NZ SUPERFUND
Te Kaitiaki Tahua Penihana Kaumātua o Aotearoa

Climate Change Report

2021

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 forthcoming transition to a low-carbon global economy."

CEO STATEMENT – MATT WHINERAY

Last year I opened this Report with the statement: ***"Climate change is one of the most defining and complex issues of our time. Given the NZ Super Fund's long-term horizon, the Guardians must factor climate change into our investment strategies and ownership practices".*** It is clear that this will remain the case for the foreseeable future.

Therefore, we have elected to treat this Report as a '*living document*'. Each year, we will update it to reflect our latest thinking alongside the core elements of our Strategy in full, so it can continue to act as a definitive summary of our approach to climate change.

For more than a decade, we have made it a priority to consider how the Fund's investment portfolio, and the companies we invest in, should respond to the risks and opportunities stemming from climate change.

Our Climate Change Investment Strategy, announced in 2016, applies across our whole portfolio and is designed to mitigate the significant investment risks presented by climate change. As the global energy system transitions away from fossil fuels, some of the assets we invest in might become obsolete, uneconomic or lose value. Similarly, changing weather patterns and extreme events might expose the assets to increased physical risks. Since we announced the strategy, the imperative to respond to climate change has become even stronger. Multiple record annual temperatures and acute weather events have continued to demonstrate the significance of this issue for all countries.

Our Strategy recognises that reducing the Fund's exposure to climate-related risks is good for the portfolio and consistent with our mandate to maximise returns without undue risk. We believe our Strategy can guide us in capturing opportunities from the forthcoming transition to a low-carbon global economy.

Over the past year, we have continued to work on improving the resilience of our portfolio to climate change risk over the long-term.

- We have shifted to more ambitous targets, reducing our carbon footprint and exposure to fossil fuel reserves – the Fund no longer has any material, long-term holdings of fossil fuel reserves (see the Metrics and Targets section);
- We have worked with our New Zealand farm manager, FarmRight, which has developed a new sustainability strategy (see FarmRight Case Study); and
- We have analysed how our listed portfolio would perform in a range of climate-related scenarios (see the Strategy section).

We are committed to managing the climate risk across our portfolio and I look forward to reporting on our ongoing progress in the years to come.

TE TAUĀKĪ A TE TUMU WHAKARAE, A MATT WHINERAY

I tērā tau i huatakina e au te Pūrongo nei ki te kōrero: 'Ko ngā panonitanga ā-āhuarangi tētahi o ngā take e whakahirahira katoa ana, e uaua katoa ana hoki o te wā i a tātou. Nā te aronga o te Tahua Penihana Kaumātua o Aotearoa ki te pae tawhiti, me mātua whai wāhi ngā panonitanga ā-āhuarangi ki ngā rautaki haumi me ngā tikanga pupuri rawa a ngā Kaitiaki." E mārama ana, ka pēnei tonu te āhua hei ngā tau kei te heke mai e matapaetia ana.

Nā konā, kua whakaritea e mātou te pūrongo nei hei 'tuhinga tuwhera'. I ia tau, ka whakahoutia e mātou hei whakaata i ō mātou whakaaro hou katoa i te taha o ngā āhuatanga matua o te whānuitanga o tā mātou rautaki, e noho ai te tuhinga hei whakarāpopototanga niwha e pā ana ki tā mātou tirohanga ki ngā panonitanga ā-āhuarangi.

Kua neke atu i te tekau tau mātou e whakamātāmua ana i te whakaaro ki te huarahi e urupare ai te huinga haumi a te Tahua me ngā kamupene ka haumitia e mātou, ki ngā tūraru me ngā huarahi e wātea ana, e hua ake ana i ngā panonitanga ā-āhuarangi.

E hāngai ana ki te katoa o tā mātou huinga haumitanga tā mātou Rautaki Haumi mō ngā Panonitanga ā-Āhuarangi, i pānuitia rā i te tau 2016, ā, kua hangaia hei whakamāmā i te nui o ngā tūraru ā-haumitanga i puta rā i ngā panonitanga ā-āhuarangi. I te kore haeretanga o te whakamahia o ngā kora mātātoka i te pūnaha ngao o te ao, ka kore pea rānei e whakamahia, ka kore pea e whai hua ā-ōhanga, ka heke pea rānei te uara o ētahi o ngā rawa ka haumitia e mātou. Waihoki, nā ngā panonitanga i ngā huringa huarere, nā ngā tūāhuatanga kutikuti hoki, ka noho whakaraerae pea ngā rawa ki ngā tūraru ā-kiko e nui ake ana. Mai i te pānuitanga o te rautaki e mātou, kua kaha rawa ake te whakapono me mātua urupare ki te panonitanga ā-āhuarangi ka tika. E whakaatu tonuhia nei te hiranga o tēnei take ki ngā whenua katoa, i ngā tau maha i eke rā te pāmahanatanga ki tētehi taumata teitei, i ngā tūāhuatanga ā-huarere kutikuti hoki.

E mārama ana te take i tā mātou Rautaki, ki te whakahekea te noho whakaraerae o te Tahua ki ngā tūraru e pā ana ki te āhuarangi, he painga ka puta ki te huinga haumitanga, e hāngai ana hoki tērā ki te mana kōkiri kua riro i a mātou kia nui rawa atu ngā hua haumi ka hoki mai, me te kore i noho mōrearea noa. E whakapono ana mātou mā tā mātou Rautaki mātou e ārahi i te pao ā-tōreatanga ka hua i te whakawhitinga ki te ōhanga ā-ao e iti nei te waro, e haere ake nei.

I te tau kua hori, kua whai tonu mātou ki te whakapai ake i te pakari o tā mātou huinga haumitanga ahakoa ngā tūraru ka puta i te panonitanga ā-āhuarangi i ngā tau roa.

- Kua whakatutukihia e mātou tā mātou whāinga hou mō te tau 2025, arā, kua whakahekea tā mātou whakamahi i te waro me te noho whakaraerae ki ngā putunga kora mātātoka – otirā, kua kore ā te Tahua putunga kora mātātoka e nui ana, e puritia ana hoki mō te wā roa (tirohia te Wāhanga: Ngā Inenga me ngā Whāinga);
- Kua mahi tahi mātou me tō mātou kaiwhakahaere pāmu o Aotearoa, me FarmRight, nā rātou nei i whakawhanake tētehi rautaki hou mō te tūroa (tirohia te Mātaitanga o FarmRight); ā,
- Kua tātarihia e mātou te āhua o te tū a tā mātou huinga kua uru ki te pae tauhokohoko pānga i ētahi horopaki ā-āhurangi (tirohia te wāhanga o te Rautaki).

