described above, CRROs are central to Manawa Energy's strategy. This section describes the management team's role in strategy preparation and risk management at Manawa Energy. The consideration of CRROs is included within these processes, and not undertaken as a separate or standalone activity.

The Board (via the ARC) delegates responsibility for assessing and managing risk and opportunities (including CRROs) to the management team, which includes the Chief Executive. A description of the governance and management responsibilities and processes that have been adopted by the Board and management team is set out in our **Corporate Governance Statement**.

The management team is committed to ensuring that Manawa Energy's ERM system supports the Company's operations and informs decisions about future opportunities, including those relating to climate change. The management team:

- receives quarterly reporting from the Head of Finance on Manawa Energy's enterprise risks (including details of any changes to those risks);
- undertakes risk reviews on a quarterly basis to monitor and identify risks, including climate-related risks;
- regularly reports its findings to the ARC and the Board;
- discusses climate-related risk assessments, management and mitigation with the ARC and the Board;
- regularly considers existing enterprise risk assessments (including the adequacy of controls or the need for additional assurance activity); and
- considers changes to the risk environment and how these might impact Manawa Energy.[1]

The management team is guided by a series of internal policies, including Manawa Energy's Risk Policy and Risk Guidelines. The management team also have regard to the risk appetite for various business functions and to Manawa Energy's insurance programme.

As a part of Manawa Energy's quarterly risk review process, the management team also identifies and considers any emergent risks to its business. For example, in January 2024, the management team considered the following five material risks for New Zealand as identified in the World Economic Forum's review of global risks for 2024[2] (which include elements of climate-related risk):

- Economic downturn;
- Extreme weather events;
- Inflation;
- Energy supply shortage; and
- Labour shortage.

Further information about how CRROs are identified, considered, and integrated by management are set out in the section entitled "Integration of Climate-Related Risks into Overall Risk Management Processes" in the Risk Management section of this Climate Statement.

1 For example, New Zealand media attention in FY24 around the exposure of solar farm developers' supply chains to modern slavery highlighted both procurement and reputational risks associated with claims of modern slavery and has potentially changed the risk profile for Manawa Energy in relation to its development pipeline in that respect. Manawa Energy will continue to consider how it will take steps to seek to ensure an ethical supply chain as part of its Sustainability Strategy & Plan.

2 **Global Risks Report 2024**, World Economic Forum.

Strategy

Our Business Model

Manawa Energy's core business is as a generator of renewable electricity (primarily hydropower generation), with a focus on increasing renewable generation capacity.

Manawa Energy has a portfolio of 26 power schemes (comprising 45 stations and 84 generating units). We generate electricity predominantly from hydro and operate one thermal diesel peaker plant at Bream Bay, this thermal generation plant represents less than 1% of Manawa Energy's total capacity (4.5MW out of a total capacity of 510MW). Manawa Energy supplies electricity to approximately 610 commercial and industrial business customers, electricity retailers and other major energy users throughout New Zealand.

Manawa Energy primarily derives revenue from selling electricity on the New Zealand wholesale market, entering into electricity supply and purchase agreements agreements and other financial electricity products (for example, hedge contracts and derivatives).

Other Revenue

Alongside our generation business, Manawa Energy also derives revenue from its 15% shareholding in Rangitata Diversion Race Limited – the entity which operates the Rangitata Diversion Race. This company plays an integral role in the conveyance of water to irrigation companies in mid-Canterbury via our pumping assets at Highbank on the Rangitata Diversion Race and via stored water releases from Lake Coleridge. Manawa Energy also owns rural land that is leased to, or contracted to farming operations and hosts wind farm assets owned by third parties.

Our Strategy

Manawa Energy sets and reviews its strategic plan annually. Our focus is on efficiently managing our existing portfolio of generation assets and increasing our renewable generation capacity. Our strategic plan has developed and evolved, not only to meet growing demands for renewable electricity, but also to reflect changes in the regulatory environment and New Zealand energy sector.

Manawa Energy's current strategic plan has three key themes:

- Maximising the long-term value of our existing assets.
- Growth through new developments.
- Capturing value through our revenue contracting strategy.

For more information about Manawa Energy's business model and strategy, including our FY24 achievements and future goals and targets, refer to the "Our strategy" section from page 17 of our **FY24 Integrated Report**.

Transition Plan Aspects of Strategy

For our first reporting period under the climate-related disclosures regime, Manawa Energy is relying on Adoption Provision 3 and has therefore not finalised transition planning. Manawa Energy is, however, in the process of developing the transition plan aspects of our strategy.

Our changing climate will undoubtedly influence the way Manawa Energy operates in the medium- to long-term, and we know more extreme weather patterns could increase the risk of damage to our assets and impact our generation revenue both positively and negatively. Our existing asset management planning and our future renewable development strategy, together with the work we have undertaken to prepare this Climate Statement, will assist us to manage climate risk and build a more climate-resilient business going forward.

Current Climate-Related Impacts

As a renewable energy generator with a geographically dispersed asset base Manawa Energy is affected by weather and climate-related impacts each year. In FY24, Manawa Energy's business was affected by weather and climate-related impacts in the following ways:

Physical Impacts

Extreme weather events: Throughout FY23, extreme weather events – including increased rainfall, flooding, and storm events – caused widespread flooding and property damage across the northern parts of Aotearoa New Zealand. These weather events have had consequential impacts for some minor aspects of Manawa Energy's business and flow-on effects are still being experienced in FY24.

In particular, Cyclone Gabrielle in February 2023 impacted the North Island and caused damage at Manawa Energy's Esk Power Scheme in the Hawkes Bay region. This power scheme lost generation capacity as a result, and this necessitated remediation and rebuild of generation and monitoring equipment. This scheme represents 0.7% of Manawa Energy's total generation capacity.

Manawa Energy has also experienced positive effects from these events in the form of strong inflows and therefore increased generation revenue.

Landslides and soil erosion: In FY23 and FY24 Manawa Energy also experienced the impacts of landslides, soil erosion and sediment issues at and around a few of our power schemes linked to extreme weather events.

These had consequential impacts on Manawa's generation equipment and operations, including site access issues, and vegetation debris at our hydropower scheme intake screens.

Higher mean temperatures: 2023 was New Zealand's second warmest year on record, based on NIWA data dating back to 1909.[3]

Higher mean temperatures result in changes to hydrological inflows and seasonal demand patterns.

Higher mean temperatures also meant that there was a very strong demand for irrigation conveyance services (and higher associated revenue) throughout FY24.

Transition Impacts

Insurance: The insurance premiums for our generation assets, business interruption and other types of cover increased. This was primarily due to construction cost inflation.

Regulatory and legal: Manawa Energy and the wider energy sector experienced several regulatory and legal transition impacts that were either wholly or partly climate-related. For example:

- Regulatory uncertainty that creates risks and opportunities in the renewable energy sector, including the consenting regime for renewable generation, Government strategy for achieving electrification and decarbonisation ambitions.
- Increased resource and compliance costs in relation to mandatory climate reporting.
- Increasing stakeholder expectations for quantification and transparency in relation to climate-related activities, impacts, risks and opportunities within business. An emerging risk of, and increase in, climate litigation and activism impacting the wider energy sector.

Financial and Market: Manawa Energy experienced minor financial impacts caused by an increase in access disruptions, and the cost of labour (including technical expertise) and materials. Manawa Energy has implemented a sustainable finance framework, and its existing NZX-listed bonds were approved as Green Bonds in October 2023. Green Bonds represent 83% of Manawa Energy's total net debt as of 31 March 2024. Government policies have also impacted investment confidence in the gas exploration sector which is having flow-on impacts on the cost of gas powered electricity generation, and therefore on the general market for spot and forward electricity prices.

Reputation: We experienced reputational benefits associated with being a predominantly renewable energy generator and as a result of engaging with stakeholders about our plans to further invest in renewable energy. We will continue to monitor this trend as we expand our generation activities.

Asset management: We continue to consider the resilience of our hydropower schemes against current and future changes to weather patterns.

3 **Annual Climate Summary 2023, NIWA**.

FY24 Scenario Analysis

Overview of Scenario Analysis Process for FY24

Manawa Energy understands the importance of scenario analysis in identifying CRROs, to inform our strategy & business model and to assess how resilient our strategy & business model are now and will be in the future.

We conducted scenario analysis in FY24 with the assistance of third-party specialist provider, thinkstep-anz. We were also assisted by external legal counsel Simpson Grierson who guided the scenario analysis process for consistency with NZ CS requirements and related XRB and FMA guidance.

Our FY24 scenario analysis was conducted as a standalone exercise and has not yet been fully integrated into our strategy processes. The process involved a limited number of external stakeholders (our external advisers and our largest shareholder, Infratil (Manawa Energy forms part of Infratil's own portfolio climate reporting)). We are working towards integrating the scenario analysis into our strategy processes and involving key external stakeholders such as suppliers and lenders in our second NZ CS reporting period.

At a high-level, our FY24 scenario analysis process was structured as follows:

- The ARC approved the management team engaging thinkstep-anz to assist with scenario analysis and CRRO identification and assessment.
- The ARC and the Board received updates on, and contributed periodically to, the scenario analysis process – at both scheduled meetings and on an ad hoc basis. For example, this included approving a process plan for scenario analysis, advising on queries as and when necessary, reviewing the outputs from the scenario analysis process, and approving this Climate Statement.
- An internal project team (**Project Team**) was assembled to participate in a series of workshops run by thinkstep-anz. The substantive scenario analysis was undertaken at these workshops.
- The workshops broadly followed the structure recommended in the XRB's **Staff Guidance for Entity Scenario Development** and involved the following key steps:
  - **Step 1**: Set the scene, create a project group, and define objectives, milestones, and deliverables.
  - **Step 2**: Define the focal question, map the value chain and organisational boundary, define time horizons.
  - **Step 3**: Identify driving forces and critical uncertainties.
  - **Step 4**: Select temperature outcomes and emissions pathways.
  - **Step 5**: Prepare draft narratives.
  - **Step 6**: Conduct scenario analysis (using an 'orderly' 1.5°C scenario, a 'disorderly' 2.0°C scenario, and a 'hot house' ≥3.0°C scenario) and identify Manawa Energy's CRROs.
- Final CRRO disclosures were then developed, reviewed, and commented on by the ARC and Infratil (as Manawa Energy is reported on as part of Infratil's portfolio entity reporting), finalised and provided to the Board for approval.

Focal Question

The focal question for our scenario analysis was:

"What climate-related risks and opportunities (CRROs) are affecting the Manawa Energy group (including subsidiaries within its organisational boundary and its wider value chain) now, what CRROs could plausibly affect the Manawa Energy group over the short, medium and long-term, and how material are those CRROs to the Manawa Energy group's business model and strategy both now and in the future?"

Organisational Boundary and Value Chain

Organisational Boundary

The following entities were included within the organisational boundary for the purposes of CRRO identification and analysis:

- Operations wholly owned and operated by Manawa Energy, other than Manawa Energy Generation Limited, Maungatapere 2021 Limited and Manawa Energy Metering Limited, which were deemed immaterial to the identification and analysis of CRROs due to the nature of their business and operations;
- King Country Energy Limited's operations, where Manawa Energy holds a majority (75%) ownership interest (King Country Energy is an electricity generation company with five hydro schemes in the King Country and Horowhenua regions); and
- Manawa Energy Insurance Limited (Manawa Energy's captive insurance vehicle) (a wholly owned entity of Manawa Energy); and

- Lochindorb Wind GP Limited, where Manawa Energy holds a 50% ownership interest (Lochindorb Wind GP Limited is the general partner of a limited partnership to develop the Kaihiku wind farm project).

