NZ SUPERFUND
Te Kaitiaki Tahua Penihana Kaumātua o Aotearoa

Climate Change Report

2023

Prepared in accordance with the final recommendations of the Taskforce on Climate-related Financial Disclosures

Contents

Purpose

"We believe our strategy can guide us in capturing opportunities from the ongoing transition to a low-carbon global economy."

CEO STATEMENT – MATT WHINERAY

MATT WHINERAY
CEO

In last year's report I wrote that climate change is upon us. During the first eight months of 2023, the world experienced extreme heatwaves, wildfires, torrential rain, flash flooding, tropical storms, cyclones, loss of polar ice, and ocean warming. The hottest 23 days ever recorded were all in July 2023. Even before that month ended, scientists confirmed it was the hottest month in the past 120,000 years.

Aotearoa New Zealand had first-hand experience of the weather extremes that climate change will bring, with destructive floods in Auckland in January, followed by devastating Cyclone Gabrielle in February. These events cost lives, dislocated families and destroyed communities, businesses and regional economies. The estimated cost to the country of the Auckland floods and the cyclone is $14 billion.

At the Guardians, we have consistently maintained the view that best-practice investing requires proper consideration of the risks and benefits from environmental, social and governance (ESG) considerations, including climate change. We have a long-held view that climate change presents a material risk to long-term investors. As a long-term investor, it is imperative that we integrate consideration of the financial risks and opportunities from climate change into our investment decisions, as well as supporting the transition to a more sustainable financial system.

In 2016 we launched our Climate Change Investment Strategy, recognising that reducing the Fund's exposure to climate-related risks is both good for the portfolio and consistent with our mandate to maximise returns without undue risk. We believe this strategy guides us in capturing opportunities from the ongoing transition to a low-carbon global economy. We have increased investments in renewable energy and technologies that support this transition. We have set ambitious carbon-reduction targets for our benchmark global equities portfolio. We signed up to the Net Zero Asset Owners Commitment, which also commits us to net zero by 2050.

In 2022, as part of a wider review of our responsible investment approach, the Board decided to change our Reference Portfolio from traditional global indices to Paris Aligned indices. As well as improving the overall ESG profile of the portfolio, these indices will ensure that the passive global equity positions are better aligned with our net zero objectives. Complementing the targets we have already set, the Paris Aligned indices are designed to reduce greenhouse gas emissions intensity by 10% each year until 2050. The focus of our work on climate to date has been on the global equities portfolio, but in the years ahead we will address other asset classes, including the bond portion of our portfolio.

We are also on the pathway to sustainable finance. Following a multi-year review, the Guardians' Board agreed that we should incorporate sustainability considerations into investment decision-making and support the development of a sustainable financial system. This means that we now not only think about how ESG issues impact on financial performance of the Fund, but also how our portfolio choices affect environmental and social outcomes.

We have incorporated sustainability into our organisational purpose statement: Sustainable investment delivering strong returns for all New Zealanders. While we remain focused on maximising risk-adjusted returns – as outlined in our legislated mandate – our purpose statement sends a clear message to our staff and stakeholders about the importance of achieving those financial returns in a sustainable way.

The record heat of this year's northern hemisphere summer led the United Nations Secretary General, António Guterres, to say inaction on climate is unacceptable. "No more hesitancy, no more excuses, no more waiting for others to move first. There is simply no more time for that."

He said it is still possible to limit global temperature rise to 1.5°C above pre-industrial levels and avoid the very worst of climate change, but only with dramatic, immediate climate action.

It is indeed the time for action – to reduce emissions and make the transition to a low-carbon economy. We already have most of the tools we need. Now is the time to put them to use.

This will be the last time I write the CEO statement for this climate change report. It has been a privilege to lead the Guardians as we have debated how to respond to climate change and our role in the sustainable finance transition. I am proud of what the organisation has achieved. I invite you to read about the details of how we are putting our approach into action.

OUR JOURNEY TO DATE

2007
Established our Responsible Investment Framework
—
Joined the CDP

2007–2011
Began responsible investment engagement
—
Joined the Investor Group on Climate Change
—
Developed renewable energy investment strategy

2011
Made climate change a macro investment theme

2015
Contributed to Mercer climate work
—
Signed Paris Pledge for Action
—
Published first NZ Super Fund carbon footprint

2016
Announced the Climate Change Investment Strategy

2017
Received AAA rating, Asset Owners Disclosure Project – Global Climate Index Report
—
Started implementation of our Climate Change Investment Strategy
—
Implemented the low carbon passive portfolio
—
Joined Climate Action 100+
—
Founding member of One Planet Sovereign Wealth Fund Working Group on Climate Change

2018
Developed the Carbon Valuation Framework
—
Produced climate change scenarios

2019
Met 2020 carbon reduction targets a year early
—
Joined the Transition Pathways Initiative

2020
Set new carbon reduction targets

2021
Developed Rural Sustainability Strategy
—
Analysed Value-at-Risk under different Climate Scenarios

2022
Committed to net zero by 2050, joining the Paris Aligned Investment Initiative's Asset Owners Commitment
—
Shifted to Paris Aligned Benchmark indices for our Reference Portfolio
—
21 private investments reported their carbon emissions

2023
Worked with external managers to improve ESG profile of multi-factor portfolios

WHO WE ARE

The NZ Superannuation Fund (the Fund) exists to 'smooth out' the increasing cost of government-provided superannuation due to New Zealand's ageing population. From around 2035/36, the Government will begin to withdraw money from the Fund to help pay for New Zealand Superannuation. The Fund will continue to grow as a proportion of New Zealand's GDP, due to peak in the 2070s. The Fund is, therefore, a long-term, growth-oriented, global investment fund.

Our governing legislation, the New Zealand Superannuation and Retirement Income Act 2001, requires the Guardians of New Zealand Superannuation (the Guardians) to invest the Fund on a prudent, commercial basis and, in doing so, to manage and administer the Fund in a manner consistent with:

a) best-practice portfolio management;

b) maximising return without undue risk to the Fund as a whole; and

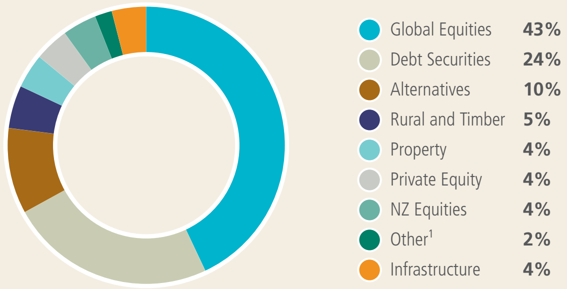
c) avoiding prejudice to New Zealand's reputation as a responsible member of the world community.

The Board sets our portfolio risk tolerance and our benchmark by constructing an index-linked Reference Portfolio. The Reference Portfolio represents how the Fund would be invested if we elected to use a low-cost, entirely passive approach rather than actively managing the Fund. The Guardians looks to add value by using active investment strategies where we believe there is an opportunity to improve the Fund's portfolio returns.

Currently approximately two-thirds of the Fund is aligned with the Reference Portfolio, while the remainder is invested in different active opportunities and access points. These include equities, bonds, a collection of real assets (real estate, infrastructure, forestry and farms), private equity, alternatives and private debt. Our alternative assets include life settlements, catastrophe insurance and arbitrage strategies. In addition to these positions, we also run a 'strategic tilting' programme in which we seek to increase or decrease the Fund's exposure to various asset classes where we believe an asset class is mispriced.

As of 30 June 2023, the Fund has a Net Asset Value of approximately NZ$65.4 billion (excluding NZ tax).

Asset Class Exposures as at 30 June 2023*



* Excludes the impact of any strategic tilts.
**Cash and miscellaneous.