E ū ana mātou ki te whakahaere i te tūraru ā-āhuarangi i tā mātou huinga haumitanga, ā, e rikarika ana au ki te pūrongo i tā mātou kokenga tonutanga hei ngā tau kei te heke mai.

MATT WHINERAY
CEO

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 Climate Change Investment Strategy
—
Implemented the low carbon passive portfolio
—
Joined Climate Action 100+
—
Was a 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

WHO WE ARE

The NZ Super 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:

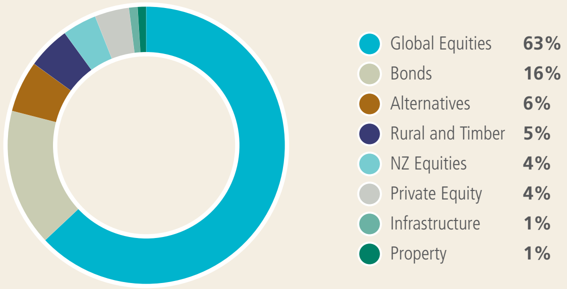
a) best-practice portfolio management;
b) maximising return without undue risk to the Fund as a whole; and
c) avoiding prejudice to New Zealand's reputation as a responsible member of the world community.

The Board sets our default investment approach 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.

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 2021, the Fund has a Net Asset Value of approximately NZ$60 billion (after costs but before NZ tax).

Asset Class Exposures as at 30 June 2021*



* Excludes the impact of any strategic tilts.

REPORTING AGAINST THE TCFD RECOMMENDATIONS

We believe we meet all the core elements of the TCFD framework and have endeavoured to follow the TCFD structure as closely as possible in developing this Report. However, our Climate Change Investment Strategy was developed before the final TCFD recommendations were confirmed and therefore does not necessarily follow the same order nor correspond one-to-one with the TCFD recommendations.

Our Strategy is a long-term initiative that has been well integrated into the day-to-day business of the Fund and this process has highlighted some areas within our Strategy that could be strengthened. We will continue to evolve it as more data, research and best practice approaches emerge.

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 reductions 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. • All investment staff receive training on climate change, and relevant staff are set climate change-related objectives to achieve as part of our incentive programme.	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
	• It is unclear when these risks and opportunities will manifest themselves but we believe that it is necessary 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. • The Reduce element involves measuring our carbon footprint and targeting a reduced exposure to carbon relative to our Reference Portfolio (benchmark). • The Analyse element integrates climate change considerations into our investment framework across our portfolio and particularly for our active investments. • The Engage element 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. • The Search element 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	• We have developed a guide to explicitly help us consider 2°C, 3°C and 4°C scenarios as part our valuation framework for the assets we invest in directly. • We have used MSCI's Climate Value-at Risk model to measure the value at risk from climate change for our listed equities portfolio.	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	• We collaborated with other investors to instruct Mercer to produce a report analysing the impact of climate change on a global investment portfolio. • This research has identified that our climate-related risk exposure is concentrated in a few sectors (utilities, materials and energy), with a wide geographic spread and predominantly in our global listed equities holdings. • In identifying investment risk, for our listed equity holdings, we use carbon intensity and fossil fuel reserves as our measure of exposure to climate-related risk. For our direct investments, we undertake a more detailed assessment of climate-related investment risk.	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 also 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 risk assessment process. Since 2017, the process has included climate change considerations when considering new types of investment opportunities or reviewing existing ones. • We also review exposure to environmental (including climate change), social and governance risks through our operational risk assessment 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 this in the Metrics and Targets section.	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 target a 40% reduction in carbon emissions intensity versus our Reference Portfolio. • We target an 80% reduction in fossil fuel holdings versus our Reference Portfolio. • Our Reference Portfolio benchmark incorporates our carbon-reduction exclusions; this means we measure our performance against a low-carbon benchmark.	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

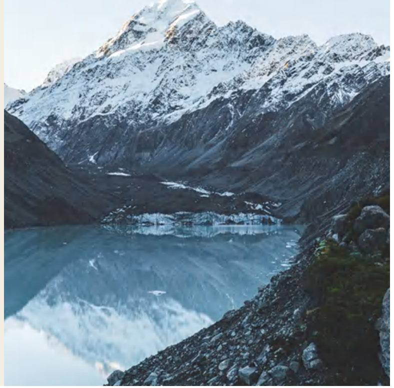
As a fund with a very long horizon, we believe climate change is one of the Fund's most critical investment risks and opportunities. Ultimately, therefore, responsibility for it sits with the Board. The Board delegates responsibility for management of this risk to senior leadership by ensuring the overall organisational strategy includes climate change risks and opportunities and by setting a stand-alone Climate Change Investment Strategy for the Fund.

Our CEO leads the delivery of our strategic objectives and also plays 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 CIO, Head of Responsible Investment, and key internal committees each playing an active role in ensuring that the Climate Change Investment Strategy is implemented. Members of the Investments team are required to integrate climate change into their investment decisions and they are supported by the Responsible Investment team.

We also have a Climate Change Champion from one of the Investments teams who collates the work and promotes the integration of climate change into our investment analysis. 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 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, through the Reduce methodology, has set a low-carbon benchmark. The Board has ad hoc education sessions on climate change 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 Responsible 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. It receives an update on our Strategy biannually. 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 the 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 Responsible Investment team provides expertise on climate change issues, giving support to other teams in integrating climate considerations into investment analysis. Our Climate Change Champion (a member of one of the investment teams) collates our climate change work and champions the integration of climate change into the investment process.
	All new employees are given an overview of our Climate Change Investment Strategy as part of their induction process.	

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 on the basis of rigorous academic and industry research. Our endowments are the advantages we believe we have over the average investor; namely: our long investment horizon, our known liquidity profile, our operational independence and our sovereign status. We seek out opportunities where we have a belief that they offer especially attractive risk-adjusted returns and our endowments allow us to capture them.

Given the significant impact of climate change, the Guardians has long considered how to take this issue into account in designing our investment approach. In 2014, we and other global institutional investors commissioned a report from Mercer to help us 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 have led the Guardians to form the following views:

- 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 policy-makers 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 our climate strategy, and concluded there is a greater appreciation now for climate risk in parts of the market. The Investment Committee's updated view is that "*carbon remains underpriced 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;
  - 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. It is considered good practice to remove uncompensated portfolio risks. These risks have multiple drivers across technological change, resource and

physical impacts, and policy actions. They affect both listed and unlisted assets, but may impact them in different ways. It 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.
- Climate change offers opportunities for investment as well as risk, with (for example) the development of more energy-efficient and alternative technologies.