Value Chain Exclusions

After mapping Manawa Energy's value chain, the following categories were excluded for the purposes of CRRO identification and analysis on a materiality basis. Categories were assessed and excluded if they were immaterial from a CCRO or sustainable business perspective (such as if it was immaterial to Manawa Energy's ability to generate revenue, maintain assets, obtain insurance, or access capital).

Exclusion	Rationale
Third-party transportation and distribution service providers	No major transportation activity for Manawa Energy.
Lessors of upstream leased assets	Manawa Energy has a small number of lease interests, none of which are material (financially or from a sustainability or CRRO perspective) for the purposes of the value chain.
Travel and accommodation providers	Level of business travel is not material, by reference to GHG emissions.
Landfill and waste disposal service providers	Manawa Energy's waste footprint is not material.
Downstream lessees	Manawa Energy has a small number of downstream lease interests in relation to rural land. Not material to Manawa Energy's primary business.
Forestry interests	Manawa Energy holds modest forestry interests that form part of existing hydropower schemes, or potential development opportunities. The forestry interests are not material to Manawa Energy's primary business and do not result in a significant number of New Zealand Units (under the Emissions Trading Scheme).

Scenario Rationale and Data Sources

In selecting the orderly 1.5°C, disorderly 2.0°C, and hot house ≥3.0°C scenarios for our scenario analysis we had regard to the scenario architectures and time horizons used in wider energy sector scenario analysis and to the scenarios chosen by Infratil (our major shareholder) to prepare its climate-related disclosures. In our view, the scenarios we have chosen provide a proper basis to assess the resilience of our business model and strategy against selected CRROs. We will continue to assess in the future and make changes as necessary.

In preparing the scenarios, we used the following data sources:

- The Intergovernmental Panel on Climate Change (**IPCC**) sixth assessment synthesis report (**AR6**), which includes detail on CRROs at a global level, including relative concentrations pathways (RCPs) which provide an indication of the future concentrations of greenhouse gas emissions driving the changes to the physical climate.
- The Network for Greening the Financial System (**NGFS**) **hypothetical scenarios**. The NGFS "Net Zero 2050", "Delayed Transition" and "Current Policies" scenarios were utilised in producing the 1.5°C, 2.0°C and ≥3.0°C scenarios.
- The International Energy Agency (**IEA**) **2023 World Energy Outlook**. This provides insights into global energy supply and demand under different scenarios and the implications for energy security, climate targets and economic development.
- Selected advice[4] to the Government from the Aotearoa New Zealand Climate Change Commission (**CCC**).

Time Horizons for Scenarios

The time horizons that we selected for each of the temperature scenarios were 2050 in relation to Manawa Energy's business and strategy, and 2100 in relation to our physical assets. The 2100-time horizon aligns with the long-term nature of our physical assets.

4 **Ināia tonu nei: a low emissions future for Aotearoa**.

Climate-Related Scenarios

Overview of Scenarios and Emissions Reduction Pathways

	Orderly	Disorderly	Hot house
Policy ambition	1.5°C	2.0°C	≥3.0°C
Pathways	RCP 2.6 SSP 1-1.9 NGFS: "Net Zero 2050" IEA: "Net Zero Emissions" CCC: Tailwinds	RCP 2.6 SSP 1-2.6 NGFS: "Delayed Transition" IEA: "Sustainable Development" CCC: Headwinds	RCP 8.5 SSP 3-7.0 NGFS "Current Policies" IEA: "Stated Policies" CCC: Current Policies
Policy reaction	**Immediate and smooth**: New Zealand climate policies are ambitious and in line with the rest of the world. There is a clear long-term energy strategy as well as clarity over the role of carbon pricing in achieving decarbonisation objectives.	**Delayed**: Globally stringent decarbonisation policies are not enacted until the 2030s. New Zealand continues to participate and introduces abrupt policy changes and decarbonisation strategies post-2030.	**None – current policies**: New Zealand's climate change policy aligns with the rest of the world. No further policies are introduced, and regulatory change is slow.
Technology change (including negative emissions technology)	**Fast change**: Technologies providing an opportunity to decarbonise are rapidly deployed including the electrification of transport and process heat, energy storage, distributed generation, smart grids, green hydrogen and carbon capture and storage of major point source emissions.	**Slow – Fast change**: During the 2020s there is a slow adoption of decarbonisation technologies. This is followed by a significant surge in demand in the 2030s as New Zealand rushes to electrify.	**Slow change**: New Zealand's electricity grid is gradually decarbonised in line with current policies.
Behaviour change	**Fast change**: There is a strong societal movement to contribute to decarbonisation to achieve global goals. Consumers see electrification as a key mechanism to contribute.	**Slow – Fast change**: The societal movement to contribute to decarbonisation is delayed until after 2030. The response is abrupt and far less coordinated.	**Slow change**: With a lack of global and national direction on the need for decarbonisation, the focus turns to adaptation to a changing climate.
Physical risk severity	Moderate	Moderate	Extreme
Transition risk severity	Low-Moderate	High	Low
Socio-political instability	**Low-Moderate**: There is a clear political and societal alignment on climate goals. This leads to a coordinated, inclusive, and effective response to decarbonisation.	**Moderate**: As political responses are delayed there is increasing societal instability in the late 2020's. Continued societal pressure contributes to post-2030 policy responses.	**High**: Political responses are increasingly seen as inadequate leading to societal instability. Instability is more focussed in geographies where physical impacts are most pronounced.
Market response	**High demand/high competition**: Due to a well-coordinated response to decarbonisation, there is a predictable and manageable increase in demand for electricity. This provides surety for the continued investment and predictable pricing.	**Medium demand/high competition**: During the 2020s, there is a slow increase in demand for electricity due to the desire to decarbonise, followed by a surge in demand in the 2030s as New Zealand rushes to electrify all sectors leading to unpredictable pricing.	**Lower demand/high competition**: The economic costs of climate change impacts are high. Financing new investments becomes increasingly expensive. Electricity demand for decarbonisation is limited without clear policy drivers.

	Orderly	Disorderly	Hot house
Energy pathways	There is a global focus on achieving Net Zero by 2050. This includes a transition to renewables, investment in clean energy, adoption of technology and the phasing out of fossil fuels.	Low carbon sources represent 40% of the global energy mix by 2040. There is a mainstreaming of electric vehicles and a focus on energy efficiency. Power generation is decarbonised leading a decline in coal demand.	Current policies like Nationally Determined Contributions under the Paris Agreement as well as industry actions related to clean energy technologies leave a significant gap to Net Zero by 2050.
Macroeconomic trends	New Zealand transforms its economy with climate change and the energy transition being prioritised. The economic transformation leads lower short-term GDP growth but more significant growth in the medium- to long-term as the costs of adaptation are lower.	Economic transformation is delayed until post-2030. GDP growth is low in the short- to medium-term. Long-term economic trends are difficult to predict as decisions need to be made on the prioritisation of decarbonisation as well as adaptation.	There is no significant economic transformation in relation to decarbonisation. Over medium- to long-term increasing economic impacts are felt due to climate change impacts and the need to implement increasingly expensive adaptation measures.
Carbon sequestration from afforestation and nature-based solutions	Low-medium use There are clear Government goals around reducing greenhouse gas emissions and using forestry and other methods to absorb emissions. There is low- to medium-use, due to a preference to decarbonise rather than offset.	Low-medium use Government goals around reducing greenhouse gas emissions and using forestry and other methods to absorb emissions are delayed until post-2030. Their use remains low to medium due to a preference to decarbonise.	Low use Without clear goals on the use of forestry and nature-based credits and solutions, their use is limited to specific projects only.
Data sources	As set out in the section entitled "Temperatures and Data Sources".	As set out in the section entitled "Temperatures and Data Sources".	As set out in the section entitled "Temperatures and Data Sources".

Scenario Narratives and Key Assumptions

Warming Limited to 1.5°C by 2050 – Orderly	Warming Limited to 2.0°C by 2050 – Disorderly	Warming to ≥3.0°C by 2050 – Hothouse
New Zealand adopts strong, effective climate policies, driving down emissions and decarbonising transport by 2050. The transition occurs in New Zealand in a coordinated manner across all sectors. There are clearly signalled policy changes in 2024 aligned with the RCP2.6, ratcheting goals and targets to reach Net Zero emissions by 2050. ETS settings create strong incentives to stimulate investment in renewables and build low carbon infrastructure, and decarbonisation of transport and carbon intensive industries continues with focused funding. Complementary policies support the widespread adoption of electric vehicles, decarbonisation of industrial heat processes and equitable access to affordable energy. Rapid change begins with the electrification of the light passenger fleet, followed by heavy transport over a longer period utilising a mix of electrification and low carbon fuels. Physical: Annual rainfall patterns are expected to change, with increases projected in the west and south of New Zealand. River flooding, drought severity and weather exacerbating fire risk are projected to increase in most areas of the country.	Climate policies are expedited after 2030 with limited time for consultation and as a result, the cost of decarbonising increases significantly. ETS settings are aligned to the Government's later emissions budgets reducing incentives to stimulate investment in renewables and build low carbon infrastructure until the late-2030's. Consumer confidence in transport electrification takes much longer to generate, uptake of electric vehicles is slow, but increases beyond 2030. Appetite to decarbonise varies, creating a gap between industry leaders and those who wait for low carbon technologies to become more affordable. Physical: Extreme weather events increase in frequency and severity and further intensify after 2040. This causes significant supply chain disruption and damage to those assets exposed to a high risk of physical climate impacts such as storm damage, fire conditions and flooding.	Spending on mitigation is cut and efforts directed at maximising renewable electricity generation are abandoned. The carbon price plummets and fails to have any material effect on consumer behaviour. Supply chain disruption caused by more severe physical impacts of climate change introduces significant price volatility. The transport transition effectively stalls, uptake of electric vehicles remains low. The projected increase in mean air temperature for New Zealand is +1.3°C and +3.1°C by mid and end century, respectively. Physical: Changes in annual rainfall patterns are expected to be more extreme, with increases projected in the west and south of New Zealand. River flooding and fire weather are also projected to reach extreme levels in most areas of the country. Drought severity is projected to increase in most areas of the country, except for Taranaki-Manawatu, West Coast and Southland. Mean wind patterns are projected to become more north-easterly in summer, westerlies become more intense in winter. There will be a strengthening of southern hemisphere storm tracks and associated "atmospheric rivers".
Assumptions: › Large scale renewable energy developments (wind, solar, geothermal) are expedited. › Rapid deployment of distributed generation, storage, and load management to avoid the need for dry year risk storage. › Widespread and rapid adoption of electric vehicles and a move to low emission vehicles. › Increased precipitation and extreme rainfall events, river flooding increases. › Drought severity, and fire weather increases.	Assumptions: › Large scale renewable energy developments (wind, solar, geothermal) are expedited after 2030. › Deployment of distributed generation, storage, and load management to avoid the need for dry year risk storage is delayed. › Adoption of electric vehicles and a move to low emission vehicles is delayed. › Increased precipitation and extreme rainfall events, river flooding increases. › Drought severity, and fire weather increases.	Assumptions: › Large scale renewable energy developments (wind, solar, geothermal) are not expedited. › There is little to no deployment of distributed generation, storage, and load management. › Adoption of electric vehicles and a move to low emission vehicles is minimal. › Increased precipitation, extreme rainfall events and river flooding events become extreme. › Drought and fire weather events increase in severity and frequency.

Manawa Energy's Climate-Related Risks and Opportunities (CRROs)

Time Horizons for CRROs

We used the following time horizons for the identification and assessment of CRROs in determining what we consider short, medium and long term.