REPORTING AGAINST THE TCFD RECOMMENDATIONS

We believe we meet all the core elements of the Taskforce for Climate-related Financial Disclosures (TCFD) recommendations and have endeavoured to reflect the TCFD structure as closely as possible in developing this Report. However, our Climate Change Investment Strategy (CCIS) was developed before the final TCFD recommendations were confirmed and does not necessarily follow the same order nor correspond one-to-one with the recommendations. Our Strategy is a long-term initiative that has been well integrated into the day-to-day business of the Fund. The ongoing work associated with the TCFD has highlighted some areas within our Strategy that could be further strengthened and we will continue to evolve our approach as more data, research and best practice emerge.

The New Zealand Government has introduced a new regime making climate-related disclosures mandatory for certain large organisations. These climate reporting entities are required to prepare climate statements in accordance with climate standards issued by the NZ External Reporting Board (XRB) for financial years starting after 1 January 2024. We supported the development of these climate related disclosure standards and were on the XRB's external advisory panel. Although the NZ Super Fund is not a climate reporting entity under the legislated definition, we already meet many of the reporting requirements and are working to address the remaining requirements as part of our next Climate Report in 2024.

We continue to monitor developments on best practice sustainability-related reporting. The International Financial Reporting Standards Foundation, which oversees the International Sustainability Standards Board (ISSB), has taken over the governance of climate-related disclosure standards from the TCFD. This followed the publication of the first standards from the ISSB, which serve as an important global reference for sustainability-related disclosures for capital markets.

The Guardians' Board is overseeing our work on the reporting requirements.

Disclosure	Summary	Further Information
GOVERNANCE		
Describe the Board's oversight of climate-related risks and opportunities	• The Board has approved our Climate Change Investment Strategy and regularly sets climate change objectives in our strategy and governance documents. • The Board approves our investment beliefs, one of which is that environmental, social and governance considerations, including climate change, are fundamental to long-term risk and return. • The Board approves our carbon-reduction targets. • The Board receives annual updates on our progress.	Refer to the Governance section
Describe management's role in assessing and managing climate-related risks and opportunities	• Responsibility for achieving our strategic objectives sits with our Chief Executive Officer (CEO) while our Chief Investment Officer (CIO) is responsible for delivering our Climate Change Investment Strategy. • Managers and the Investment Committee are responsible for ensuring that climate change is embedded in our investment process. • Investment staff receive training on climate change, and are provided with resources to incorporate climate change considerations into our investment analysis.	Refer to the Governance section
STRATEGY		
Describe the climate-related risks and opportunities the organisation has identified over the short, medium and long term	• As an asset owner, the Fund's assets will be impacted by climate change in a range of ways. Transition risks will decrease the attractiveness of carbon-intensive assets and the value of fossil fuel reserves, while these may increase the attractiveness of low-carbon intensity assets. Physical risks will impact the value of assets which are highly exposed to extreme weather events, rising sea levels and changing weather patterns.	Refer to the Strategy section

Disclosure	Summary	Further Information
	• Some climate impacts have already manifested themselves. It is likely that the scale of these impacts will increase significantly in the future and it is important for us, as a long-term investor, to take them into account now.	
Describe the impact of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning	• Our Climate Change Investment Strategy has four elements: Reduce, Analyse, Engage and Search. • Reduce involves measuring our carbon footprint and targeting a reduced exposure to carbon relative to the market. • Analyse integrates climate change considerations into our investment framework across our portfolio and particularly for our active investments. • Engage involves us working with the Fund's key investments to help them actively consider climate change in their strategies, voting to support climate change initiatives proposed for our listed equities, and partnering with like-minded investors to push for better climate change reporting and action. • Search involves us actively looking for investments that will benefit from a changing climate or the transition to a low-carbon energy system.	Refer to the Strategy section
Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario	• In 2018 we adopted a set of custom climate scenarios as part of our valuation framework for assets we invest in directly. These scenarios were based on 2°C, 3°C and 4°C of global warming. In 2023, we adopted climate scenarios developed by the Network for Greening the Financial System (NGFS) as high-level input to our wider approach to scenario analysis. These scenarios are: Net Zero 2050 (1.5℃), Delayed Transition (~1.8℃) and Current Policies (~3℃).	Refer to the Analyse part of the Strategy section

Disclosure	Summary	Further Information
RISK MANAGEMENT		
Describe the organisation's processes for identifying and assessing climate-related risks	• In identifying investment risk, for our listed equity holdings, we use carbon intensity and fossil fuel reserves as a measure of exposure to climate-related risk. In 2022 we shifted to Paris Aligned Benchmark indices for our passive global equities holdings. • For our direct investments, we undertake a more detailed assessment of climate-related investment risk. • We use MSCI's Climate Value-at Risk model to provide an initial estimate of the value at risk from climate change for our listed equities portfolio (acknowledging it has limitations).	Refer to the **Risk Management** section and the **Reduce** and **Analyse** parts of the Strategy section
Describe the organisation's processes for managing climate-related risks	• We manage risk for our listed equity holdings by reducing our exposure to carbon-intensive investments and those with high carbon reserves. We manage risk exposure for our direct investments by means of our valuation framework and through our governance oversight. • We engage with many of our investee companies to encourage them to consider climate-related risk in their management processes.	Refer to the **Risk Management** section and the **Reduce** and **Analyse** parts of the Strategy section
Describe how processes for identifying, assessing and managing climate-related risks are integrated into the organisation's overall risk management	• We manage our investment risk through our pre-investment diligence process. Since 2017, the process has included climate change considerations when considering new types of investment opportunities or reviewing existing ones. • We review exposure to environmental (including climate change), social and governance risks through our due diligence process before we appoint a new manager to invest the Fund or make a new investment ourselves.	Refer to the **Risk Management** section

Disclosure	Summary	Further Information
METRICS AND TARGETS		
Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process	• We measure the aggregate carbon emissions intensity (as a proportion of revenues) of the Fund as well as its exposure to fossil fuel reserves.	Refer to the **Metrics and Targets** section
Disclose Scope 1, Scope 2 and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks	• We disclose the NZ Super Fund's GHG emissions in our 2023 Carbon Footprint (available on our website).	Refer to the **Metrics and Targets** section
Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets	• We have shifted to Paris Aligned Benchmark indices for our Reference Portfolio global equities. • We target a 40% reduction in carbon emissions intensity versus the unadjusted Reference Portfolio. • We target an 80% reduction in potential emissions from fossil fuel reserves versus the unadjusted Reference Portfolio. • By the unadjusted Reference Portfolio, we mean relative to a combination of the MSCI ACWI IMI and NZX50.	Refer to the **Metrics and Targets** section

Governance

"We believe that climate change is one of the Fund's most critical investment risks and opportunities."

GOVERNANCE

As a Fund with a very long horizon, we believe climate change is one of the most critical investment risks and opportunities. Ultimately, responsibility for climate change risk sits with the Board. The Board delegates responsibility for management of this risk to senior leadership by ensuring the overall organisational strategy includes climate change risks and opportunities and by setting a stand-alone Climate Change Investment Strategy for the Fund. This year the Board's Audit Committee has had education sessions and discussions on the mandatory climate-related disclosure regime that has come into effect in New Zealand to ensure its members understand the requirements and how the management team will address these.

Our CEO leads the delivery of our strategic objectives and has played an active role in promoting a focus on climate change across the New Zealand investment industry, particularly in his former role as co-Chair of the New Zealand Sustainable Finance Forum. Climate change responsibilities are delegated throughout the Guardians, with our Chief Investment Officer, Head of Sustainable Investment and key internal committees each playing a role in ensuring that our Climate Change Investment Strategy is implemented. Members of the Investment teams are required to integrate climate change into investment decisions. They are supported by the subject-matter experts in the Sustainable Investment team.

We aim to ensure that everyone has the tools they need to deliver on our climate change objectives, by running regular education sessions and including our approach to climate change in the induction process for new employees.