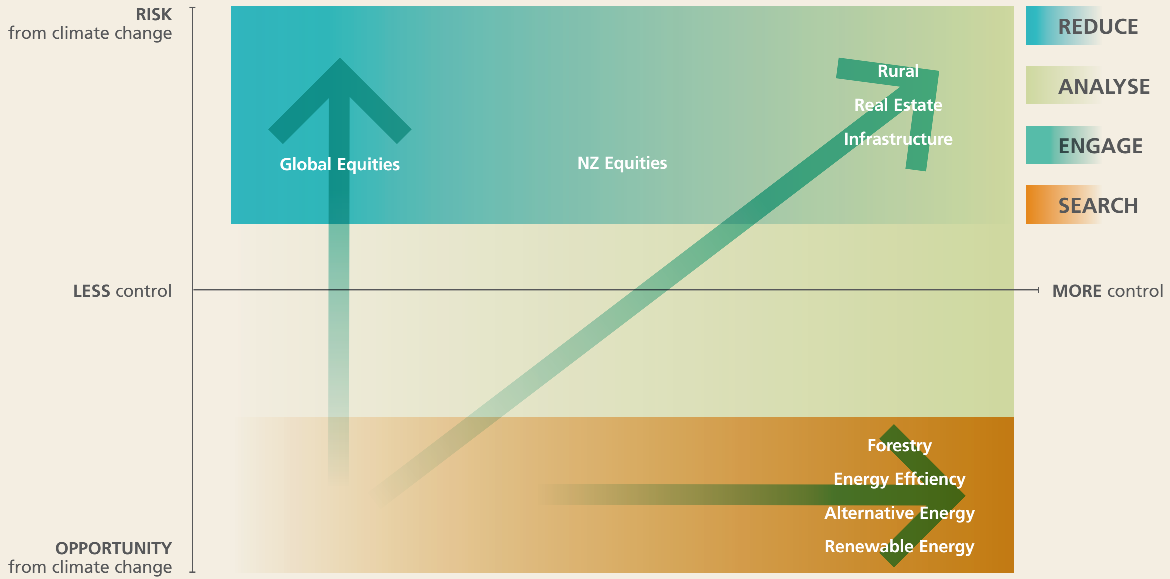
Our Climate Change Investment Strategy seeks to express these views through our investment approach. While many of these risks will take time to be revealed, financial markets are forward looking. This means that prices may adjust quickly when a greater appreciation of the threat of climate change emerges. Therefore, it is prudent to reduce our exposure to these uncompensated risks and increase our exposure to unpriced opportunities immediately rather than trying to estimate when markets will adjust.

Our 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 bespoke carbon 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 into our valuation framework.
	Engage influences the companies we own an interest in to continuously mitigate and improve resilience to climate-related risks. We do this by being an active owner, including prioritising engagement and voting in accordance with our climate change views.
	Search focuses us on finding companies that will thrive during the low-carbon transition. We do this by actively searching for new opportunities in the areas such as alternative energy, energy efficiency and transformational infrastructure.

This graphic shows how our Climate Change Investment Strategy maps to our portfolio. The Strategy covers the whole fund but we are still working through implementation. We have focused on the areas where we have the most control and where risk (transitional and physical) or opportunity is greatest.

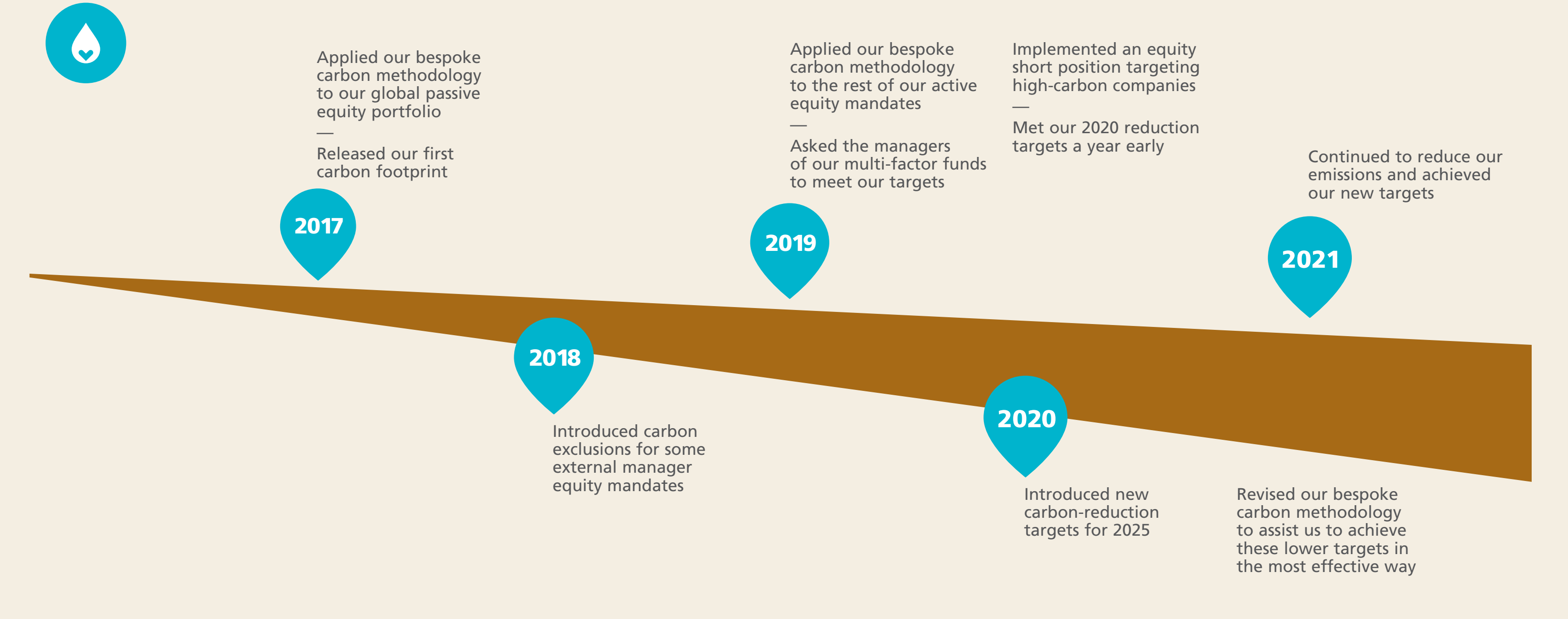
The 'Reduce' element is mainly focused on reducing carbon intensity and exposure to fossil fuel reserves in equities. The targets are for the whole Fund. The 'Analyse' element applies to all of our investments but we have placed more focus on our direct investments. The 'Search' element focuses on positive impact investments which support a low carbon economy. The 'Engage' element covers all of our investments but is mostly focused on where we have the most influence and where climate risk is greatest.