Horizon	Period	Description
Short-term	0–3 years	Selected based on Manawa Energy's 3-yearly strategic plan review cycle and business planning (capital deployment planning) cycle.
Medium-term	3–10 years	Interim period.
Long-term	>10 years	Selected based on Manawa Energy's asset management planning cycle.

These time horizons were selected as they correlate to our strategic planning horizons and related capital deployment plans. In particular, Manawa Energy has a 10-year asset management planning cycle and, subject to achieving project milestones, a pipeline for new generation investment that will bring a range of developments to commercial operations over the next 10 years.

Identified Transition and Physical CRROs

We have identified the following material CRROs and their anticipated impacts of those CRROs:

Risk/Opportunity Summary	Anticipated Impacts	1.5°C Scenario	2.0°C Scenario	≥3.0°C Scenario
Transitional CRROs				
Market and economy **Description**: Changing economic environment in response to climate change (macro and micro changes) **Type**: Risk and opportunity	We anticipate that the changing economic environment (in particular, market interventions) will lead to cost constraints and financial impacts on our business, including increased costs in relation to new development and volatility in market price. We expect that we may be able to capitalise on some opportunities arising out of the changing economic environment, such as the increasing value of hydro storage and increased investment opportunities in respect of renewable generation projects.	**Short-term** › Risk of inaccurately forecasting volume (existing assets) › Risk of increased costs of new developments › Opportunity arising out of volatility in market prices and consequential increases in the value of hydro storage. May also present a risk if market price volatility leads to significant uncertainty in terms of investing in new developments › Opportunities for securing better access to capital for new developments as renewable generation is a comparatively attractive investment option **Medium-term** › As in the short-term, with the addition of opportunities for investment in new generation technologies, developments, energy sources and storage options (such as offshore wind) battery energy storage systems etc.)	**Medium-term** › Lower market pricing may lead to a risk of over-build **Long-term** › Risk that price uncertainty may create delays in executing our development pipeline	Without a transition to a low carbon economy, the risks under a 3.0°C scenario are physical only and related to the need for adaptation
Energy source **Description**: Changing expectations in relation to shift from high intensity energy sources to low intensity energy sources **Type**: Opportunity	As a generator of renewable electricity, we anticipate that large-scale electrification will bring about numerous impacts for our business, particularly in relation to increased demand for renewable energy sources to meet growing electrification needs and decarbonisation goals. We expect that this increase in demand will create greater opportunities for our generation development pipeline, including reducing the overall cost of new development and increasing the appetite for capital investment in new renewable energy projects.	**Short-medium term** › Opportunity for Manawa Energy to capitalise on an increase in demand for renewable energy to support increasing electrification	As for 1.5° but experienced over the medium-long-term	Without a transition to a low carbon economy, the risks under a 3.0°C scenario are physical only and related to the need for adaptation

Risk/Opportunity Summary	Anticipated Impacts	1.5°C Scenario	2.0°C Scenario	≥3.0°C Scenario
Emissions targets and emissions reduction **Description**: Changing expectations in relation to targets, ability to decarbonise and the cost of decarbonisation **Type**: Opportunity	We anticipate that national emissions reduction targets will impact the energy sector significantly, creating various opportunities for our business. We expect that our status as a generator of renewable electricity may lead to greater development and other investment opportunities at a relative reduced cost.	**Short-medium term** › Opportunity for consenting new assets that contribute to meeting emissions reduction targets › Continued opportunities to capture value from green financial products such as green bonds, and increasing demand for green energy products such as renewable energy certificates (RECs)	As for 1.5° but experienced over the medium-long-term	Without a transition to a low carbon economy, the risks under a 3.0°C scenario are physical only and related to the need for adaptation
Water access and use **Description**: Changing rules and policy around water access and use **Type**: Risk and Opportunity	Our business is dependent on consenting regimes. We anticipate that consenting reform (particularly changing rules around water access and use) will give rise to various impacts for our business, including in relation to the ease of and cost of re-consenting.	**Short-term** › Opportunity for shorter timeframes and lower cost re-consenting **Medium-term** › Risk of consent renewal processes becoming more difficult and/or expensive leading to potential financial impacts	**Medium-long-term** › Risk of consent renewal processes becoming more difficult and/or more expensive leading to potential financial impacts	Without a transition to a low carbon economy, the risks under a 3.0°C scenario are physical only and related to the need for adaptation
Compliance and regulation **Description**: Changing climate-related regulations and associated cost of compliance **Type**: Risk and Opportunity	We anticipate that increasing climate regulations will impact our business by increasing our compliance costs in the short term. Ultimately however, we expect increasing climate regulation may be beneficial as it will increase our overall resiliency to future climate-related risks. As a generator of renewable energy, we do not expect that an increase in the risk of climate litigation will have any material impact on our business. However, increasing litigation may impact the sector more broadly, with flow-on effects for Manawa Energy if there are sector/industry policy changes that are adopted in response.	**Short-medium term** › Risk of increased compliance costs and greenwashing risk in relation to climate regulation › Opportunity to leverage compliance requirements and regulations to improve resiliency	**Long-term** › Risk of increased costs resulting from increased demand from regulators for compliance and more aggressive regulations	Without a transition to a low carbon economy, the risks under a 3.0°C scenario are physical only and related to the need for adaptation
Labour availability **Description**: Changes in the availability of labour and technical expertise **Type**: (Risk)	We anticipate that access to labour, especially technical expertise, necessary for large-scale generation projects may be impacted by climate-related events and climate change. We expect that labour shortages may give rise to other impacts on our business, including cost increases and general project delays.	**Short-medium term** › Risk of limited ability to execute on developments due to labour shortages and prohibitive costs	**Long-term** › Risk of dramatic cost increase with consequential impact on development	Without a transition to a low carbon economy, the risks under a 3.0°C scenario are physical only and related to the need for adaptation

Risk/Opportunity Summary	Anticipated Impacts	1.5°C Scenario	2.0°C Scenario	≥3.0°C Scenario
Low carbon technologies **Description**: Changes in the existence, availability and cost of low carbon technologies **Type**: Risk and Opportunity	We anticipate that low carbon and other electrification technologies will have wide impacts across the energy sector and may lead to changes in the way we operate our business. Low carbon technologies for example, solar, wind (on or offshore), grid-scale batteries, demand response/load management technologies will all have an impact on our business and we will need to consider how our business model might need to adapt to reflect the changing use of these technologies throughout the energy sector (particularly in terms of generation and distribution).	**Short to medium-term** › Opportunities in relation to investments in, and development of, new technologies driving electrification	**Long-term** › Risk that cost increases for low carbon technologies may impact development › Opportunities that cost decreases for low carbon technologies arise in relation to design or sequencing of new and existing generation projects	Without a transition to a low carbon economy, the risks under a 3.0°C scenario are physical only and related to the need for adaptation
Physical CRROs				
Increasing persistence, frequency and magnitude of heatwaves **Description**: Increasing persistence, frequency and magnitude of heatwaves caused or exacerbated by higher day and night temperatures, increase in persistence of maximum daily temperatures above 25°C, changes in seasonal winds and humidity changes from changes in cloudiness **Type**: Risk (acute)	We anticipate that heatwaves will give rise to generation interruptions (with flow on effects for transmission line services) and water quality impacts on environment, operations and staff safety – all of which will have generalised impacts on Manawa Energy's business, including in respect of the efficiency and profitability of our hydro-generation operations. We also expect that heatwaves may create an increase in summer peaking (in addition to winter peaking) and accordingly, an increase in output required to meet peak demand (compounded by the risk of potential transmission line issues).	**Medium-term** › Possible risk of generation interruptions and transmission constraints during heat waves › Possible risk to cooling systems and water quality issues	As for 1.5° but experienced over the long-term as opposed to medium-term	As for 1.5° but exacerbated in 3.0° and experienced over the long-term as well as the medium-term

Risk/Opportunity Summary	Anticipated Impacts	1.5°C Scenario	2.0°C Scenario	≥3.0°C Scenario
More and longer dry spells and drought **Description**: More and longer dry spells and drought caused or exacerbated by low seasonal rainfall, changes in seasonal wind patterns, interannual variability and higher day and night temperatures **Type**: Risk and Opportunity (chronic)	We anticipate that longer and more frequent dry spells and drought (including dry year) will lead to a diminished ability to generate electricity and associated revenue impacts on our business. Dry spells and drought may also impact Manawa Energy's irrigation operations, future development opportunities, resource consenting, and may give rise to, or exacerbate, market price volatility.	**Medium-term** › Risk that longer dry spells resulting in lower hydro generation over those periods › Potential opportunities for future development due to increase in irrigation demand › Risk of market price volatility due to increased frequency and duration of dry winter/lower demand associated with higher ambient temperatures overall › Generation revenue risk due to less rainfall in catchments, more onerous residual flow consent conditions › Risk to wind development with less predictable wind resources	As for 1.5° but experienced over the long-term as opposed to medium-term	**Long-term** › Increased impact on generation due to low inflows and storage running low. Increased hot days increasing the risk of weed growth in storage lakes and other environmental considerations such as water temperature. Meeting minimum flow requirements becoming more challenging › Market price volatility risk with increased frequency and duration of dry winters › Market price volatility risk with transmission constraints associated with higher ambient temperatures › Generation revenue risk due to less rainfall in catchments, increasing competition for water, and more onerous residual flow consent conditions › Risk to market prices due to lower power demand associated with higher ambient temperatures › Risk to wind development with less predictable wind resources
Changes in climate seasonality **Descriptions**: Changes in climate seasonality with longer summers and shorter winters resulting in fewer frosts or cold days, higher day and night temperatures and changes in seasonal rainfall **Type**: Risk and Opportunity (chronic)	We anticipate that changes in seasonality will impact our asset and hydro storage management processes and procedures, (requiring increased oversight and adaptation of asset management plans) as well as impact to irrigation schemes. We expect that these impacts may also have flow on effects in relation to electricity demand and market price volatility, with consequentially impacts on our existing generation asset revenue and how we pursue our new development opportunities.	**Medium-term** › Hydro storage management risk (impact of seasonality on when inflows occur) › Opportunity for irrigation business due to greater demand with higher ambient temperatures › Risk to revenue with less demand, lower market prices with shorter winters › Potential for reduction in high demand peaks with consequential impacts on prices	As for 1.5° but experienced over the long-term as opposed to medium-term	As for 1.5° but exacerbated in 3.0° and experienced over the long-term as opposed to medium-term