The Board	Senior Management	Investment Teams
The Board is ultimately responsible for setting the Fund's investment risk appetite and drives climate change objectives by including them in our Statement of Investment Policies, Standards and Procedures, and our annual Strategic Plan. The Board sets the Fund's carbon emissions reduction targets and method, and monitors performance against these through a whole-of-portfolio carbon footprint which is published annually on our website. The Board decides the benchmarks against which we measure our investment performance and has adopted a benchmark aligned with the goal of achieving net zero by 2050. The Board has ad hoc education sessions on climate change, climate change reporting and assurance, and the implications for the Fund. The Board receives annual updates on our carbon footprint and on the implementation of the Climate Change Investment Strategy.	Our CEO is responsible for executing the Guardians' overall strategy and implementing our Statement of Investment Policies, Standards and Procedures, our Statement of Intent, and our annual Strategic Plan. He also plays an active role in promoting a focus on climate change across the investment industry in New Zealand, and among other institutional investors internationally. Our CIO has overall responsibility for our Climate Change Investment Strategy. Both the CIO and Head of Sustainable Investment oversee its implementation, and act as project sponsors. The Investment Committee (a group of senior Guardians' investment professionals) is responsible for the valuation framework and for ensuring that the elements of our Strategy are integrated into investment decisions. Climate is integrated in the Investment Committee and Board in annual Sustainable Investment reporting. The Risk Committee (a group of senior Guardians' executives) receives biannual risk reports which may consider the enterprise risk presented by climate change.	The elements of our Strategy are integrated into the objectives of the relevant members of the Investment teams. The managers of each team are responsible for ensuring delivery and implementation. When considering new investments, the Investment teams test climate change-related assumptions in their assessments. The Sustainable Investment team provides expertise on climate change issues, giving support to other teams in integrating climate considerations into investment analysis.
	New employees are given an overview of our Climate Change Investment Strategy as part of their induction and education processes.	

Strategy

"Given the significant impact of climate change, the Guardians has long considered how to take this issue into account in designing our investment approach."

STRATEGY

The Guardians has a set of investment beliefs and endowments that inform our investment decisions. Our beliefs are views that we have formed based on rigorous academic and industry research. Our endowments are the advantages we believe we have over the average investor: our long investment horizon, our operational independence, our sovereign status and governance. We seek out opportunities which we believe offer especially attractive risk-adjusted returns and where our endowments allow us to capture them.

The Guardians has long considered how to take climate into account in designing our investment approach. In 2014, we and other global institutional investors commissioned a report from Mercer to help identify ways to hedge against climate-related risk. We supplemented this research with our own interviews with a range of energy market analysts and experts. These observations led the Guardians to form the following views, which led to the development of our Climate Change Investment Strategy:

- Climate change is a market and policy failure. Companies are producing too many emissions and markets are over-invested in fossil fuels, given the growing consensus among scientists and policymakers that reductions must be made.
- Pricing carbon risk needs to consider policy, technology, physical impacts, consumer action and liability across different scenarios, geographies and timeframes, combined with uncertainty on the destination and pathway involved. Historically, we have held a view that carbon was not efficiently priced by the market. We have reviewed how the market is pricing climate risk compared to when we launched the CCIS, and concluded there is a greater appreciation now for climate risk in parts of the market. We remain of the view that carbon is still under-priced in many asset classes. Over time we expect carbon to become more efficiently priced as we more fully transition to a low-carbon economy.
- Different climate change risks will have differing impacts, depending on the path taken. Risk arises from:
    - the supply and demand changes from substitution, higher cost structures, consumer preference and regulation;
    - increasing prevalence of litigation in relation to perceived action or inaction on climate change;
    - physical damage or disruption to industries and economies; and
    - Inability to adapt at reasonable cost over a reasonable period.

- Climate change presents risks for which we will not be rewarded. For investors such as us, it is good practice to remove uncompensated portfolio risks. Climate-related risks have multiple drivers, including technological change, resource and physical impacts, and policy actions. They affect both listed and unlisted assets, but may impact them in different ways. Mitigating climate change requires a shift to a low-carbon energy system, which affects all sectors.
- Climate change is an intergenerational and trans-boundary issue, one which requires significant coordination across countries and stakeholder groups.
- Climate change offers opportunities for investment as well as risks. Opportunities including, for example, the development of more energy-efficient and alternative technologies.

Our Climate Change Invesment Strategy sets out an investment approach that addresses both the risks and the opportunities from climate change. While many climate-related risks will take time to be revealed, financial markets are forward looking. This means that prices may adjust quickly when a greater appreciation of the threat of climate change emerges. It is prudent to reduce exposure to these uncompensated risks and increase exposure to opportunities now rather than trying to estimate when markets will adjust.

Our Climate Change Investment Strategy has four elements:

Reduce decreases the transition risk of the portfolio. We do this by:

- measuring our carbon footprint;
- setting a target to reduce our portfolio's emissions intensity and our holdings of potential emissions from reserves; and
- applying a carbon reduction methodology to our equity portfolio and our benchmark.

Analyse integrates climate change considerations into our assessment of potential new investments and when we review our existing holdings. We do this by building climate change scenarios and risk analysis approaches into our valuation framework.

Engage influences the companies we own an interest in to continuously mitigate and adapt to climate-related risks. We do this by being an active owner, including prioritising engagement and voting in accordance with our climate change insights and strategies.

Search focuses us on finding companies that will thrive during the low-carbon climate-resilience transition. We do this by actively searching for new opportunities in the areas such as renewable energy, efficiency and transformational infrastructure.

REDUCE

The aim of the **Reduce** pillar of our Strategy is to lower the entire Fund's exposure to investments that are most at risk from climate change policy, and to mitigate the risks during the transition to creating a low-carbon society. We do this by removing from our portfolio those investments with the highest emissions intensity and potential emissions from reserves.

The Board controls the degree of risk mitigated by setting a Fund-wide emissions-intensity target and a target for potential emissions from reserves. We set our first carbon-reduction targets in 2016, achieving them a year early. In 2020, the Board decided to make the next set of targets more ambitious, on the grounds that:

- There is a risk that the equity market is becoming more carbon intensive through the inclusion of new carbon-intensive assets in the index.
- Enhancements in our data provider's carbon research and methodology allow us to use additional metrics to test the impact of various carbon-reduction scenarios. This analysis showed that we could set more ambitious targets without severely impacting portfolio diversification.
- With five years of experience in implementing carbon reductions, we now had greater confidence that doing so would will improve the Fund's portfolio and we believed more ambitious targets were appropriate.

As a result, the Board chose to target a reduction in:

- the carbon emissions intensity of the Fund by at least 40%; and
- the potential emissions from fossil fuel reserves owned by the Fund by at least 80%.

Both these targets are relative to our unadjusted Reference Portfolio, measured annually, and are to be achieved by 2025.

If we are correct in our belief that markets under-price carbon-related risks, then reducing the Fund's exposure to the most at-risk assets is likely to improve its long-term risk-adjusted returns. However, if markets are ultimately found to be efficiently pricing these risks, then we would have sold some fairly priced assets and swapped them for other fairly priced assets. In this case, the impact on expected returns would be minimal, with the main cost being a minor reduction in portfolio diversification.

We used to achieve the Fund-wide targets by applying a bespoke carbon methodology to our physical passive equity holdings, and by applying a carbon short to neutralise our exposure to any companies with high carbon reserves that we incidentally took a position in; for example, when we used an index derivative to complete our passive equity exposure. We also asked our external investment managers, who manage quantitative multi-factor strategies on our behalf, to meet our carbon-reduction targets, but gave them flexibility in how they do this.

In 2022, as part of a wider review of our responsible investment approach, we changed the ACWI IMI benchmark of our Reference Portfolio to the MSCI World Climate Paris Aligned Index and the MSCI EM Climate Paris Aligned Index. As well as improving the overall ESG profile of the Fund, these indices will ensure that the Fund's passive global equity positions are better aligned with net zero objectives.