Mapping our strategy to our portfolio



NOT COVERED: Strategic Tilting, Bonds, Lending, and Alternatives

REDUCE


2017
Applied our bespoke carbon methodology to our global passive equity portfolio
—
Released our first carbon footprint
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
2021
Continued to reduce our emissions and achieved our new targets
Revised our bespoke carbon methodology to assist us to achieve these lower targets in the most effective way

The aim of **Reduce** 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. The original targets set to be achieved by 2020 in relation to our Reference Portfolio were to reduce:

- the carbon emission intensity of the Fund by at least 20%; and
- the carbon reserves of the Fund by at least 40%.

We achieved these targets a year early, in 2019.

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 as a whole is becoming more 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 and this analysis showed that we could set more ambitious targets without severely impacting portfolio diversification.
- With three years of experience in implementing carbon reductions, we now have greater confidence that doing so will improve the Fund's portfolio and we believe more ambitious targets are 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 carbon reserves of the Fund by at least 80%.

Both these targets are relative to our Reference Portfolio and are to be achieved by 2025.

To date, we have achieved the Fund-wide targets primarily by adjusting holdings in the Fund's global and New Zealand equity portfolios. We chose this approach given that the global equity portfolio contained the largest concentration of carbon and also because we could adjust these holdings by excluding some companies with high emissions intensity or large potential emissions from reserves without having a major impact on the Fund's diversification or strategy.

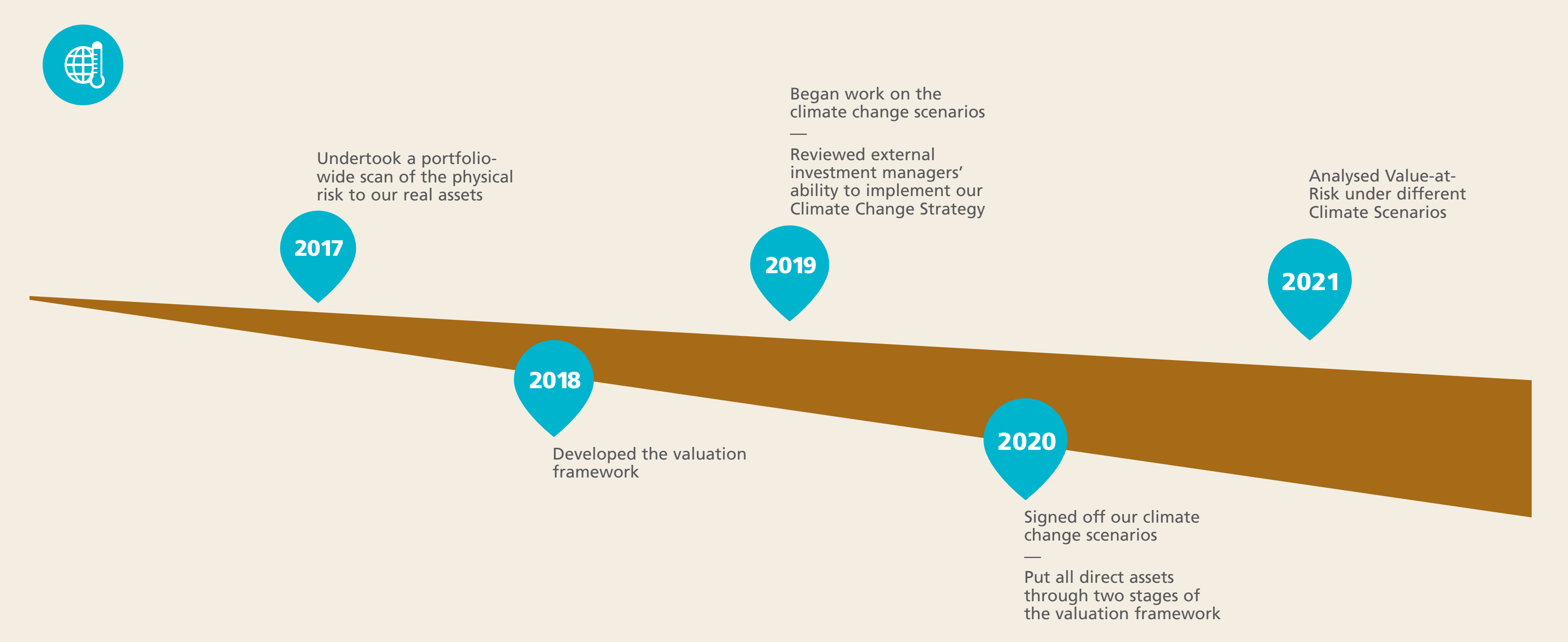
If we are correct in our belief that markets under-price carbon-related risks, then reducing the Fund's exposure to the most at-risk assets is likely to improve its long-term risk-adjusted returns. However, if markets are ultimately found to be efficiently pricing these risks, then we would have sold 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 achieve the Fund-wide targets by applying a bespoke carbon methodology to our physical passive equity holdings. We apply a carbon short to neutralise our exposure to any companies with high carbon reserves that we incidentally take a position in; for example, when we use an index derivative to complete our passive equity exposure. We also ask our external investment managers who manage quantitative multi-factor strategies on our behalf, to meet our carbon-reduction targets, but give them flexibility in how they do this.

We ensure that we are on track to meet these targets by calculating the carbon footprint of the Fund's portfolio and its potential emissions from reserves each year. Our aim is for this carbon footprint to cover the whole Fund. 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 like life settlements and natural catastrophe insurance. We recognise that our methodology is not perfect and will review this if it is appropriate to include our other investments as carbon accounting methodologies evolve.

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

ANALYSE



2017
Undertook a portfolio-wide scan of the physical risk to our real assets
2018
Developed the valuation framework
2019
Began work on the climate change scenarios
—
Reviewed external investment managers' ability to implement our Climate Change Strategy
2020
Signed off our climate change scenarios
—
Put all direct assets through two stages of the valuation framework
2021
Analysed Value-at-Risk under different Climate Scenarios

The aim of **Analyse** is to integrate climate change into our analysis and decision-making. This includes incorporating analysis 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.

ASSESSING THE PHYSICAL RISKS TO THE FUND'S REAL ASSETS

In 2017, we undertook a review of the physical risk exposure of the Fund's real assets. The report drew heavily on the International Panel on Climate Change (IPCC)[1] Fifth Assessment Report (AR5).[2] Our findings highlighted the different kinds of risks that our physical assets were exposed to. This review considered both the inherent risk to the asset and the level of exposure the Fund has to that asset. It identified five investments that presented the greatest physical climate-related risk to the Fund as:

1. Timber;
2. Retirement/aged care;
3. New Zealand rural land (dairy);
4. Toll roads; and
5. Banking.

The report concluded that further analysis was merited.