Risk/Opportunity Summary	Anticipated Impacts	1.5°C Scenario	2.0°C Scenario	≥3.0°C Scenario
Increasing fire-weather conditions **Description**: Increasing fire-weather conditions and harsher and prolonged fire seasons caused or exacerbated by low seasonal rainfall, changes in seasonal wind patterns, increase in persistence of maximum daily temperatures above 25°C, humidity changes from changes in cloudiness, higher day and night temperatures and interannual variability **Type**: Risk (acute)	We anticipate that increased fire-weather conditions will result in, or otherwise increase the likelihood of, fire risk to generation assets, damage to electricity transmission and distribution systems, potential impacts on future renewable developments. We anticipate that these events may impact our ability to both generate electricity and an associated earnings impact.	**Medium-term** › Risk of generation interruptions with transmission capability impacted by fire	As for 1.5° but experienced over the long-term as opposed to medium-term	As for 1.5° but exacerbated in 3.0° and experienced over the long-term as opposed to medium-term
Increased storminess and extreme winds **Description**: Increase in storminess (frequency and intensity) including tropical cyclones, changes in extreme wind speed, changes in wind seasonality, and an increase in convective weather events **Type**: Risk and Opportunity (acute)	We anticipate that increased storminess and extreme winds will result in, or otherwise increase the likelihood of: › physical damage and erosion to our generation equipment and other assets, › a greater frequency of spill events (and associated revenue impact), › resource consenting issues, › site access issues; and › general staff safety concerns. We also expect that increased storminess and extreme weather events might also give rise to insurance-related matters, such as an increase in insurance premiums or an increase in claims lodged for damage to generation equipment and physical assets. Though we have not quantified any potential financial impact of this due to the uncertainty associated with predicting this type of impact.	**Medium-term** › Risk of damage to generation plant and consequential impacts on generation revenue impact due to storm damage › Greater safety risk for staff due to high winds and debris › Risk of cost increases due to remediation costs and higher corresponding insurance claims and premiums where damage is caused by climate-related events › Risk to viability of wind and solar developments with more extreme wind patterns where wind exceeds tolerances in design specifications › Potential opportunity if flood flows can be captured through intakes with larger capacity › Risk of increased costs for wind and solar developments over other forms (possible negative impacts on investments)	As for 1.5° but experienced over the long-term and with the addition of the following: › Risk that the effects of the mean average rainfall changes become less certain and therefore mitigation planning becomes more difficult. › Risk that increased storminess will reduce overall generation volumes as more water is lost to spill	As for 1.5° but exacerbated in 3.0° and experienced over the medium and long-term as opposed to medium-term

Risk/Opportunity Summary	Anticipated Impacts	1.5°C Scenario	2.0°C Scenario	≥3.0°C Scenario
Change in mean annual rainfall **Description**: Change in mean annual rainfall caused by higher or lower annual rainfall in sub-national climate zones (the broad areas used for climate forecasting), changes in seasonal winds, and humidity changes from changes in cloudiness **Type**: Risk and Opportunity (chronic)	As set out above, we anticipate that changes in mean annual rainfall are likely to have impacts on our generation revenue (positive or negative depending on whether rainfall increases or decreases and the scale and degree of change) and potentially also the revenue we derive from our investment in irrigation schemes.	**Medium-term** › Generalised risk to Manawa Energy's hydro operations revenue if rainfall decreases › Opportunity for generation catchments with greater rainfall › Opportunity for irrigation business where greater rainfall increases storage in Lake Coleridge	As for 1.5° but exacerbated in 2.0° and experienced over the long-term as opposed to medium-term	As for 1.5° but exacerbated in 3.0° and experienced over the long-term as opposed to medium-term
Reducing snow and ice cover **Description**: Higher day and night temperatures, changes in rainfall seasonality, change in seasonal wind patterns, receding snowline, earlier snow melt, and an increase in avalanches **Type**: Risk and Opportunity (chronic)	We anticipate that reducing snow and ice cover will likely have impacts on our asset and hydro storage management plans and processes and may also give rise to market price volatility.	**Medium-term** › May impact seasonality of inflows, necessitating adjustments to the management of hydro storage › Opportunity for our Otago and Coleridge schemes with greater water reaching reservoirs during winter when prices are high, as opposed to being stored as snow and there being a delay in reaching reservoirs › Risk to market prices due to lower dam power demand associated with higher ambient temperatures	As for 1.5° but exacerbated in 2.0° and over the long-term as opposed to medium-term	As for 1.5° but experienced over the long-term and with the addition of the following: › Less snow cover in the Southern Alps could result in lower snow storage for Coleridge. High inflow events could be shorter and higher flows which are harder to capture › Maintenance and access may be improved for some assets

Risk/Opportunity Summary	Anticipated Impacts	1.5°C Scenario	2.0°C Scenario	≥3.0°C Scenario
Changes in frequency and magnitude of river and pluvial flooding in rural and urban areas **Description**: Changes in frequency and magnitude of river and pluvial flooding in rural and urban areas caused by high intensity and persistence of rainfall, increase in hail severity or frequency, interannual variability, increased storminess and wind, relative sea-level rise and resultant rising groundwater, and changes in rainfall seasonality **Type**: Risk and Opportunity (acute)	We anticipate that increased river and pluvial flooding will result in, or otherwise increase the likelihood of, dam safety risks, maintenance costs for hydro-assets (e.g. due to the increased use of spillways to manage inflow and water levels), access issues on critical supply and travel routes, and damage to generation equipment and assets.	**Medium-term** › Risk of damage to generation plant and consequential impacts on generation revenue due to flooding and debris build up › Risk of repair costs for flood damage on access road, bridge and building infrastructure › Opportunity if flood flows can be captured through intakes with larger capacity	As for 1.5° but exacerbated in 2.0° and over the long-term as opposed to medium-term	As for 1.5° but exacerbated in 3.0° and over the long-term as opposed to medium-term
Increasing landslides and soil erosion **Description**: Increasing landslides and soil erosion caused by high intensity and persistent rainfall, changes in rainfall seasonality, more and longer dry spells and droughts, and inter-annual variability **Type**: Risk (acute)	We anticipate that changes in the intensity of rainfall (and other weather conditions) will result in an increase in landslides and soil erosion over time. We anticipate that increased landslides and soil erosion will result in, or otherwise increase the likelihood of, access issues to our generation sites (primarily due to landslides), and general financial impacts due to cost of remediating consequential damage to generation equipment or other critical assets.	**Medium-term** › Risk of plant damage, access route impacts and greater safety risk with landslides	As for 1.5° but exacerbated in 2.0° and over the long-term as opposed to medium-term	As for 1.5° but exacerbated in 3.0° and over the long-term as opposed to medium-term

How Manawa Energy uses CRROs for Strategic Planning and Capital Decision-Making and Deployment

We incorporate identified CRROs into our internal capital deployment and funding decision-making processes in the following ways:

- Climate-related risks are factored into dam safety reviews and investment planning.
- Climate-related risks are carefully considered when upgrading and maintaining our plant for example to better operate our assets to manage extreme flows or extended dry periods.
- Where climate-related opportunities are identified, we consider whether there are opportunities to invest in reconsenting or consenting new projects, for example:
  - new wind and solar opportunities from increased demand for renewable electricity as a result of the decarbonisation of the New Zealand economy in response to climate-related risks;
  - increased generation opportunities where higher rainfall expected;
  - increased droughts and lower rainfall in some areas providing higher demand for stored water;
  - new opportunities to invest in the operational capability for our existing assets, including to operate more effectively with extreme flows or extended dry periods; and
  - new opportunities through storage technology to support the use of renewable electricity sources (for example, batteries).
- We consider risks through our ERM system and incorporate climate assessment and hydrology measures to help predict and understand the effects of climate change at our schemes.
- We are involved in industry studies and groups that contribute to hydrological data and science, and the development of policy and legislative initiatives, to inform our decision-making processes.
- We consider how climate-related impacts may affect the health & safety of our employees and contractors and incorporate this in our business continuity planning and training.

For further information in relation to Manawa Energy's capital deployment for the FY24 period, refer to the **Metrics and Targets** section of this Climate Statement.

Risk Management

Introduction to Risk Management at Manawa Energy

We maintain an ERM system that supports our existing operations and informs the decisions taken to achieve future aspirations and business development goals.

An overview of Manawa Energy's ERM system is set out in the diagram below.

Our Risk Policy (and other related policies & guidelines) informs our risk management processes and assist the appropriate management of risks. Risks are assessed based on measures of consequences and likelihood and the potential for a range of impacts including financial, business disruption, stakeholders, environment & community and safety.

The management team provides the Board and ARC with quarterly risk and risk treatment reporting.

Risk Management Project 2023

In 2023, we undertook a project to refresh our approach to risk management. The project aimed to ensure that our risk management system would continue to:

- be fit-for-purpose and bring clarity to strategic and operational risk;
- embed systems and processes that enhance risk-based decision making; and
- bring risk culture to life.

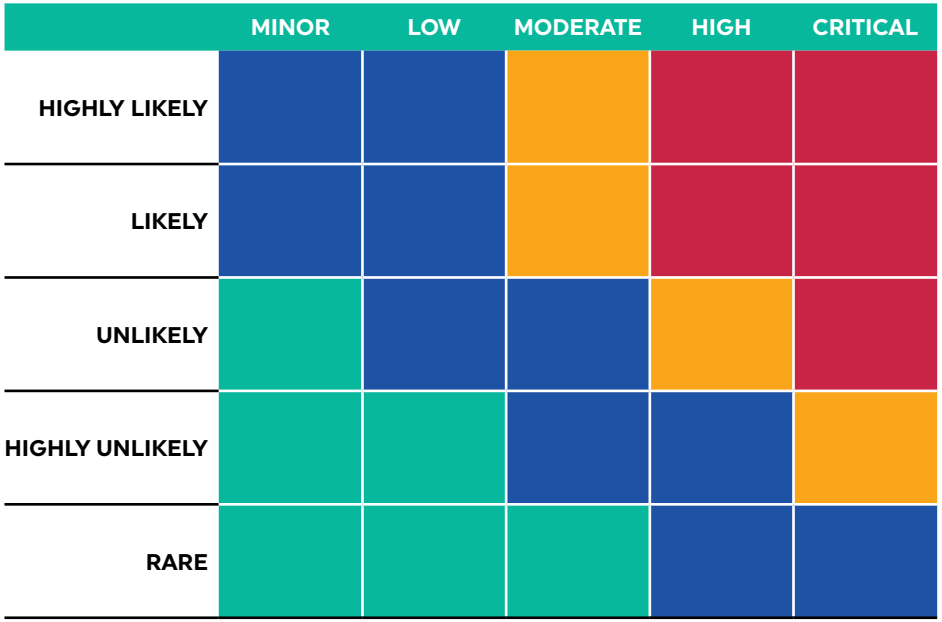
In May 2023, the ARC approved the resulting risk project plan, including four key outcomes/objectives to:

- ensure that risk ownership and approach is clear;
- update Manawa Energy's risk software application;
- refresh enterprise risks and responsibilities; and
- improve communications around risk and update key documents.

Throughout FY24, we delivered several key risk management activities designed to embed and operationalise the risk project plan. These included, implementing a new enterprise risk management tool, called "Totum" (Totum), updating the organisational Risk Matrix (with full 'bowtie' assessment on the top risks) and refreshing our risk policies and guidelines.

Our updated Risk Matrix (set out below) allows for comprehensive risk analysis, including for climate-related risks. The Risk Matrix is now being used across the business and forms a key part of the periodic enterprise risk reporting conducted across the business and provided to the ARC and the Board.

Further detail on Manawa Energy's risk management approach, including climate risk, is contained in the FY24 Integrated Report – (for example, notes on climate change risk at page 64 of the FY24 Integrated Report).



Processes for Identifying and Assessing Climate-Related Risks

General Processes for Identifying and Assessing Climate-Related Risks

The identification, assessment and management of climate-related risks is not an isolated process for Manawa Energy – it is an integrated aspect of our existing risk management processes.

We identify and assess climate-related risks in the same way we identify and assess other types of enterprise risk, using our ERM system and the other risk identification and management processes described in this Climate Statement.

Under the ERM system, climate-related risks are identified across the business and assigned to Risk Owners to whom certain risk categories have been allocated. They are then classified and assessed using our Risk Matrix and reassessed periodically.

FY24 Scenario Analysis Process for Identifying and Assessing Climate-Related Risks

For our first reporting period under the climate-related disclosures regime, we identified and assessed both the transition and physical risks of climate change through a scenario analysis process facilitated by thinkstep-anz.