The new indices:

- reduce the GHG emissions intensity by 50%;
- reduce the GHG emissions intensity by 10% each year until 2050;
- integrate Scope 3 emissions into targets;
- underweight companies facing high transition and physical climate risk;
- increase allocation to companies with credible emissions-reduction targets;
- increase exposure to green revenue; and
- overweight companies providing climate solutions.

The indices reduce but do not eliminate exposures to fossil fuel reserves. We continue to apply a custom negative screening overlay to achieve this, in line with our targets. See the graphic below for a fuller list of the ESG characteristics of the new portfolios.

ESG	TRANSITION RISK		GREEN OPPORTUNITY	1.5°C ALIGNMENT	PHYSICAL RISK
Controversial weapons	Carbon intensity reduction (Scopes 1, 2 and 3)	Neutral exposure to high-impact sector	At least double the green revenue exposure	Self-decarbonisation at 10%	Physical Risk Climate VaR is at least 50% lower
Societal norms violators	Immediate Scope 3 phase-in	Higher allocation to companies with credible emissions-reduction targets	Green/fossil fuel-based ratio – 4x higher than parent	Neutral Aggregate Climate VaR under 1.5°C Scenario	
MSCI ESG Controversy Score	Underweight companies facing transition risk	Significant improvement in Low Carbon Transition (LCT) Score	Overweighting of companies providing solutions		
	Lower fossil fuel exposure	50% minimum reduction in Potential Emissions Intensity			

In addition to the ESG considerations for our own portfolio, we believe the move from a custom benchmark to a simple off-the-shelf benchmark will help facilitate market adoption of low-carbon indices. Part of the measure of success for a benchmark is that market participants can trade derivatives on it.

In 2024, we will consider options to improve the ESG profile of our bonds portfolio, which will include climate change. Bonds (also referred to as fixed income assets) represent a considerably smaller portion of our portfolio than global equities. Depending on market conditions, 16 to 20% of the portfolio is in fixed income. The global bond market is evolving rapidly and low carbon or carbon efficient bond indices are being developed.

To ensure that we are on track to meet our carbon reduction targets we calculate the carbon footprint of the Fund's portfolio and its potential emissions from reserves each year. Our aim is to produce a carbon footprint covering the whole portfolio. In calculating the carbon footprint, however, we do not currently consider bonds, positions which are market neutral over the long term, or investments which have no clear carbon footprint, such as life settlements and natural catastrophe insurance. We recognise that the carbon footprinting methodology is not perfect yet and will review it as carbon accounting methodologies evolve.

See the Metrics and Targets section for further details on our carbon footprinting work.

ANALYSE

The aim of the **Analyse** pillar is to integrate climate change into our investment analysis and decision-making. This includes incorporating identification and assessment of climate change risks and opportunities into the pre-investment due diligence that we undertake for areas of the Fund's portfolio in which we have more concentrated positions.

SCENARIO ANALYSIS

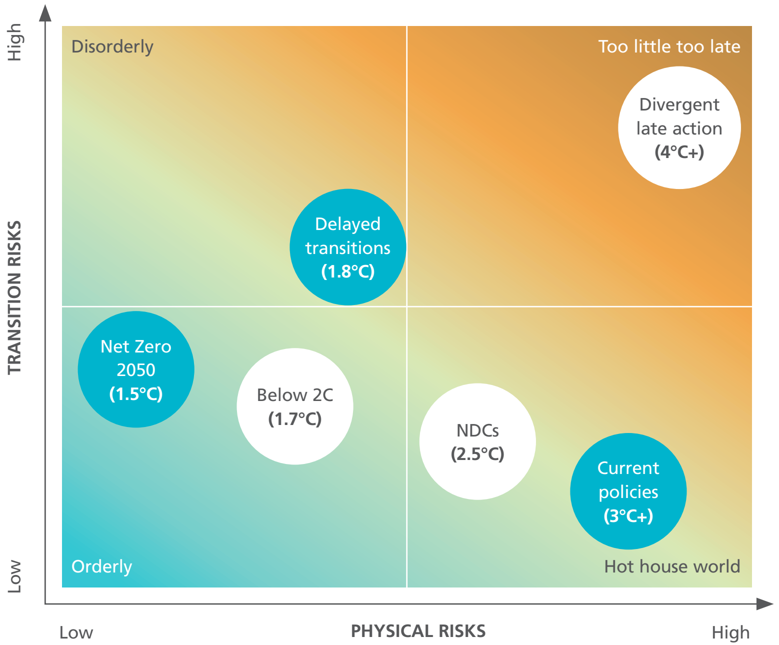
Climate change scenarios represent a set of assumptions, analysis and informed judgement used to establish plausible projected future states of global climatic and socio-economic conditions. The Guardians adopted an initial set of custom high-level climate scenarios in 2018 to inform our investment strategies and processes. Under the Search and Analyse pillars of our Climate Change Investment Strategy, we reviewed our scenarios in 2023, considering evolving practice, our Net Zero Asset Owners Commitment and the emerging New Zealand climate-related disclosure standards.

Climate change scenario analysis and practice have evolved since 2018, with an enhanced evidence base, modelling sophistication, and consolidation of standards and approaches. However, most mainstream climate models and associated scenarios retain significant flaws due to inherent conceptual or practical limitations; this means approaches often underrepresent the degree of complexity, ambiguity and potential volatility in projected pathways. Interrelated transition and physical climate risks may compound and be unevenly distributed across time, geographies and/or sectors of society, potentially leading to divergent, unpredictable outcomes.

Acknowledging high degrees of inherent uncertainty and evolving practice, our review assessed a series of high-level scenarios developed by leading sources. Despite the known limitations, we have adopted the Network for Greening the Financial System (NGFS) scenarios due to their: integration of transition and physical factors; regular updates based on leading international climatic and economic research; transparency of key underlying assumptions; and consideration of a range of policy ambitions, climate action, technological developments, emissions pathways and geophysical processes, relevant to the NZ Super Fund's diverse portfolio. The three NGFS scenarios we now apply at a high level are Current Policies, Delayed Transition and Net Zero by 2050.

Rather than assigning a higher degree of conviction in any particular pathway or outcome, our approach focuses on blending the use of the top-down NGFS climate scenarios to frame and inform more detailed, bottom-up scenario testing, integration and risk analyses. That way, our methodology is tailored to the requirements of the Guardians' various investment teams, strategies, processes and models.

The Guardians will continue to explore the relative sensitivities, strengths and vulnerabilities of our portfolio/strategies/assets to projected physical and transition impacts under a range of timelines, pathways, and outcomes.



CLIMATE RISK ANALYSIS

Under the Analyse pillar of our Climate Change Investment Strategy, we've progressively built climate change considerations into investment analyses and portfolio management processes. This includes integrating climate scenario analysis into our investment screening protocols, application of our Climate Change Valuation Framework, and applying Climate Value-at-Risk (CVaR) analysis. The methods and tools available for analysing and integrating climate risk continue to evolve and the Guardians will seek to review and apply appropriate tools as and where feasible.

VALUATION FRAMEWORK

We have adapted our investment decision-making framework to explicitly account for climate change investment risk in our valuation models where practicable. The framework aims to provide a structured approach and has been updated with improved physical risk analysis. It guides the investment professional through filtering climate change considerations into those assumptions that have enough significance to be modelled in valuations and provides a common framework to ensure greater consistency across teams and time. The assumptions are then integrated into our existing investment processes.

Our valuation framework has five steps:

1. We **identify** the investee company's core activities, operating environment, financial drivers and the geographies in which it operates.
2. We **assess** the sources of climate change risks and opportunities, applying six lenses to assess how assets might be affected by the climate change transition:
    - Technology – Disruption driven by the development of technology to support a low-carbon economy;
    - Resource availability – Slow-onset shifts in everyday environmental factors;
    - Impact of physical damages – The impact of acute, extreme events linked to climate change;
    - Policy – Increased costs and complexity from policies and regulations designed to limit the long-term effects of climate change and to encourage sustainability;
    - Demand and supply – Changes in economic and social factors affecting demand and supply; and
    - Liability – Parties who have suffered loss or damage from the effects of climate change seek compensation from those held responsible.
3. We **filter** the sources of climate-related risks to assess their materiality. Those considered immaterial are not factored into the valuation model but

are mentioned in the qualitative commentary. For those that are material, we try to quantify their impact. Where this is possible, we include it in our model (see step four below). Where this is not possible, we identify its likely directional impact on the attractiveness of the investment.