THE VALUATION FRAMEWORK

In light of that review of physical risk exposure, and the Climate Change Investment Strategy more broadly, we have adapted our investment decision-making framework to explicitly account for climate change investment risk in our valuation models. The framework aims to provide a structured approach to identifying climate change considerations that could affect an investment. 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.

1 *The IPCC is the leading international body for the assessment of climate change. It reviews and assesses the most recent scientific, technical and socio-economic information produced worldwide relevant to the understanding of climate change.*

2 *AR5 is the IPCC's fifth assessment report, finalised in November 2014. See https://www.ipcc.ch/report/ar5/*

Our valuation framework has five steps:

1. We identify the investee company's core activities, operating environment, financial drivers and the geographies it operates in.
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 of doing this:
   – adjusting cash flows (revenue, costs, capital expenditure) during the forecast period;
   – adjusting the terminal value; and
   – adjusting the discount rate.[3]

3 *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.*

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 Investment Committee and influences whether or not we invest in the asset.

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

The valuation framework we developed in 2017 was an initial starting point to be refined over time based on our experience in applying the framework and as the quality and accuracy of global data/research improve. The framework does not provide a prescriptive, mechanical solution for how to identify, quantify and incorporate climate-related risks into valuations, as the risks vary considerably by sector and individual assets, as well as under different climate change scenarios and transition pathways.

SCENARIO ANALYSIS

To ensure consistency, and to help integrate the analysis of climate change impacts into our valuation analysis, we have developed a common set of climate change scenarios intended to supplement the climate change valuation framework.

We specify key physical and economic characteristics within each scenario. Forecasts are made through to 2050 where possible and are global in nature. Intended only as a starting point, the details and variables for each scenario are expected to evolve over time as new information and more precise estimates become available.

The future trajectory of global warming will be largely determined by policy choices that emerge from the intersection of social, political, economic and technological developments. Within each scenario, we distil the range of these policy choices down to a single metric – the global carbon price (US$ per tonne of carbon dioxide CO2)).

The carbon price paths presented in the scenarios are not forecasts in the usual sense. Rather, they represent the price of carbon needed to implement the change in energy mix that is required to achieve the specified climate-related outcomes. Key assumptions used as a basis for setting this price are the adoption rates of new lower-carbon technologies such as renewable power generation, electric vehicle uptake, and carbon capture and storage.

We use a base-case climate-related scenario of three degrees Celsius (3°C) warming by 2100 to develop the central valuation of an asset. This does not reflect a judgement about the level of warming we would like to achieve;

instead, we believe it is the current best estimate of where the world is heading.[4]

We test the robustness of investments to different climate change outcomes by running higher (4°C) and lower (2°C) base-case scenarios. These are intended to span the range of outcomes to which most experts would assign a meaningful probability of occurring, to test the sensitivity of our asset to the effects of climate change.

We intend to revisit the scenario work with a view to developing more specific factors in geographies where we typically focus our investment activity.

REVIEWING EXISTING OPPORTUNITIES

As well as assessing individual investments, from time to time we review the types of investments we invest in. Recently, in conducting a review of natural catastrophe risk, we changed our view of the attractiveness of this investment on the basis of climate change.

4 *This base-case scenario is approximately in alignment with the global aggregation of current Nationally Determined Contributions (NDC) according to the 2018 Special Report by the IPCC. It states that the current NDC (which assume further measures taken beyond the ones currently implemented) will limit warming to about 3°C by 2100.*

Natural Catastrophe Risk Case Study

In 2019, we reviewed our natural catastrophe reinsurance opportunity through the New and Existing Opportunities Committee. We formed a view that the main catastrophe risk modelling agencies do not fully incorporate climate change considerations into their models. To compound the problem, the science is playing catch-up, demonstrated by the fact that new studies cast the situation in dire terms. In short: a) it is reasonable to believe that the probability distribution of catastrophe incidence and severity of insured losses does not fully represent current known risks and b) known downside risks are increasing as scientific understanding of climate change improves.

Our analysis suggested that wildfire risk was not being priced properly so we decided to exclude it from our investments as allowable within portfolio construction and contractual frameworks. For other risks, such as those stemming from tropical cyclones and wind-related loss, we believe that it is still possible to price risks despite the impact of climate change; we just feel that the reward for covering these risks should be higher. Accordingly, we have adjusted the expected loss factor we apply when assessing the attractiveness of these investments.

HOW OUR INVESTMENT STRATEGY HAS IMPACTED OUR EXPOSURE TO CLIMATE RISK

This year, for the first time we have run MSCI's Climate Value-at-Risk model on our listed equity portfolio, to test if it provides useful insights.

Climate Value-At-Risk provides a forward-looking and return-based valuation assessment to measure climate-related risks and opportunities in an investment portfolio. It uses a range of company-specific climate risk data (e.g.greenhouse gas emissions, exposure of a company's assets to natural hazards), general economic data (e.g. price elasticities) and physical climate modelling to determine how transitions and physical risk might impact on the company's present value in different climate change scenarios.

There are 10 different transition scenarios, which consider different: integrated assessment models[5] (AIM, GCAM and IMAGE); temperature scenarios (1.5°C, 2°C, and 3°C); pathways (normal and late action) and shared socioeconomic pathways.[6] There are also two different physical scenarios (average and aggressive); so, in total, there are 20 different scenario combinations.[7]

5 *Integrated assessment models look at the interplay between economics and climate. For more information see: https://www.carbonbrief.org/qa-how-integrated-assessment-models-are-used-to-study-climate-change*

We ran both our Actual and our Reference Portfolio through this model, calculating the Value-at-Risk in each of these scenarios. We arrived at a number of interesting findings and are reviewing their implications:

- Climate VaR suggests that our equity portfolio will see an 8.6% decrease in value, on average, as a result of climate change.
- In the worst-case scenario (2°C, late action, aggressive physical risk), value is expected to decrease by 12.7%.
- The Reference Portfolio faces a loss of 10.3% on average and 16.5% in the worst case.
- In every scenario, our Actual Portfolio held less risk than our Reference Portfolio.
- This reduction has occurred largely by reducing our listed portfolio's exposure to transition risk – the loss we face is approximately half the loss from transition risk than the reference portfolio.