The Strategy section of this Climate Statement includes further details about the scenario analysis process and how we identified and considered CRROs, including:

- the specific climate-related scenarios considered;
- the short-term, medium-term and long-term time horizons considered; and
- the relevant exclusions to Manawa Energy's value chain and organisational boundary.

We used scenario analysis as our primary tool to assess the scope, size and impact of CRROs. We also had regard to:

- heat mapping;
- stakeholder engagement;
- relevant forecasting;
- hazard maps; and
- modelling – during FY24 we have considered high-level climate hazard modelling for Manawa Energy's assets (particularly relating to flood and precipitation hazards). We are continuing to consider the application of this modelling on our assets.

Moving forward, Manawa Energy will continue to utilise the tool of scenario analysis annually for the identification and assessment of CRROs.

The climate-related risks identified in this year's climate risk review will facilitate internal risk management and capital deployment and assist with developing informed climate-related risk strategy and adaptation management. Climate-related risks that have been identified as material will be recorded in our ERM system, so that they can be considered alongside our other enterprise risks and monitored and updated on an ongoing basis.

Frequency of Risk Assessments

Our standard enterprise risk reviews take place on a quarterly basis.

In addition, specific climate-risk assessments will take place annually in line with Manawa Energy's reporting obligations under the climate-related disclosures regime.

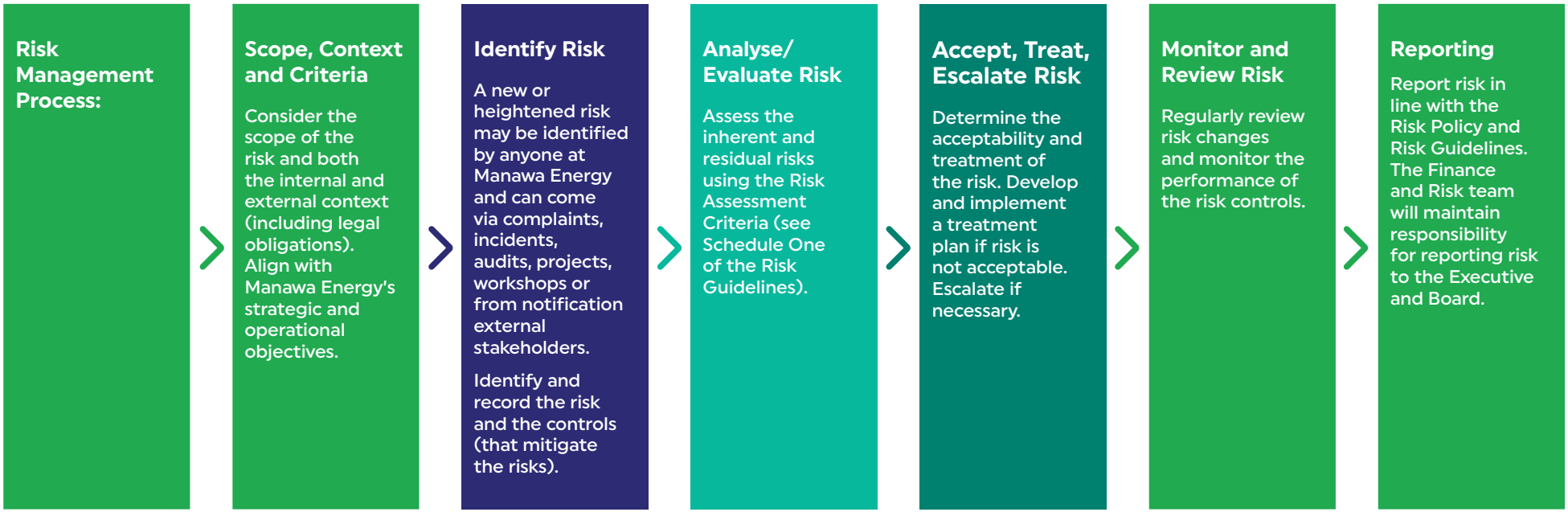
Managing Climate-Related Risks

Process for Managing Risks

The day-to-day management of Manawa Energy's climate-related risks takes place across the entire business and involves several different business functions.

Once identified and considered by the management team, the ARC and the Board, climate-related risks are monitored and managed by the relevant Risk Owners using Totum. The section below entitled "Incorporation of CRROs into Overall Risk Management Processes" sets out some examples of how this process works in practice.

Moving forward, we will manage climate-related risks using the following processes:



In particular:

- Risks will be recorded in Totum and assigned to relevant business functions and Risk Owners;
- Business functions will have ongoing responsibility for monitoring and managing risks assigned to them and the associated controls;
- Risks will be monitored on an ongoing basis to identify and consider any material changes to risk profiles and relevant external factors that might impact how specific risks are managed;
- Business functions will report to the relevant General Manager and the wider management team on an ongoing basis; and
- In parallel, the management team, the ARC and the Board will monitor and assess enterprise risks (including climate-related risks) on a quarterly basis, which will inform the steps set out above.

Sustainability Materiality Matrix and Risks

Manawa Energy's Sustainability Materiality Matrix identified material issues. Manawa Energy's ESG Risk Register was developed by reference to these material issues. In November 2023 the ARC considered the Materiality Matrix and ESG risks. Some of the climate-related risks from the ESG register are also reflected in Manawa Energy's top enterprise risks (for example, risks related to climate change, health & safety, and regulatory risks).

Specific climate change adaptation risks and a risk related to failure to adequately consider material ESG issues are also included in our wider enterprise risks.

Enterprise Risks

Enterprise risks, including climate-related risks, are analysed using the Risk Assessment Criteria (contained in the Risk Guidelines that sit alongside our Risk Policy).

Several of the top enterprise risks are associated with, or are exacerbated by, climate change risk, including:

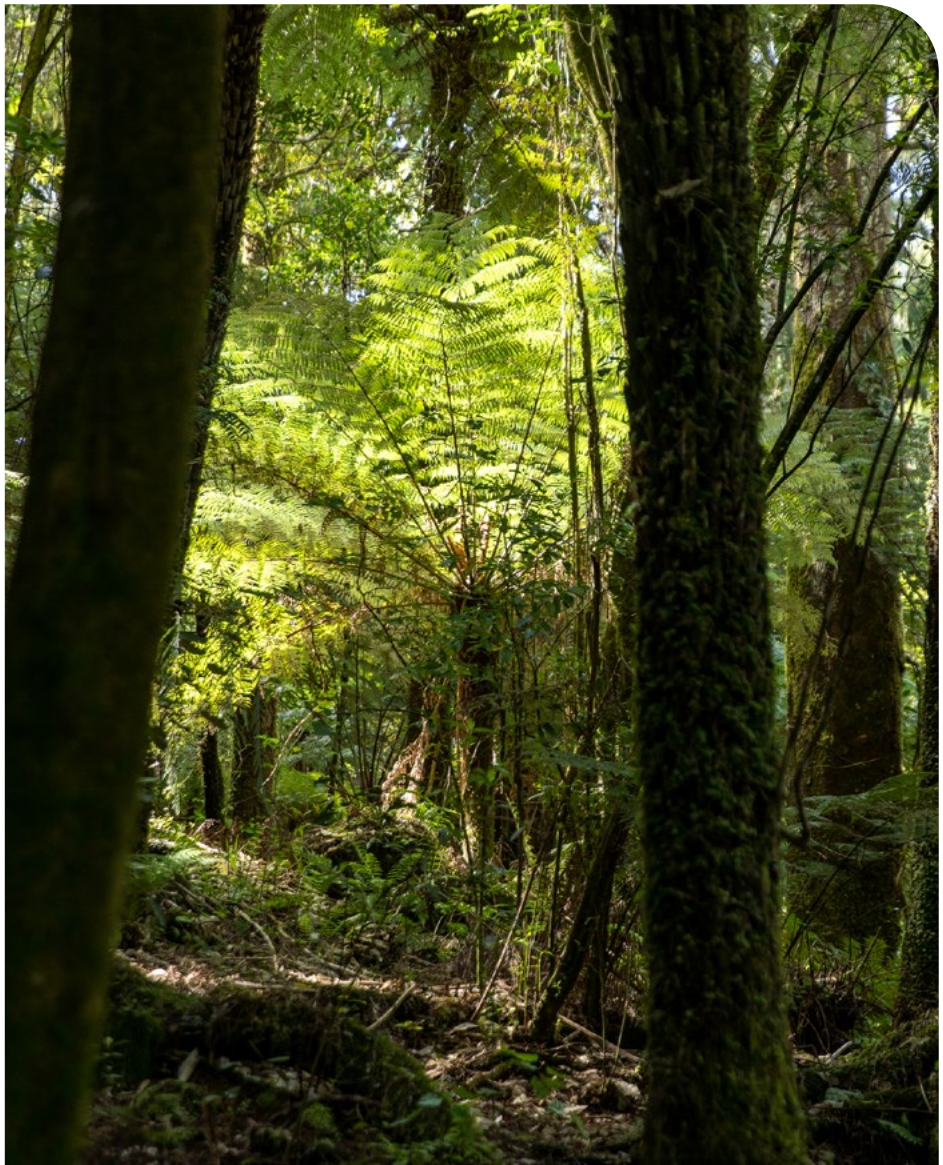
- risk of regulatory change;
- failure of material generation assets (caused by natural disaster);
- risks related to execution of significant generation capital projects;
- delivery of pipeline of new generation projects; and
- electricity market price path risk.

Manawa Energy assesses enterprise risk:

- against the risk categories of most relevance to the specific risk (namely, safety, financial, business disruption, environment & community, and stakeholders & reputation).

Prioritising Climate-Related Risks against other Risks

Part of managing risks is considering which risks are the most significant to our business. We prioritise climate-related risks relative to other types of risk by applying our ERM system. We also use critical risk analysis ('bowtie' analysis) and risk reporting, including heat maps, to show relative risk severity, the impacts of risk controls and changes in risk trends.



Integration of Climate-Related Risks into Overall Risk Management Processes

Manawa Energy's existing risk management framework is used to ensure management and the Board is regularly informed about, monitors, and makes decisions on climate-related risks that ultimately inform Manawa Energy's strategy.

Climate-related risks are recorded in Totum, with Risk Owners assigned in relevant business functions.

This approach to risk management means that climate-related risks (and in some cases, opportunities also) are managed in various parts of the business, as illustrated by the examples below.

Generation Team	Incorporate climate assessment and hydrology measures to help predict, understand and manage the effects of climate change on our hydropower schemes. The Generation Team invests in innovative approaches to maximise production and minimise risk. This particularly applies when making decisions about maintaining and upgrading our plants to better manage extreme flows or extended dry periods. Members of our Generation Team participate in climate change hydrology working groups with others across the industry to collaborate and to support research into potential flood impacts.
Generation Development Team	Having regard to New Zealand's need for additional renewable energy, Manawa Energy's Generation Development Team are actively pursuing opportunities in wind and solar generation. There are also potential opportunities for alternative uses of Manawa Energy's hydro storage capacity that may add value to our schemes, particularly those with operating flexibility.
Environment, Stakeholder & Development Team	Focussed on protecting and expanding our portfolio of consents including through the ongoing work with consenting authorities, iwi and other stakeholders. The Consenting Team factor in the risks posed by extreme weather events and other climate-related risks into this work programme.
Dam Safety	Manawa Energy's dam safety risks are managed through ongoing monitoring and inspection, including, annual asset inspections, five-yearly reviews of our high and medium Potential Impact Category (PIC) hydropower schemes, and ten-yearly reviews of our low PIC schemes. These reviews identify potential hydrological changes and allow us to plan any remediations and upgrades, including in preparation for more extreme weather events. Manawa Energy regularly collaborates on, and contributes hydrological data towards, science and studies on climate resilience in New Zealand.
Trading	A predicted increase in intermittent generation (wind and solar) may increase the volatility of prices in the wholesale electricity market, consequently increasing the value of storage and controllable generation. Manawa Energy maintains a balance between uncontrolled generation (run-of-the-river hydropower schemes), and controlled hydro (those with the ability to store water), and we manage our overall market exposure with a range of risk management products.
Technology	Significant research and development into renewable electricity sources and associated technologies has led to a rapid decline in the cost of decentralised electricity generation like solar and batteries. Manawa Energy continues to monitor new technologies that may provide Manawa Energy with opportunities in the future, noting that equipment manufacturers will likely adapt specifications in response to climate change.
Regulatory	Policy and legislative changes have the potential to significantly impact Manawa Energy's business. Manawa Energy sees potential opportunities from the climate and other Government policies that provide a positive framework to grow renewables and to support a low-emissions economy. Manawa Energy continues to work alongside industry and sector groups to help advocate for energy security, affordability, and sustainability.