4. We **integrate** the material and quantifiable climate-related risks and opportunities into our valuation model. We have three methods for this:
   - adjusting cash flows (revenue, costs, capital expenditure) during the forecast period;
   - adjusting the terminal value; and
   - adjusting the discount rate.[1]

   Our preferred approach is to adjust cash flows; our least-favoured approach is to adjust the discount rate. This valuation, along with the qualitative commentary, is reviewed by our Chief Investment Officer or delegated approver and influences whether we invest in the asset.

1 *When comparing earnings in the future with earnings today, financial models apply a discount to earnings in the future to reflect that they are less certain and that there is value to having cash today rather than cash in the future. The amount that earnings are discounted (each year) is called the discount rate. When earnings are less certain, for example because of climate-related risk, this can be adjusted by increasing the discount rate to reflect this extra risk.*

5. If we acquire the asset, we **own it actively** (see our Engage element for further details) and monitor business performance against climate change standards and metrics.

   Over the last three years, we have made progress in applying the framework to the Direct Investments portfolio, with Step 2 completed for all assets. We reassess assets periodically to ensure the analysis is up to date.

   Step 3 – Filter is currently in progress and six investments have preliminary views of risk likelihood and materiality ratings.

   In the past we found it difficult to complete all four steps of this assessment for it to feed into our investment decisions. This year we have:
   - built an Excel tool to make it easier for investment professionals to implement the framework;
   - integrated the three climate change scenarios into our investment screen; and
   - started using external tools such as MSCI's Climate Value-at-Risk for Real Estate.

   As a result we have completed an initial analysis of climate change impacts for each of our new investments.

REVIEWING EXISTING OPPORTUNITIES AND ALLOCATION

As well as assessing individual investments, we review the types of investment opportunities[2] we allocate to. In 2023 we completed a risk budget review, including the expected ESG profile (including climate change) of each Opportunity. These were considered alongside each opportunity's expected Information Ratio (a measurement of return per unit of risk) and alignment with our endowments to decide on the level of risk budget to allocate to each opportunity. We upweighted infrastructure and down-weighted distressed credit on the basis of their expected ESG profiles.

2 *The Guardians has a total portfolio approach to portfolio construction, rather than the traditional strategic asset allocation approach. We define an opportunity as a feature of the investment environment that is conducive to generative positive risk-adjusted active returns.*

HOW OUR INVESTMENT STRATEGY HAS IMPACTED OUR EXPOSURE TO CLIMATE RISK

We monitor the Fund’s listed equities portfolio and its financial exposure to climate change. We use MSCI’s Climate Value-at-Risk (CVaR) model to help us gauge how physical risks and transitions might impact the company’s present value.

CVaR provides a forward-looking and return-based valuation assessment to estimate climate-related risks and opportunities in an investment portfolio. It uses general macroeconomic, physical climate modelling and company-specific attributes to project how transition and physical risk might impact on the company’s present value, under different climate-related scenarios. The CVaR method includes some limitations due to key data gaps, assumptions and approximations, but can be useful for providing high level insights and indications for further analysis.

We run the CVaR model on our listed equities portfolio using three primary NGSF scenarios as outlined above: Net Zero, Delayed Transition and Current Policies. Under the Current Policy Scenario, the world is headed for 3°C of global warming and the physical risks are high. In this scenario the the transition risk is low. Under the Delayed Transition Scenario, there is a disorderly transition to a net zero carbon economy by 2050 and it assumes there are average physical risks to the portfolio. The Net Zero Scenario assumes an orderly transition to a net zero economy with low to average physical risks.

We compare these results to a combination of the ACWI IMI and NZX 50 – how we would have invested the Reference Portfolio before taking into account climate change and broader ESG considerations.

It is important to note that each scenario provides a point estimate of indicative value at risk. Due to the inherent uncertainty and assumptions used in climate scenarios and CVaR modelling, there are a range of potential pathways and outcomes around each point estimate.

The results from our analysis can be summarised below:

- In every scenario, we estimate that we will face less risk than we would have if we had not applied the climate change investment strategy;
- Our portfolio remains exposed to significant climate risk; and
- Our new passive portfolios are better at reducing our exposure to physical risk than our previous approach.

Estimated Climate Value-at-Risk[1] of portfolio under a range of high-level climate scenarios

		Net Zero	Delayed Transition	Current Policies
Reference Portfolio ACWI IMI[2] + NZX 50	Total Risk	-13.47%	-11.84%	-11.80%
	Physical Risk	-2.83%	-4.14%	-9.39%
	Transition Risk	-10.64%	-7.70%	-2.41%
Actual Portfolio	Total Risk	-4.31%	-3.80%	-3.77%
	Physical Risk	-0.97%	-1.41%	-3.01%
	Transition Risk	-3.35%	-2.39%	-0.76%
Difference in Risk		9.16%	8.05%	8.03%

1 The CVaR method includes some limitations due to key data gaps, assumptions and approximations, but can be useful for providing high level insights and indications for further analysis. Like all climate change scenarios, these high-level Network for Greening the Financial System (NGFS) scenarios include significant degrees of inherent uncertainty.

2 MSCI All-Country World Index (ACWI) - Investable Market Index (IMI)

ENGAGE

CROWN RESPONSIBLE INVESTMENT FRAMEWORK

The goal of the **Engage** element is to improve the reporting and management of climate-related risks by the companies we invest in. We concentrate our direct engagement in New Zealand, where we have the scale to play a leadership role. Internationally, where we are a relatively small player, we focus on collaboration with others and lending support to the multilateral initiatives we believe will have the greatest impact. Our investment managers and our engagement service provider, Columbia Threadneedle Investment (CTI) Responsible Engagement Overlay (reo®) service, also play a significant role engaging with companies on climate-related issues on our behalf.

A Crown Responsible Investment Framework, which we worked on collaboratively with Treasury and other Crown Financial Institutions (CFIs), was announced by the Minister of Finance in October 2021. The framework includes commitments to net zero by 2050 or sooner, reporting against common carbon metrics and a focus on climate change engagement. The framework applies to the New Zealand CFIs (NZ Super Fund, the Accident Compensation Corporation, and the Government Superannuation Fund Authority) and the National Provident Fund, which are among the largest institutional investors in New Zealand.

In response to the framework, the four investors committed to transitioning their investment portfolios to be aligned with a net zero emissions economy by 2050 or sooner. They joined the Paris Aligned Investment Initiative's Net Zero Asset Owners Commitment, committing to reductions in portfolio carbon footprint in line with a globally accepted pathway. The Funds also committed to seek to invest in climate solutions in New Zealand and abroad, consistent with their respective investment strategies and commercial mandates.

Since the framework was developed the Funds have made significant changes to their investment portfolios, moving to low carbon indices as their global equities benchmark. In addition, the CFIs agreed to use their collective influence as asset owners to engage with companies on climate change and emissions reductions, with the objective of achieving net zero by 2050 or sooner. The framework sends a strong signal to the broader New Zealand investment industry that best practice is aligning around net zero by 2050 emissions targets.

CFI CLIMATE CHANGE ENGAGEMENT WITH THE NZX50

In May 2023, the CFIs began a programme of engagement on climate change with listed New Zealand companies, in particular the top 50 listed companies, the NZX50. The purpose of the engagement is to ensure that companies understand investor expectations as we transition to a low-carbon economy. This includes measuring and reporting on carbon and other GHG emissions in line with best-practice guidelines, and meaningful reduction plans. We expect the engagement to be rolled out in 2023, with follow-up activity extending longer as required.