6 *Shared Socioeconomic Pathways examine how global society, demographics and economics might change over the next century. For further information see: https://www.carbonbrief.org/explainer-how-shared-socioeconomic-pathways-explore-future-climate-change*

7 *For further information on Climate Value-at-Risk see: https://www.msci.com/documents/1296102/16985724/MSCI-ClimateVaR-Introduction-Feb2020.pdf*

- Our Actual Portfolio faces significantly higher physical risks than transition risks. This is likely because: our initial position (i.e. our reference portfolio) is more exposed to physical risk than to transition risk in most scenarios and our Climate Change Investment Strategy has significantly reduced our transition risk.

CLIMATE VALUE-AT-RISK MODEL

	Actual Portfolio	Reference Portfolio	Difference
Min	-7.24%	-7.97%	0.73%
Average	-8.56%	-10.28%	1.72%
Max	-12.70%	-16.48%	3.90%

ENGAGE

2017

Added climate change to our engagement priorities

2018

Joined Carbon Action 100+

—

Became a Founding Member of the One World Sovereign Wealth Fund working group

—

Brought our voting in-house

2019

Reviewed the climate change activities of our external investment managers

—

Held a workshop on our Climate Change Investment Strategy

—

Introduced a policy of recalling shares to vote on climate change proposals

2020

Joined Transition Pathway Initiative – one of our staff members is on the Steering Committee

2021

Developed Rural Sustainability Strategy

—

Increased the companies undertaking their own estimates from 4 to 10

Led the NZ Sustainable Finance Forum – our CEO was co-Chair through the launch of the Road Map

The goal of the **Engage** element is to improve the reporting 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, BMO, also engage with companies on climate-related issues on our behalf.

INFLUENCING OUR DIRECT INVESTMENTS

Engagement with investee companies is critical to developing an understanding of climate change risks and opportunities and how they may play out in practice. Not only are the management teams of these companies experts in their field but they are also on the front line in being able to identify emerging threats and opportunities, and executing related strategies.

Over the past three years, we have held 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, and recommendations of the TCFD. We have found boards and management teams very receptive to learning more about climate change and what it might mean for their business, and the role of governance in managing this risk.

This year, we placed a particular emphasis on helping our portfolio companies complete their carbon footprint assessment, explaining the process and connecting them with a service provider. The number of companies undertaking their own footprint has increased from 4 to 10. The remaining 14 companies are in the process of calculating their footprint and we expect them to report on them next year.

We also focused on our New Zealand dairy assets, hosting a range of agricultural experts at a Sustainability Day with our farm manager, FarmRight, and NZ Super Fund staff (see FarmRight Case Study).

INVESTING IN THE FUTURE OF FARMING

The New Zealand Super Fund owns a portfolio of New Zealand farms worth over NZ$500 million which are managed by our farm manager FarmRight. The majority of our investment to date has been in dairy farms but we are in the process of diversifying and also own beef farms, vineyards, apple orchards and hop gardens.

New Zealand is an efficient producer of high-quality food products because of its suitable temperature and climate, fertile soils, and consistent rainfall. However, climate change presents risk to these assets: agricultural assets (particularly our dairy and beef farms) have a relatively high carbon intensity, their emissions will be priced by 2025, consumers are starting to shift to more sustainable/lower-emissions food choices, and physical changes in the climate will impact agricultural productivity.

We believe that the New Zealand agriculture industry can adapt to these challenges and continue to provide food security for the world. By 2050, humans will require about 70% more food than in 2010.[1] Dairy can play an important part in a sustainable diet and it is undersupplied internationally.[2]

1 *https://www.nature.com/articles/s41538-018-0021-9*

2 *https://eatforum.org/content/uploads/2019/07/EAT-Lancet_Commission_Summary_Report.pdf*

According to a recent study, New Zealand is the most emissions-efficient producer of milk in the world.[3] Further, the Climate Change Commission believes that the sector will be able to reduce its emissions by 11% by 2030 and by at least 24% by 2050[4] – in line with New Zealand's Net Zero Carbon Target.

FarmRight and the New Zealand Super Fund are eager to contribute to providing food security for the world. Even if climate change compromises the viablility of the dairy industry, we are confident that our assets will hold their value even if we convert them into producing other agricultural products.

3 *https://www.dairynz.co.nz/news/research-shows-nz-dairy-the-world-s-most-emissions-efficient/*

4 *https://ccc-production-media.s3.ap-southeast-2.amazonaws.com/public/Inaia-tonu-nei-a-low-emissions-future-for-Aotearoa/Inaia-tonu-nei-a-low-emissions-future-for-Aotearoa.pdf*

SUSTAINABILITY PILLARS

Over the past two years, FarmRight has developed a sustainability strategy, to ensure that our assets are well positioned to respond to climate change as well as broader sustainability issues. They have identified four sustainability pillars and set quantifiable targets against them.

1. Healthy People

All farm staff should work in an environment where they are valued, their performance is recognised and where they have a positive work-life balance. They have had a long-standing set of health and safety practices in place and they are working towards a target of achieving zero lost-time injury (currently they have a lost-time injury rate of 3.52). They are also working towards becoming a certified living wage employer.

2. Healthy Animals

Care of animals and animal husbandry are fundamental to New Zealand's agricultural business and future. FarmRight has adopted the "Five Freedoms" into its animal welfare policies, and its policies and standards are set above legal minimum requirements.

FarmRight aims to increase the number of calves grown out through changing the genetic pool so more heifers and bulls can become beef cattle and more dairy calves can be grown out.

This is also a low emissions way to create meat, as it reduces the need for separate beef breeding stock. The number of calves grown out over the last three seasons increased from 37% to 39% and FarmRight is working towards achieving a 60% bobby calf grow-out target by 2023.

3. Healthy Environment

FarmRight runs low-input systems and does not feed Palm Kernel Extract. Improving water quality and reducing greenhouse gas emissions are driving several farm management changes. Ongoing improvements to on-farm practices as well as reduced fertiliser inputs resulted in a 15% reduction of nitrogen loss per hectare between the 2018/19 and the 2020/21 seasons (10% for our dairy and beef land).

FarmRight are also targeting improving animal performance and reducing the use of external supplement feed to further reduce greenhouse gas emissions. FarmRight creates annual nutrient and greenhouse gas emissions budgets to ensure that we are farming in an environmentally and economically efficient manner. These activities have led to a 17% reduction in emissions per hectare overall between the 2018/19 and the 2020/21 season (5% for our dairy and beef land). FarmRight will continue to work towards delivering on New Zealand's Net Zero Carbon Target.

4. Healthy Return

We are also conscious of the need to provide an attractive return for the future taxpayers of New Zealand. Therefore, we are looking for efficient ways to respond to new environmental legislation for the agriculture industry, changes in consumer behaviour and a changing global market with increasing competition around labour and higher-value products.