Metrics and Targets

Greenhouse gas emissions

For the year ended 31 March 2024, Manawa Energy has produced our Greenhouse Gas (GHG) emissions inventory. The approach we have taken and our summary of FY24 emissions is outlined below.

Measurement Protocol

Manawa Energy has produced an annual GHG emissions report for FY24 in accordance with the following standards and guidance.

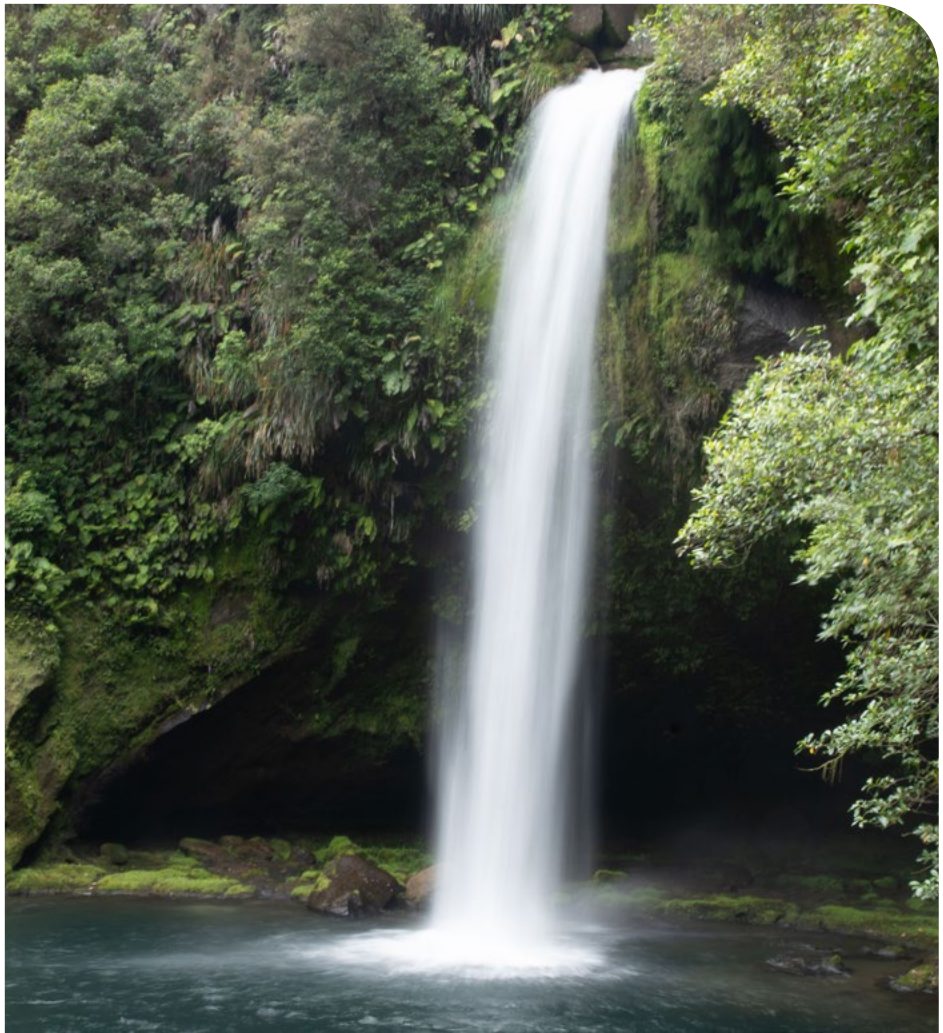
Standards	› Greenhouse Gas Protocol – A Corporate Accounting and Reporting Standard Revised Edition (WBCSD/WRI, 2015); and › Greenhouse Gas Protocol – Corporate Value Chain (Scope 3) Accounting and Reporting Standard (WBCSD/WRI, 2011).
Guidance	› Greenhouse Gas Protocol - Scope 2 Guidance (WRI, 2015); and › Greenhouse Gas Protocol - Scope 3 Calculation Guidance (WBCSD, WRI & Carbon Trust, 2013).

Consolidation Approach

When measuring emissions, Manawa Energy used the operational control approach, as defined by the GHG protocol. This means that 100% of the carbon emissions from operations over which Manawa Energy has operational control in the reporting period are accounted for in the GHG inventory.

This approach was chosen as it aligns with our financial accounting. We have also chosen this approach with a view to future emissions reporting and associated emissions reduction measures.

The table below outlines Manawa Energy's New Zealand operations, including subsidiaries, joint ventures, and investments – both included and excluded for the purposes of measuring Manawa Energy's GHG emissions.



Legal entity	Type	Ownership %	Operational control?	What the entity does	Does the entity produce GHG emissions?	Included in GHG inventory?
Manawa Energy Limited	Main entity	100%	Yes	Electricity generation, renewable development, electricity sales	Yes	Yes
King Country Energy Limited	Subsidiary	75%	Yes	Hydro power generation	Yes	Yes
Rangitata Diversion Race Management Limited	Equity investment	15%	No	Irrigation water conveyance	Yes	No – immaterial volume of emissions
Manawa Energy Insurance Limited	Subsidiary	100%	Yes	Captive insurance entity	Yes	No – immaterial volume of emissions
Maungatapere 2021 Limited	Subsidiary	100%	Yes	Non-trading subsidiary	Yes (ceased trading March 2024)	No – immaterial volume of emissions
Manawa Energy Renewables Holdco 1 Limited	Subsidiary	100%	Yes	Holding company	No	No – as entity does not have any associated emissions
Lochindorb Wind GP Limited	Joint Venture	50%	No	Holds new renewable generation development options	Yes	No – immaterial volume of emissions
ANZ Renewables Limited	Subsidiary	100%	Yes	Holds new renewable generation development options	No	No – as entity does not have any associated emissions
Manawa Energy Metering limited	Subsidiary	100%	Yes	Non-trading subsidiary	No	No – as entity does not have any associated emissions
King Country Energy Holdings Limited	Subsidiary	100%	Yes	Holding company	No	No – as entity does not have any associated emissions
Manawa Energy Generation Limited	Subsidiary	100%	Yes	Non-trading subsidiary	No	No – as entity does not have any associated emissions

Emission Factors

Manawa Energy uses the latest published emission factors available at the time of reporting, including from the following sources which we used to prepare our FY24 GHG emissions inventory and reporting:

New Zealand Ministry for the Environment (MfE)	Measuring Emissions: A Guide for Organisations (**2023 MfE Workbook**).[5]
UK Department for Business, Energy and Industrial Strategy (BEIS) and Department for Energy Security and Net Zero	Government Conversion Factors for Company Reporting of Greenhouse Gas Emissions (**2023 BEIS Workbook**).
EORA database	A Global Multi-Regional Input-Output Database. For the FY24 reporting period, Manawa Energy is using the EORA emission factors for New Zealand from 2017. The selected EORA emission factors are converted from USD dollars (USD; 2017 rate) to New Zealand dollars (NZ; 2017 rate) and inflated to the final period prior to current financial year (Q1 2023).
New Zealand Energy Certificate System (NZEC)/Brave Trace	Used for calculating Scope 2 emissions.

Global Warming Potential (GWP)

GWP of GHG is applied to calculate the total CO_2e emissions. Manawa Energy used the GWP values as set out in 2023 MfE Workbook.

Exclusions from GHG Emissions Sources

As set out in the table above, the following entities were excluded from Manawa Energy's GHG inventory:

Taking into account Manawa Energy's overall emissions profile these entities have immaterial volume of emissions:	› Rangitata Diversion Race Management Limited › Manawa Energy Insurance Limited › Maungatapere 2021 Limited › Lochindorb Wind GP Limited
Entities with no associated emissions:	› Manawa Energy Renewables Holdco 1 Limited › ANZ Renewables Limited › Manawa Energy Metering limited › King Country Energy Holdings Limited › Manawa Energy Generation Limited

Total Emissions for FY24

The emissions reporting for FY24 covers Scope 1, Scope 2, and a subset of material and relevant Scope 3 GHG emissions. The Scope 3 emissions sources that were not covered in the emissions reporting for FY24 were purchased goods and services, capital goods, employee commuting, and downstream leased assets. We have started work on expanding Scope 3 emissions data collected during FY24 (including purchased goods and services, capital goods, employee commuting and downstream leased assets) and will seek to expand the categories of emissions that we report in FY25.

5 Subsequent to Manawa Energy's year end MfE released the 2024 workbook.

A summary of our FY24 GHG emissions is set out in the table below.

Detail	Source	FY24 base year (total tCO_2e)
Scope 1 direct emissions	Stationary combustion (Bream Bay)	213
	Mobile combustion (vehicle fleet)	644
	Refrigerant gases (SF_6)	12
Total Scope 1:		**869**
Scope 2 indirect emissions	Purchased electricity (location based)*	656
	Purchased electricity (market based)*	677
Total Scope 1 and 2 (market based)		**1,546**
Scope 3 indirect emissions	Transmission and distribution losses (electricity and gas)	441
	Waste and wastewater	18
	Travel (domestic and international air travel by Manawa Energy's employees and directors, taxis, rental cars, hotel accommodation)	498
Total reported categories Scope 3:		**957**
Total market based GHG emissions*		**2,503**
Internal emissions price:	Manawa Energy does not use a fixed internal emissions price, but instead relies on market pricing and uses a range of outcomes that vary over time under various scenarios.	

*As per GHG Protocol the location-based method reflects the average emissions intensity of grids on which energy consumption occurs (using grid-average emission factor data). The market-based method reflects emissions from no or low emissions electricity that companies have contracted (or if no renewable electricity supply is contracted (nor available for contracting) using then residual mix emission factor).

The reporting of both location-based and market-based emissions is required under the GHG Protocol as Manawa Energy operates in a market where product or supplier specific electricity and data is available.