The steps taken in the engagement programme include:

- a CFI joint position statement on climate change released in May 2023;
- CFIs sent a joint letter to the Chairs of all companies listed on the NZX50 in June setting out our expectations around climate change reporting and the transition to net zero;
- a CFI working group is determining priority companies for direct engagement, developing engagement plans for each company and will continue to monitor the response of other companies;
- CFIs expect to engage directly with 15 companies by December 2024 and will then review the outcome of the programme.

The decision about which companies to engage directly is based on a combination of factors, including the company emissions profile, reporting (whether they have published a TCFD report and their plan around reporting on the NZ Climate Related Disclosures regime), whether they have emissions reductions targets, assessment of governance and strategy and their operating sector.

Engagements with individual companies will be confidential, but the CFIs will report on the programme in aggregate.

The engagement programme leverages the mandatory climate related disclosure standards, released by the XRB in December 2022. What we are asking of companies covers:

1. Policies - Clear policies and action plans to manage climate risks/opportunities;
2. Risk - How companies are considering physical and transition risks in long-term strategy, including supply chain risks;
3. Knowledge - Boards have sufficient fluency and knowledge to provide oversight of company plans and targets;
4. Disclosure - In line with relevant guidelines (CRD);

5. Emissions - Progress towards disclosure of scope 1 and scope 2 emissions, and scope 3 emissions (for companies in carbon-intensive industries);
6. Reduction targets - Meaningful interim and long-term reduction targets;
7. Transition - How companies will support the transition to low carbon;
8. Alignment - How companies align to 1.5°C and net zero greenhouse gas (GHG) emissions by 2050.

CFI Climate Change Position Statement

This position statement sets out the objectives of the New Zealand Crown Financial Institutions (CFIs) in relation to climate change. It represents the views of the CFIs (Accident Compensation Corporation, Government Superannuation Fund Authority, the NZ Superannuation Fund) and the National Provident Fund.

Climate change presents a long-term risk to investment portfolios. Large investors globally are seeking to work more closely with investee companies to understand their climate risks and opportunities.

The New Zealand CFIs and the National Provident Fund (NPF) are launching an initiative to engage with companies on climate change. They will engage directly with large New Zealand companies, including those listed on the NZX50. The four funds are already taking part in global collaborative climate engagement initiatives.

Last year the four funds joined the Net Zero Asset Owner Commitment. We have committed to having net zero portfolios by 2050, with interim carbon reduction targets for 2025 and 2030, in line with limiting global warming to 1.5 degrees. We have committed to measure and report on the carbon footprint of our investment portfolios, and to make investments that support the transition to a low-carbon economy.

Commitments to achieve net zero portfolios by 2050 and align with the goal to limit global warming to 1.5 degrees are becoming best practice for leading institutional investors. Globally, more than US$130 trillion has been committed to supporting the transition to net zero through initiatives such as the Net Zero Asset Owners Commitment.

We also note that a mandatory climate-related disclosures regime came into effect for large New Zealand companies and financial institutions in 2023, with reporting required for accounting periods from 1 January 2024. Approximately 200 New Zealand companies and institutions will be covered by these disclosure requirements. Climate reporting standards have been developed by the External Reporting Board (XRB) and were released in December 2022. The CFIs and NPF have supported the development of these standards.

Many New Zealand companies are well-placed to benefit from the transition to a low-carbon economy and are actively working through managing this important transition. In order to meet our climate objectives and commitments, we will require transparency from companies. This will enable us to make informed assessments of their abilities to manage climate risks, take advantage of climate-related opportunities and to transition to net zero.

Our engagements with individual New Zealand companies will seek to:

- Understand their relative progress on climate change awareness, capability, commitments and emissions assessment, reporting and reduction;
- Understand how they are meeting regulatory requirements on climate-related disclosures and reporting;
- Support companies to prepare for the transition by sharing knowledge of climate change risks and opportunities from the institutional investor perspective;
- Request the climate-related information we need to achieve our objectives as investors, including reporting on greenhouse gas emissions, exposure to climate risk and transition plans, including net zero targets and strategies.

Company engagements will be conducted on an individual basis and will be confidential. We will report publicly on the number of engagements and progress made in aggregate in our annual reports.

We look forward to working with New Zealand companies and issuers.

INFLUENCING OUR DIRECT INVESTMENTS

Engagement with companies where we have a direct ownership stake is critical to developing an understanding of climate change risks and opportunities and how they may play out in practice. The management teams of these companies are on the front line in being able to identify emerging threats and opportunities, and executing related strategies. We continue to hold education sessions with the boards and management teams of some of our direct investment companies, presenting the Fund's Climate Change Investment Strategy, including our valuation framework, recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) and the evolving expectations of stakeholders. We have found boards and management teams receptive to discussing what climate change means for their business and the role of governance in managing this risk.

INFLUENCING OUR EXTERNAL INVESTMENT MANAGERS

We include climate change-related clauses into all relevant new investment mandates. These set out our expectations that external managers will look at the risks and opportunities associated with climate change. The Sustainable Investment and External Investments and Partnerships teams together periodically review the engagement work conducted by our listed equity investment managers on climate change. In addition, as part of our ongoing monitoring, all managers are asked about their climate change activities through ESG due diligence surveys approximately every two years. Since 2022 we have asked our external managers to report on their portfolio GHG emissions intensity. Climate change is just one factor fed into manager assessments. When managers are performing significantly worse than we expect them to we work with them to lift their performance.

ENGAGING WITH COMPANIES IN OUR GLOBAL EQUITIES PORTFOLIO

As a result of our move to Paris Aligned indices and to improve the ESG profile of the global equities in our externally managed multi-factor portfolios, the number of global equities held by the Fund has reduced. Previously the Fund held up to 6,500 global equities. With a more consolidated portfolio, this number is reducing. We engage with companies that are part of our global equities portfolio in three ways: by using a global engagement service provider, by taking part in collaborative engagements with other investors and by exercising our voting rights. In certain cases, such as the social media engagement we led following the 2019 mosque attacks in Christchurch, we may undertake direct engagement with global companies.

We use the Columbia Threadneedle Investments reo® service (formerly known as BMO reo®) to lead our engagements with the companies within our global equities portfolio. As a global engagement service, reo® engages with thousands of companies on behalf of leading global asset owners. The CTI reo® service has more than 45 responsible investment staff around the world, including climate change specialists. It is a signatory to the Net Zero Asset Manager initiative and is an active participant in the Climate Action 100+ initiative, leading eight engagements and being in a support role on a further 38.

In the year to June 2023, the reo® service engaged with 307 companies on climate change on our behalf. It conducted 515 engagement activities and recorded 75 climate milestones achieved. Additional details on CTI reo® engagement can be found in our Annual Report and on our website, where quarterly engagement reports are published. The NZ Super Fund is a long-term member of the CDP (formerly the Carbon Disclosure Project), which provides a framework through which companies are requested to disclose their carbon footprints as well as other environmental impacts. We are an official supporter of the TCFD and encourage companies to report against these recommendations. Both these reporting initiatives have greatly improved the quality of the data available when we look at the climate-related aspects of our investment decisions. We are active members of the Investor Group on Climate Change (IGCC) which engages with Australasian businesses on climate-related issues on behalf of institutional investors

Internationally, we express our climate change views through the way we vote. We have voting guidelines on climate change and vote all our shares in a consistent way. Our default position is to support climate change-related resolutions, unless there is a compelling reason not to. In 2018, we brought voting in-house rather than leaving it in the hands of external investment managers. In 2019, we began recalling shares lent out as part of our securities lending programme in order to vote on significant climate change issues. We disclose voting decisions on our website as part of our commitment to best-practice governance and transparency.

POLICY ENGAGEMENT

From time to time we also engage with policy makers, especially in New Zealand in areas that are relevant to our investment mandates. We have made submissions supporting climate action, including on the XRB's climate reporting disclosure standards. All our submissions are available on our website.