INFLUENCING OUR EXTERNAL INVESTMENT MANAGERS

We have included climate change-related clauses which require managers to look at the risks and opportunities associated with climate change into all relevant new investment mandates since late 2016. The Responsible 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 responsible investment monitoring, all managers are asked about their climate change activities through environmental, social and governance (ESG) due diligence surveys approximately every two years. Climate change is just one factor fed into our 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

Internationally, we express our climate change views through the way we vote. We have voting guidelines on climate change and vote all of our shares in a consistent way. Our default position is to support climate change-related resolutions, which we do unless there is a compelling reason not to. In 2018, we brought voting in-house rather than leaving it in the hands of our external investment managers. In 2019, we began recalling shares that we had lent out 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. We use the Bank of Montreal (BMO) to lead our engagements with the companies within our global equity portfolio. Additional details on the BMO's engagement on climate change can be found in our Annual Report.

We have been a long-term member of the CDP (formerly the Carbon Disclosure Project) which provides a framework that requests companies 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 of these reporting initiatives have greatly improved the quality of the data available to us, and will continue to do so, when we look at the climate-related aspects of our investment decisions.

In addition, we play a leadership role on climate change in New Zealand by actively engaging with New Zealand companies and managing our voting decisions accordingly. Fund staff have continued to present on various topics related to climate change at a wide range of forums. We are also active members of the Investor Group on Climate Change (IGCC) which engages with Australasian businesses on climate-related issues on behalf of institutional investors.

POLICY SUBMISSIONS

We engage with policy-makers as well, especially in New Zealand. We have made submissions on: the Zero Carbon Bill; pricing agricultural emissions; mandatory reporting according to the TCFD recommendations; the IFRS Foundation proposal to develop global sustainability standards; and the Climate Climate Change Commission's draft report. All our submissions are available on our website.

OUR COLLABORATIONS

Climate Action 100+	The Fund joined the Climate Action 100+ (CA100+) in December 2017, at its launch. This initiative has now grown into one of the largest investor-led engagement programmes in the world, with over 615 investor signatories representing more than US$55 trillion in assets under management (AUM). It seeks to engage with 167 global companies. These companies account for more than 80% of global industrial emissions. They are critical to the decarbonisation of investment portfolios and the global economy. The initiative has three central goals: 1. Improve corporate climate governance; 2. Curb greenhouse gas (GHG) emissions in line with the Paris Agreement; and 3. Strengthen climate-related financial disclosures. A number of public commitments have resulted from this engagement, including: • Nestlé has committed to reducing its Scopes 1, 2 and 3 emissions to zero by 2050; • Volkswagen has committed to becoming 'climate neutral' by 2050 and releasing 70 electric vehicle models by 2028; and • Duke Energy Corporation has updated its carbon transition plan, committing to reduce its GHG emissions by 50% by 2030 and achieve net zero emissions generation by 2050. It is clear, however, that many of the companies being engaged are not yet aligned with the CA100+ engagement agenda. The task of encouraging all 167 companies to align with the goals of the Paris Agreement has only just begun.
The Transition Pathway Initiative	The Transition Pathway Initiative (TPI) is a global initiative led by asset owners and supported by asset managers. Aimed at investors and free to use, it assesses companies' preparedness for the transition to a low-carbon economy, enabling investors to better understand how companies are managing climate change and the risks it poses to their business. In turn, this aids better-informed investment processes and decisions, and can shape engagement activities and proxy voting decisions as well. The TPI's data also provides insights into how a company's transition plans align with the Paris Agreement goals. It compares a company's current emissions intensity with benchmark pathways for meeting the 2030 goals of the Paris Agreement and are in the process of extending these benchmarks to 2050. When we joined the TPI, it covered 401 companies in 16 sectors of the economy. There are plans to increase coverage to 700 firms (covering 80% of emissions). The Guardians is one of >100 investors globally which have pledged support for the TPI to date. We are committed to using the tool and its data to engage with companies.

WORKING TOGETHER WITH OTHER SOVEREIGN WEALTH FUNDS

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 President Emmanuel Macron of France. The Guardians is one of five founding Sovereign Wealth Funds (SWFs) on the steering group of the OPSWF Initiative, which has now grown to 15 SWF members, and has supporting One Planet initiatives with 14 asset managers, 8 private equity firms and with academic communities. Collectively this group has >$30 trillion in AUM. The group has committed to implement the OPSWF investment framework published in 2018 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. This year, Anne-Maree O'Connor, our Head of Responsible Investment, chaired a peer exchange where member SWFs, shared their climate change practices with each other.
New Zealand Sustainable Finance Forum	The Sustainable Finance Forum (Forum) is a network of key players in New Zealand's finance sector, including Māori, representatives from banks, insurance companies, industry, professional services, civil society, academia and government, who have joined together to explore how to shift New Zealand to a sustainable financial system. The Forum was launched in October 2018 by The Aotearoa Circle, a partnership of public- and private- sector leaders. The vision of the Forum is to change the financial system so that it provides for environmental, social and economic prosperity. By this, it means a financial system where business and finance respect and operate within environmental and social constraints and recognise their dependencies, and that preserves, enhances, and restores the planet for future generations. In October 2019, the Forum released its interim report, which brings together the collective efforts undertaken by the Forum since its inception. The report outlines the characteristics of a sustainable financial system and sets out the case for why a shift to a sustainable financial system is required. It reviews the latest local and international thinking and best practice, along with a future state vision for New Zealand's financial system. It assesses how well our current financial system performs against that benchmark and presents some potential pathways for change. In November 2020, the Forum published its Roadmap for Action.[1] It provided 11 tangible recommendations to establishing a sustainable financial system by 2030. Toitū Tahua, The Centre For Sustainable Finance has been launched to deliver on this road map.

1 https://www.theaotearoacircle.nz/s/20207-000234_Sustainable-Finance-Forum-Final.pdf

SEARCH

2017

Led a 2017 investment round in View Inc.

—

Seeded investment with new renewable energy developer Longroad Energy

2018

Increased our stake in View Glass

—

Invested in Rubicon Global

—

Participated in financing Longroad's 238- megawatt Rio Bravo wind farm in Starr County, Texas, committing US$46.25m

2019

Assessed a number of climate-positive opportunities

—

Longroad completed 250 megawatt solar farm in Winkler County. At completion, it was the largest solar facility in Texas

2020

Invested in European renewable energy developer Galileo

2021

Exercised warrants in Rubicon, increasing our investment by ~US$17m

Invested in Flow Systems, which provides community centric sustainable multi-utility solutions

Invested in Innergex, which develops, builds, operates and acquires renewable energy facilities

SEARCH

The Reduce, Analyse and Engage elements are mostly about 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 system. In assessing new prospects, we continue to maintain our investment discipline as we would with any potential investment.