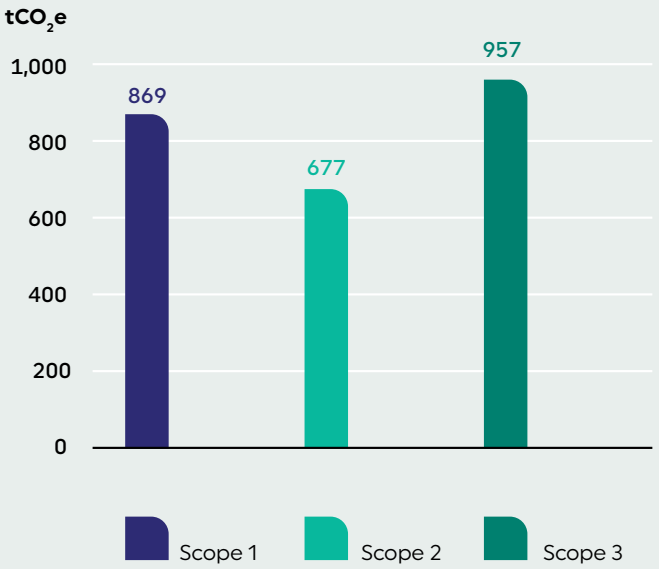
Emissions per greenhouse gas

Most of Manawa Energy's emissions come from CO_2, with only a small portion from other greenhouse gases. For FY24, our breakdown of emissions by greenhouse gas is as follows:

Greenhouse Gas		Tonnes	tCO_2e
CO_2	– Carbon dioxide	2,459.0000	2,459
CH4	– Methane	0.6500	19
N_2O	– Nitrous oxide	0.0400	12
HFC	– Hydrofluorocarbons	0.0020	3
PFC	– Perfluorocarbons	0	0
SF_6	– Sulphur hexafluoride	0.0003	9
NF_3	– Nitrogen trifluoride	0	0

Manawa Energy engaged KPMG to undertake a limited assurance over Scope 1 and 2 GHG emissions for FY24. We obtained the **limited assurance report and opinion** in respect of this engagement.

GHG emissions FY24



Restatement of Base Year

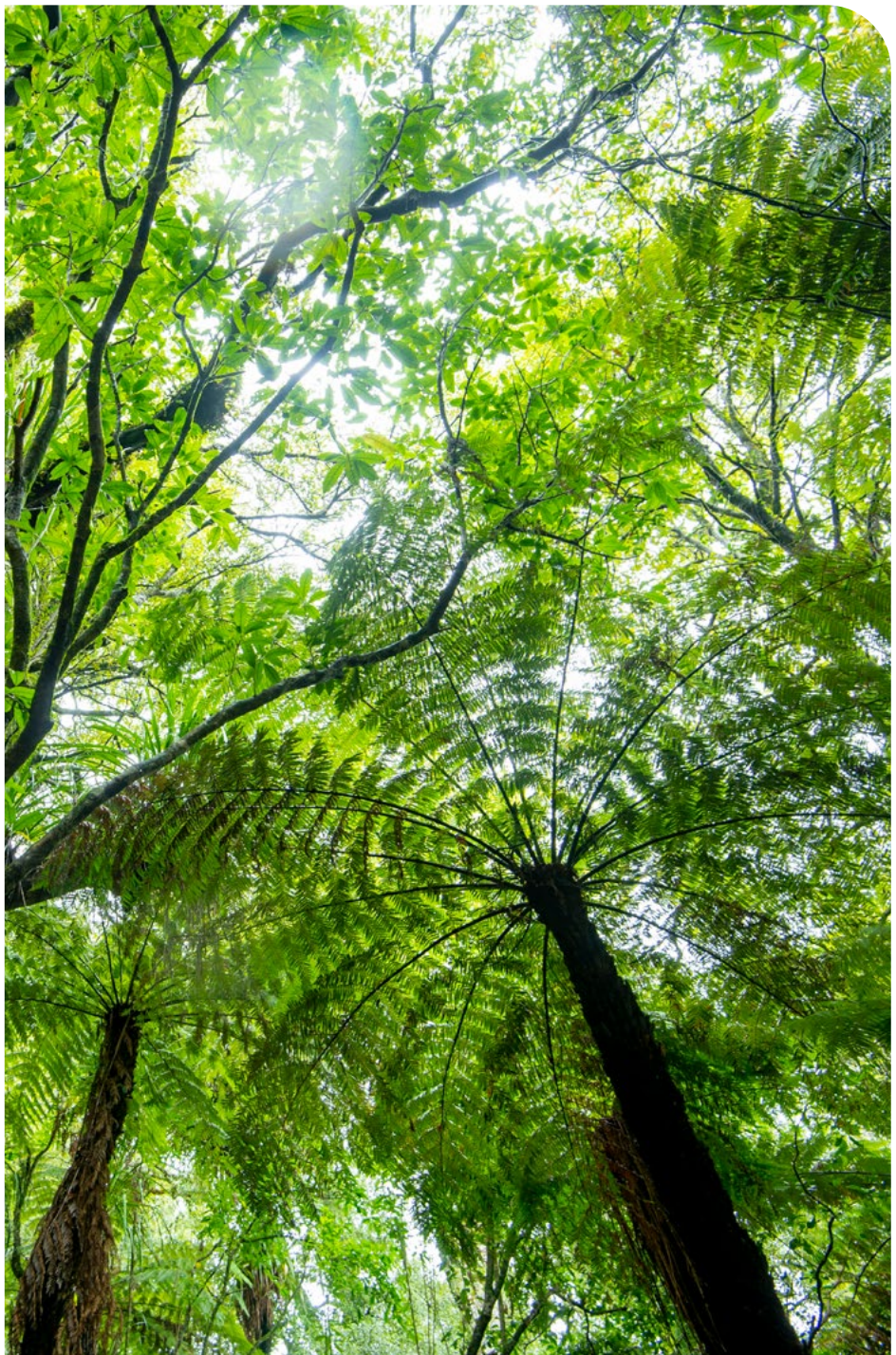
This year we have worked with independent sustainability experts thinkstep-anz to improve our data collection methods and to further understand our data set. We continue to refine our emissions reporting ahead of finalising an emissions reduction plan and setting emissions reduction targets in FY25.

As a result of these improvements FY23 data is no longer seen to be a suitable Base Year. It was concluded that resetting rather than restating the Base Year was more appropriate, because although FY23 data is available, the FY24 data is more reliable and accurate.

From the FY25 reporting period onwards, emissions data will be provided with comparison to the FY24 Base Year.

Base Year emissions will be recalculated in future if there are material impacts on our emissions inventory from improvements in accuracy, changes in calculation methodology or errors are discovered. If there are structural changes in Manawa Energy's business, that can be reliably measured and are material, the base year emissions will also be recalculated.

In future when Manawa Energy reports on additional material Scope 3 emission categories, the Base Year emissions will be restated to include the new categories only if material. We use our internal Basis of Preparation for base year recalculation and materiality.



Methodologies and Sources of Uncertainty

We have set out below the methodologies (and relevant assumptions) used to calculate our Scope 1, 2 and 3 emissions. Uncertainties in data quality can impact the accuracy of GHG emissions disclosures.

Reporting Category	Emissions Activity	Calculation Method	Data Source	Data Quality & Uncertainty
Scope 1				
Stationary combustion	Emissions generated by thermal peaker plant at Bream Bay	Manawa Energy used the total litres of purchased diesel multiplied by the relevant MfE emission factor	Purchased diesel from financial accounting system	Supplier invoices. Low uncertainty
Mobile combustion (vehicle fleet)	Emissions generated by Manawa Energy's vehicle fleet	Total litres purchased in FY24 per fuel type multiplied by the relevant MfE emission factor	Purchased fuel from Manawa Energy's financial accounting system	Supplier invoices. Low uncertainty
Refrigerant gases	Emissions from fugitive gases – losses from refrigerants	Total refrigerant replacement/top-up amount across the full inventory of equipment that uses refrigerants To determine these emissions used default leakage rate and refrigerant GWP factor and relevant MfE emission factor For Manawa Energy's office estimation based approximately 15% of this building occupied	Refrigerant top up maintenance records, annual site returns	Moderate uncertainty given need for need for estimation
Scope 2				
	Emissions from electricity Manawa Energy purchases for our own operations	Multiplied total operational electricity consumption multiplied by the NZECS emission factor for market-based emissions	Invoices from Manawa Energy's financial accounting system	Low uncertainty

Scope 3

Scope 3 emissions are those from the activities that occur from sources not owned or controlled by Manawa Energy. The GHG Protocol divides Scope 3 emissions into 15 distinct categories. Manawa assessed the 15 emission categories for applicability and materiality (as described in the GHG Protocol Scope 3 Standard (WBCSD/WRI, 2011)). We identified seven categories as applicable; and focussed on three of these categories for FY24 reporting as being material (primarily on the basis of proportional quantum of Manawa Energy's GHG emissions). We also considered other relevant criteria as set out in the GHG Protocol when identifying material emissions sources (for example, influence on potential emission reductions, stakeholder perspective, contribution to the company's risk exposure).

Going forward we will regularly review the relevance and materiality of Scope 3 emission sources over time, and particularly following any significant structural changes. Noting that significant changes may also trigger recalculation of our gross emissions and restatement of our Base Year.

The following are the subset of the Scope 3 categories included in our reporting for FY24.

Reporting Category	Emissions Activity	Calculation Method	Data Source	Data Quality & Uncertainty
Scope 3				
Fuel and energy-related activities not included in Scope 1 or 2	Emissions generated by the extraction, refining and transportation of purchased fuels	The emissions from oil purchased to be used as lubricants have been included in category 3 rather than category 1 since some is burnt even as a lubricant. The total litres purchased was multiplied by a UK Government Department for Business, Energy and Industrial Strategy (BEIS) emission factor	From Manawa Energy's financial accounting system	Moderate uncertainty given requirement for estimation
Fuel and energy-related activities not included in Scope 1 or 2	Emissions generated by the extraction, production and transportation of fuels consumed in the generation of purchased electricity	NZ electricity emissions have been calculated using BEIS's methodology, using an estimated proportion of the energy mix emission factor. Total electricity purchased multiplied by the NZECS factor	From Manawa Energy's financial accounting system	Low uncertainty
Fuel and energy-related activities not included in Scope 1 or 2	Transmission and distribution losses of purchased energy (electricity or natural gas) that lost in transmission and distribution system	Calculated using the MfE emission factor	From Manawa Energy's financial accounting system	Low uncertainty
Waste	Emissions from waste generated in operations – office waste and wastewater.	Total quantity of waste destined for landfill during the reporting period multiplied by the MfE emission factor for general waste to landfill without gas recovery Emissions from wastewater were calculated using an MfE per capita emission factor and the total number of employees, (wastewater not metered)	Supplier reporting	Moderate uncertainty. Data not broken down by waste type

Reporting Category	Emissions Activity	Calculation Method	Data Source	Data Quality & Uncertainty
Business travel	Emissions from transportation and accommodation of employees and directors for business related activities	**Flights** The total kilometres travelled by passengers per flight multiplied by the relevant emission factor (including radiative forcing) from MfE for fuel combustion **Rental Cars** Fuel combustion from rental cars. Total distance multiplied by MfE emission factors. Most rental vehicle distances were measured or assumed that 50km was travelled each day of use **Hotel Stays** The total room nights of hotel stay per country. For each country the total room nights multiplied by the relevant MfE emission factor	Supplier invoices from Manawa Energy's financial accounting system and corporate travel reporting	Low uncertainty

GHG emissions calculations limitations and uncertainty

For FY24 there was a level of uncertainty to our emissions reporting as a result of estimation and data quality (the level and effect of which is noted in the table above). Uncertainty reduces as we improve and refine our data collection and where we needed to estimate for FY24. We will look to improve the certainty of our data set for categories we report on in future years.

Industry-Based Metrics

Sustainable Finance Framework

During FY24 Manawa Energy implemented a sustainable finance framework, and our existing NZX-listed bonds were approved as Green Bonds in October 2023. Green Bonds represent 83% of Manawa Energy's total net debt as of 31 March 2024.

New Zealand Energy Certificate System and Renewable Energy Certificates

Manawa Energy issued our first renewable energy certificates (RECs) during FY24.