OUR COLLABORATIONS

Climate Action 100+	The Fund joined Climate Action 100+ (CA100+) in December 2017, at its launch. The initiative has grown into one of the largest investor-led engagement programmes in the world, with over 700 investor signatories representing more than US$68 trillion in assets under management (AUM). It engages with 171 global companies, which account for 80% of global industrial emissions. The initiative has three goals: 1. Improve corporate climate governance; 2. Curb GHG emissions in line with the Paris Agreement; and 3. Strengthen climate-related financial disclosures. CA100+ has had significant success. As a result of its engagement, 75% of focus companies have net zero commitments, 92% have some level of Board oversight and 91% have aligned with TCFD recommendations. When it was launched in 2017, only five of the focus companies had made net zero commitments. CA100+ has launched a second phase of engagement running through to 2030.
The Transition Pathway Initiative	TPI is a global initiative led by asset owners and supported by asset managers. NZSF supports the initiative, which provides data on companies' preparedness for the low carbon transition. TPI enables investors to understand how companies are managing climate change and the risks it poses to their business. TPI initially covered 274 companies in 14 sectors of the economy. It now covers 599 companies in 16 sectors, across 47 countries, with US$10 trillion in market capitalisation.

One Planet Sovereign Wealth Funds (OPSWF) Initiative	The OPSWF Initiative was established at the inaugural One Planet Summit in December 2017 in Paris, championed by French President Emmanuel Macron. The Guardians is one of five founding SWFs on the steering group. The number of SWF members has grown and the initiative has supported initiatives across the asset manager, private equity funds and academic communities. The group has committed to implement an investment framework to address climate related financial risk, devise methods and indicators that can help inform investors' priorities as shareholders and participants in financial markets, and accelerate alignment with the Paris Agreement.
Toitū Tahua Centre for Sustainable Finance	The Toitū Tahua Centre for Sustainable Finance was established in 2021 on the recommendation of the Sustainable Finance Forum. In 2022, NZ Super Fund became a partner of the centre. We also supported the development of the Aotearoa New Zealand Stewardship Code, launched in 2022. The code is managed jointly by Toitū Tahua and the Responsible Investment Association of Australasia.

SEARCH

The **Reduce**, **Analyse** and **Engage** elements of our climate strategy are mostly about identifying and managing the risk of climate change across our investment portfolio. **Search** is about taking advantage of opportunities presented by the transition to a low-carbon energy and more climate-resilient world. In assessing new prospects, we continue to maintain our investment discipline as we would with any potential investment. In 2022 we created a new investment opportunity, the Sustainable Transition Opportunity (STO), designed to invest in assets that will benefit from rapid structural change and the vast amount of capital required to tackle sustainability issues in the coming years.

Investments made in in the most recent financial year included:

- A US$100 million commitment to Wellington Management's Climate Innovation Fund, which targets venture/growth investents in energy transformation, sustainable buildings and cities, transportation, industrial and enterprise efficiency, predominantly in North America and Europe.
- A further investment of US$100 million in Longroad Energy, a renewable energy company which focuses on developing, owning, and managing wind, solar, and storage projects throughout North America. The investment was with our co-investment partner Infratil, which also invested US$100 million, and new shareholder MEAG, who invested US$300m.
- A US$100 million investment in a fund that supports reforestation in Latin America. The Reforestation Fund, managed by Timberland Investment Group, will invest in a diversified pool of greenfield, climate-positive timberland and wood product processing assets, with a focus on Brazil and Uruguay. The fund undertakes to protect and restore natural forests and ecosystems across at least 50% of the entire portfolio landholdings, and to invest in processing facilities to produce climate positive forest products and create new jobs.

Taranaki Offshore Wind

In March 2022 we announced our partnership with Copenhagen Infrastructure Partners (CIP) to explore the potential for large-scale offshore wind energy in the South Taranaki Bight. Subject to feasibility, an initial planned 1GW development would represent more than 11% of New Zealand's current electricity demand capacity and could power over 650,000 homes. We believe the project could later expand to 2GW, helping to meet strong projected growth in demand for electricity in New Zealand. Our initial research suggests the South Taranaki area has world-class fundamentals.

Offshore wind energy has the potential to be an attractive commercial opportunity that aligns with the Fund's Climate Change Investment Strategy and focus on sustainable finance, as well as our desire to invest in large-scale New Zealand infrastructure. While this proposal is still at a very early, exploratory stage, we are confident it has great potential to both generate attractive commercial returns and help New Zealand's transition away from fossil fuels and towards clean energy.

In June 2023, the joint venture achieved a significant milestone with the deployment of the first piece of physical offshore wind technology in New Zealand, a Floating Light Detecting and Ranging device (FLiDAR). To be stationed 37km off the coast of Patea in the South Taranaki Bight for one year, the FLiDAR will measure wind speeds at heights of up to 300m, waves and currents to provide data critical for assessing the feasibility of the proposed offshore wind farm. It is a key part of the feasibility investigations.

In December 2022, we welcomed the announcement by the Ministry for Business, Innovation and Employment for the public to comment on how the development of offshore renewable energy infrastructure, including wind farms, should proceed. Investors need to be able to plan ahead with confidence for major projects such as off-shore wind and we look forward to the development of a regulatory system that is fit for purpose for the long-term, involving the whole community in the design process.

We also continue to work with central and local government agencies, and as this report was published the Joint Venture was preparing a submission for MBIE on Developing a Regulatory Framework for Offshore Renewable Energy. While this project is of national importance, it would also greatly benefit the Taranaki region. A study commissioned by the Joint Venture and New Zealand Trade & Enterprise, supported by Ara Ake, identified significant commercial opportunities for local businesses, particularly during the project's build and operational phases.

Risk Management

"Considering risk is a fundamental component of each of the elements of our Climate Change Investment Strategy."

INVESTMENT RISK

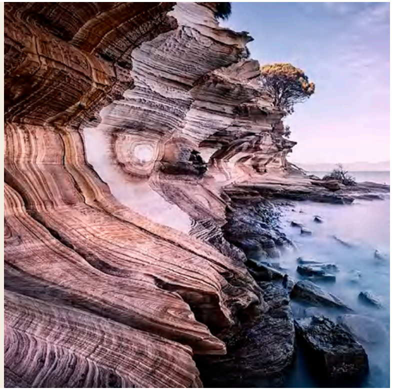
Trading off risk and return is a central part of investment management. Therefore, considering risk is a fundamental component of each of the elements of our Climate Change Investment Strategy. Rather than restate our risk approach in detail, we have summarised our approach on the right.

ENTERPRISE RISK

The most significant impact from operational risk related to climate change is damage to our reputation and long-term investment outcomes due to failure to integrate climate-related risks and opportunities into our investment processes. We treat this risk through the Analyse element of our Strategy and by carrying out environmental, social and goverance (ESG)due diligence as part of the operational risk assessment process that we undertake before we make an investment or appoint an external investment manager.

	Reduce decreases the transition risk of the portfolio. We do this by: • measuring our carbon footprint; • setting a target to reduce our portfolio's emissions intensity and our holdings of potential emissions from reserves; and • applying a carbon reduction methodology to our equity portfolio and our benchmark.
	Analyse integrates climate change considerations into our assessment of potential new investments and when we review our existing holdings. We do this by building climate change scenarios and risk analysis approaches into our valuation framework.
	Engage influences the companies we own an interest in to continuously mitigate and adapt to climate-related risks. We do this by being an active owner, including prioritising engagement and voting in accordance with our climate change insights and strategies.
	Search focuses us on finding companies that will thrive during the low-carbon climate-resilience transition. We do this by actively searching for new opportunities in the areas such as renewable energy, efficiency and transformational infrastructure.

Metrics and Targets



"We strive to integrate environmental, social and governance considerations into our internal organisational culture and conduct at the Guardians."