Our Kaimai electricity generation asset is now registered under the New Zealand Energy Certificate System (NZECS). This allows for the generation volume from Kaimai made available to those of our customers who have signed up for RECs. Throughout FY24 we supplied approximately 5.27 GWhs of electricity from our Kaimai generation volume under RECs, this represents approximately 0.28% of Manawa Energy's total generation volume.

Having RECs allows our customers to report their Scope 2 electricity emissions as zero using the market-based reporting methodology under the GHG Protocol.

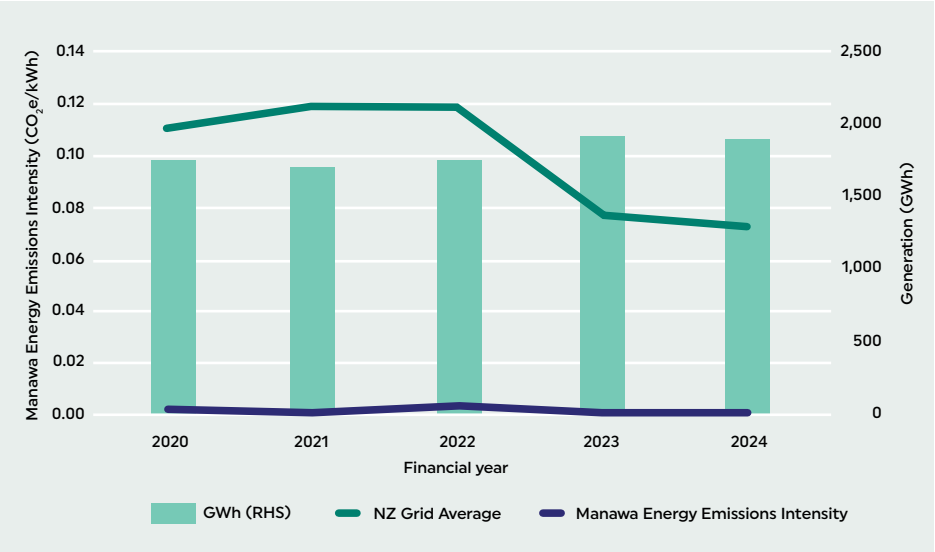
For future years we will continue to evaluate whether to have our other assets (including our new developments) registered as renewable energy products including with the NZECS.

GHG Emissions Intensity

Manawa Energy has calculated the intensity of its emissions relative to generation, as follows:

- Total generation: 1,901,000,000kWh
- Total Scope 1 emissions: 869,000kg CO_2e
- GHG emissions intensity FY24 is 0.00046 kg CO_2e/kWh

Manawa Energy Emissions Intensity vs. NZ Grid Average



Other Key Performance Indicators used to Measure and Manage CRROs

For complete information relating to KPIs used to measure and manage CRROs, please see the section entitled "CRRO Management Performance Linked to Remuneration" found in the Governance section of this Climate Statement.

Remuneration

The remuneration of Manawa Energy's Chief Executive and Executive Team is linked to Manawa Energy's shared company goals including those that are climate- related. The Board approves the company goals and Chief Executive's incentives & goals on an annual basis. Manawa Energy's PRC approve the Executive Team's goals and key results also on an annual basis. Base salary changes and short-term incentive STI rewards are determined by performance against key objectives linked to relevant strategic and operational activity. For FY24 the key objectives included the areas below:

- Company measures (30%)
  - 40% Health and Safety measures;
  - 40% EBITDAF target;
  - 20% Employee engagement; and
- Individual goals (70%) and key results aligned to delivery of the strategy.

Exposure to Risks and Opportunities and the Impact of the Changing Climate on Manawa Energy's Assets and Business

Manawa Energy's current business operations and our future strategy are impacted by CRROs in the following ways:

- The profitability of all Manawa Energy's existing assets is heavily impacted by the weather and, as such, vulnerable to the transition and physical risks associated with climate change.
- As a renewable energy developer Manawa Energy's growth strategy is aligned with New Zealand's electrification and decarbonisation goals. All of Manawa Energy's existing assets, new development and future strategy present an opportunity to contribute to large-scale decarbonisation of New Zealand's economy.

Due to the nature of Manawa Energy's business, its operations, assets, and business activities are affected by changes to the climate and the specific CRROs that arise out of those changes. Manawa Energy has therefore determined that:

- **Transition risks**: All (100%) of our existing and development assets are vulnerable to regulatory and policy change, a key transition risk facing all energy sector participants. If regulatory change negatively impacts electricity generation, then this also impacts the revenue we can generate from our existing generation assets and may also negatively impact the value of our development options.
- **Physical risks**: As set out in the Strategy section of this Climate Statement, all (100%) of Manawa Energy's existing hydro generation assets are (to a greater or lesser extent) vulnerable to the physical risks of climate change (noting also that our geographically dispersed asset base provides a level of resilience).
- **Climate-related opportunities**: Conversely, all (100%) of Manawa Energy's generation assets have (to a greater or lesser extent) the ability to provide options and opportunities in response to climate change (noting also that our geographically dispersed asset base provides a level of resilience).

Climate-Related Targets

Manawa Energy has set FY24 as the Base Year for emissions measurement. We are in the process of further evaluating our emissions profile to finalise our emissions reduction plan and to set targets. Manawa Energy have engaged external expertise to assist with this process. We are considering the Science Based Target Initiative (**SBTi**) net-zero framework to inform possible options for emissions targets including emissions intensity approach.

We consider that emissions intensity targets will best align with Manawa Energy's strategy for enhancing our existing assets and developing our new renewable generation.

Manawa Energy has not used emissions offsets for FY24 and does not currently have any plans to use offsets for FY25 or subsequent financial years.

Capital Deployment

The drive towards a low carbon future and the decrease in thermal generation is expected to increase New Zealand's reliance on intermittent power generation (primarily wind and solar in the short to medium term). This provides future investment opportunities for Manawa Energy.

A summary of Manawa Energy's capital deployment towards CRROs for FY24 is set out below.

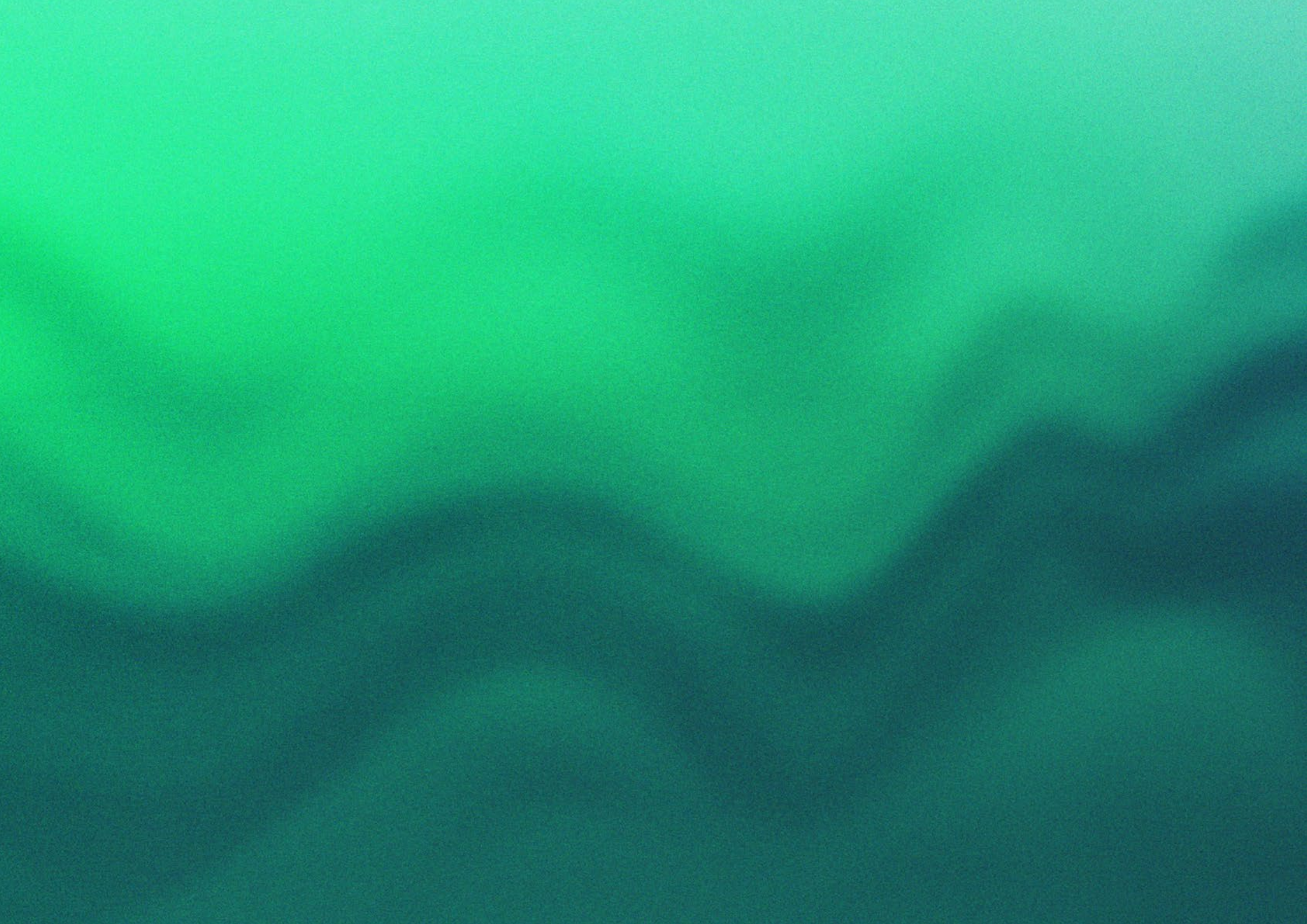
Category of expenditure	FY24 spend ($NZD)	Summary
New development capital expenditure	$8.1M	FY24 capital investment in our new development pipeline was also significant, including land purchases for our proposed Kaipara solar farm. Note: This figure excludes investments in joint ventures and other investment vehicles not classified as capital expenditure. Manawa Energy's total new development investment (including operational, capital, and other expenditure) for FY24 was $19.7 million. New development will assist Manawa Energy in continuing to respond to CRROs – particularly in relation to the growing need for more renewable generation and more renewable generation of diverse types.

Manawa Energy's pipeline of future renewable energy development projects and the indicative timeframes for each are set out below:

Indicative timeline of currently announced development projects:

Project	Technology	Capacity (~MW)*	Output (~GWh/pa)	Calendar year: 2024 H1	2024 H2	2025 H1	2025 H2	2026 H1	2026 H2	2027 H1	2027 H2	2028 H1	2028 H2	2029 H1	2029 H2	2030 H1	2030 H2	Status
Huriwaka	Wind	250	850															Previous Central Wind project. Consenting workstreams under way.
Hapuakohe	Wind	230	790															Wind monitoring, site design, and consenting assessments under way.
Kaihiku**	Wind	150	530															Historic wind monitoring data available, consenting workstreams under way.
Ototoka	Wind	150	530															Wind monitoring and site development assessments under way.
Marlborough	Wind	100	350															Land secured. Wind monitoring and site development assessments under way.
Kaipara	Solar	70	130															Resource monitoring, site design, and consenting assessments under way.
Hawke's Bay Airport	Solar	40	80															Resource monitoring, site design, and consenting assessments under way.
Argyle	Solar	65	130															Southern area consented. Land secured for northern area; consent lodged.
Mackenzie Basin	Solar	200	430															Land secured. Consenting assessments under way.
Total		**~1,255**	**~3,820**															

* Solar project capacity is MWac.
** Manawa Energy is a 50% partner – the capacity and output figures are 50% of the total project expectations.



MANAWA ENERGY

manawaenergy.co.nz