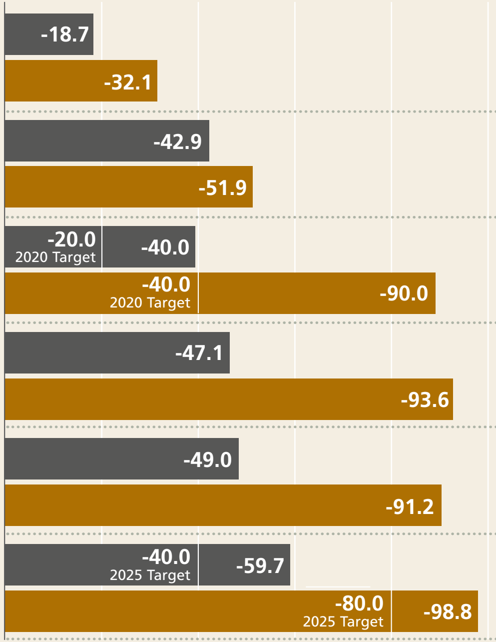
THE FUND'S CARBON FOOTPRINT

EMISSIONS INTENSITY

2025 target: -40%

EXPOSURE TO POTENTIAL EMISSIONS FROM RESERVES

2025 target: -80%



2018
- Introduced carbon exclusions for some external manager equity mandates

2019
- Applied our bespoke carbon methodology to the rest of our active equity mandates
- Asked the managers of our multi-factor funds to meet our targets
- Implemented an equity-short position targeting high-carbon companies
- Met our 2020 reduction targets a year early

2020
- Introduced new carbon-reduction targets for 2025
- Revised our bespoke carbon methodology to assist us in achieving these lower targets in the most effective way

2021
- Helped our portfolio companies complete their carbon footprint, explaining to them the process and connecting them with a service provider. The number of companies undertaking their own footprint assessment has increased from 4 to 10

2022
- Committed to net zero by 2050, joining the Paris Aligned Investment Initiative's Asset Owners Commitment
- Made the decision to shift to a Paris Aligned Reference Portfolio; implementation was in progress as of 30 June 2022
- Twenty one of our private market investments reported their carbon intensity

2023
- Completed the shift to Paris Aligned Benchmark indices for our Reference Portfolio
- Improved the accuracy of data on potential emissions from fossil fuel reserves in externally-managed mandates
- Worked with external managers to improve the ESG profile of our multi-factor portfolios (implementation after June 2023)

Our first carbon footprint was published in 2017.

In 2023 we achieved our targets of reducing GHG emissions intensity *by -40% and -80%, ahead of the 2025 target date.* We will review our reduction targets in 2025.

See our 2023 Carbon Footprint Report for further detail.

WALKING THE TALK

This report is focused on the NZ Super Fund, as the portfolio of assets in the Fund generate the bulk of our emissions; but, as responsible investors, we strive to integrate ESG considerations into our internal organisational culture and conduct at the Guardians, the Fund's manager. We aim for the Guardians as an organisation to be carbon neutral. We achieve this by reducing our emissions where possible and purchasing offsets for the remaining unavoidable emissions.

The Guardians operational carbon footprint is reported annually in our Annual Report.

Climate Action Plan

"Our approach will evolve as best practice evolves and better data is available."

CLIMATE CHANGE ACTION PLAN

The Guardians has signed up to the Net Zero Asset Owners Commitment, which is part of the Paris Aligned Investment Initiative (PAII). PAII was established in May 2019 by the Institutional Investors Group on Climate Change. It now involves more than 110 investors representing $33 trillion in assets.

Signing the Net Zero Asset Owners Commitment means we have committed to taking actions to help put the world on a path to achieve net zero emissions by 2050. We submitted our first climate action plan under the PAII in November 2022, which is available on the signatory disclosure section of the PAII website. The commitment requires us to review and update our targets every five years or sooner, to report annually on the strategy and actions implemented, to report on progress towards achieving objectives and targets, and in line with the TCFD. The PAII is trialling the use of an online survey for reporting in 2023, with a deadline of end December 2023. We will complete the reporting survey, as required.

The action plan that we submitted in 2022 set out our plan for delivering on the net zero commitment. Our action plan is informed by the fact that: (1) we already have an existing and evolving Climate Change Investment Strategy; and (2) we are pursuing an ambitious plan to deliver better outcomes and increased impact from our portfolio – not only for climate change but also for a broader range of environmental and social areas, through our Sustainable Finance Roadmap.

We have already set emission intensity and climate solutions targets, but we have yet to set alignment or engagement targets. However, given the limited data currently available, and our desire to deliver broad ESG outcomes, we have decided to prioritise lifting the ESG performance of each of our investment classes and ensuring our investments will be net zero aligned. As outlined in this report, we have shifted our passive equities portfolio into Paris Aligned Benchmark indices. In 2023, we worked with our external managers on improving the ESG profile of the multi-factor equities portfolio. In 2024, we will be looking at how to improve the ESG performance of private assets and fixed income portfolios, including carbon. Once we have made progress in these areas, we plan to set new emissions intensity, climate solutions, asset alignment and engagement targets for the portfolio as a whole. Our approach will evolve as better data emerges and best practice develops.

GUARDIANS' PATHWAY: RESPONSIBLE INVESTMENT TO SUSTAINABLE FINANCE

RI COMPASS REVIEW PHASE 1 – 2020/21

Changing Mindsets
- Emerging trends & stakeholder research
- Review of policy & regulatory trends, our mandate
- Willis Towers Watson & best practice review
- Sustainable Finance Strategy developed & approved

Transforming Finance
- Research on ESG, best practice, peer practice
- Research on improving ESG performance (equities)
- CFIs & Net-Zero/Paris alignment methods

Financing transformation
- Link between Positive (Impact) Investment & our mandate;
- Impact investment research, review of peers & market
- Understanding internal barriers
- Options to increase number & scale of impact investments

RI COMPASS PHASE 2 – CAPACITY BUILDING 2021/22

Changing Mindsets
- Sustainable Finance reflected in Guardians' Purpose/ Vision
- SIPSP updated
- Join Toitū Tahua Centre for Sustainable Finance
- UNPRI sustainability outcomes
- CFI Framework/Net Zero commitment; engagement

Transforming Finance
- Test, approve, apply ESG performance methodologies for equities, ESG in private markets; improve ESG data
- ESG in Risk Budget Review
- CCIS: Net Zero alignment
- Engage/exclude review

Financing transformation
- Deepen Impact integration and resourcing
- Sustainable financial system engagement (external)
- Impact measures

RI COMPASS PHASE 3 – SCALING UP 2022/23

Changing Mindsets
- SF in personal objectives; build capability
- SF in SOI & SIPSP
- Measurement, reporting

Transforming Finance
- ESG equity portfolio established, monitored
- Improving ESG across other investments
- ESG data platform & research deepened
- CCIS/Net-Zero alignment
- External engagement
- Engage/exclude review

Financing transformation
- Increased impact AUM and scale of impact; climate solutions a focus
- Refining definitions, measurement, reporting
- Options for mapping impact

MATURING 2023-2025

Changing Mindsets
- SF reporting
- 5-yearly Independent Review will include SF strategy and Sustainable Investment approach

Transforming Finance
- Mature ESG performance strategy including in fixed income
- Mature data
- ESG consideration in 5-yearly Reference Portfolio review
- Review CCIS Targets

Financing transformation
- Mature Impact investment approach
- Assess, review and adjust as needed
- Mapping impact where appropriate

IN OUR DNA 2026-30...

Changing Mindsets
- 5-yearly Independent Review (2029)

Transforming Finance
- ESG embedded – building best practice standards
- Outcomes mapped to SDGs (where appropriate)

Financing transformation
- Impact core to investment strategy
- Accounts for significant part of AUM
- Outcomes mapped to SDGs


To learn more about the NZ Super Fund,
please visit nzsuperfund.nz