To date, it has been difficult to find attractive climate-related opportunities to invest in outside of alternative energy. Our initial scan suggested that many of the opportunities were too nascent for the large-scale deployment of institutional capital. However, we believe that this has started to change. So, this year, we kicked off a project to review previous and new investment opportunities and ensure that we channel more of our investments into climate-friendly access points within our existing opportunities.

ANALYSING CLIMATE CHANGE AT THE 'OPPORTUNITY' LEVEL

The risks and opportunities created by climate change are also considered when the Investment Team is assessing potential new opportunities and reviewing existing ones.

Inside the Fund, we have a dedicated New and Existing Opportunities (NEO) Committee. This committee acts as a research clearing house which identifies, assesses and prioritises investment ideas.

Since launching our Climate Change Investment Strategy, the NEO Committee has reviewed potential investment ideas in renewable energy, green bonds, alternative protein, agri-tech and green buildings. When the committee agrees that an investment idea should be considered further, resources are allocated to enable further investigation.

In addition to the NEO Committee, we have an established alternative energy opportunity (area of focus) which has led us to seek and assess prospects in energy efficiency, transformational infrastructure, transport, resource and land management.

CLIMATE-FRIENDLY INVESTMENTS

The Fund has made a number of climate-positive investments over the years, with varying levels of success. Investments have included wind and solar generation in the US and Europe, energy efficiency and waste management opportunities. Early-stage technology or growth capital investments are particularly challenging and at the riskier end of the spectrum of investments within the overall Fund. In any portfolio, there will be some investments that perform better than others, especially over short time frames; climate-friendly investments are no exception: some investments have delivered excellent returns and others have underperformed. Individual asset risk is managed by diversification at a whole-of-portfolio level. We continue to see value in investing in companies that are well positioned to assist in and take advantage of the transformation towards a low-carbon global economy.

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 Responsible Investment 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 We manage our exposure to carbon by setting reduction targets and adjusting our equity portfolio.
	Analyse We integrate climate change considerations into our valuation of our direct investments.
	Engage We work with the Fund's investments to help them actively consider climate change in their strategies, vote to support climate change initiatives proposed for our listed equities, and partner with like-minded investors to push for better climate reporting and action.
	Search We look for investments which will benefit from the opportunities created by climate change.

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

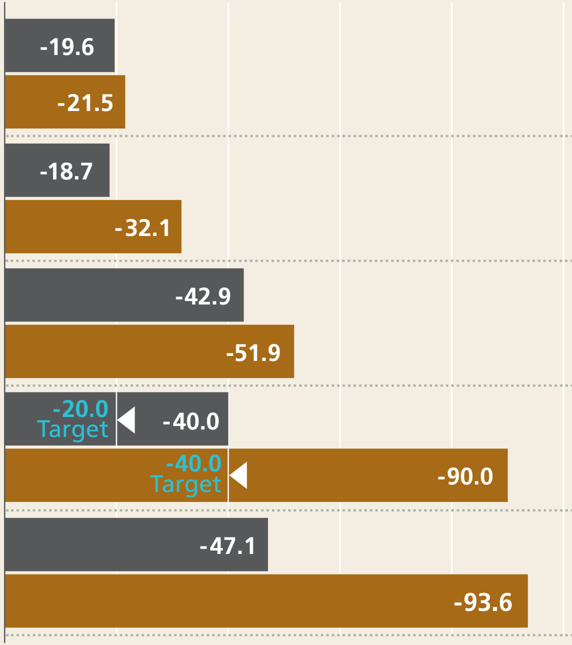
2025 target:

-40%

EXPOSURE TO POTENTIAL EMISSIONS FROM RESERVES

2025 target:

-80%



2017

- Applied our bespoke carbon methodology to our global passive equity portfolio
- Released our first carbon footprint
- Set carbon reduction targets for 2020

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 to achieve 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 foot print has increased from 4 to 10.

In 2021 we achieved our targets of reducing carbon intensity by -40% and -80% by 2025.

This should not be interpreted to mean that we will look to increase the Fund's carbon intensity or exposure to reserves; the targets are there to be exceeded, not hit precisely. See our 2021 Carbon Footprint for further details on this work.

WALKING THE TALK

This Report is focused on the Fund, as it generates 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.

The Guardians achieved carboNZero certification from Toitū Envirocare in 2018/19 and has been successfully recertified in 2019/20. The vast majority of our emissions have been incurred through air travel, followed by office electricity use and waste to landfill. This year we have elected to offset our operational carbon emissions plus 20% of the rolling average of the past five years, effectively becoming carbon negative.

We are also pleased to report that our overall 2021 emissions profile is drastically down from previous years, although we acknowledge that this was primarily driven by the impact of COVID-19.

THE GUARDIANS' CARBON FOOTPRINT

		FY2018/19		FY2019/20		FY2020/21	
Energy Source	Measure	Quantity	CO_2E	Quantity	CO_2E	Quantity	CO_2E
Electricity	kWh	144,414	14.11t	130,467	12.75t	126,070	12.79t
International air travel (long haul)	Km	3,628,306	1,703.35t	3,054,217	1,405.06t	18,724	2.74t
International air travel (short haul)	Km	887,581	161.66t	795,356	151.60t	18,772	2.86t
Domestic air travel	Km	264,621	79.37t	160,437	38.90t	139,776	33.89t
Mileage (medium-sized car) 1.6–2L	Km	4,673	1.16t	9,027	2.24t	4,533	1.08t
Taxi – cost	$	100,836	7.53t	69,883	5.22t	30,918	2.17t
Waste to landfill	Kg	4,722	1.15t	4,037	0.98t	1,054	0.33t
Total			1,968.33t		1,616.75t		55.85t

Our Evolving Approach

"We are dedicated to a continued focus and evolution in our approach as better data and best practice emerge."

OUR EVOLVING APPROACH

This Report gives a broad overview of the actions we have taken since launching our Climate Change Investment Strategy in October 2016. Linking our activities to the TCFD recommendations has been a helpful process. We have identified key areas of improvement that we will focus on over the coming months and years. We have done considerable work to help mitigate and manage the risk associated with climate change to the Fund, such as our bespoke carbon methodology and integrating climate change into our valuation framework. We are, however, really only at the start of gaining an understanding of how these risks will play out over time. We are dedicated to a continued focus and evolution in our approach as better data and best practice emerge.

As a result of our Review of our Responsible Investment Strategy, we have decided to shift our focus from responsible investment to sustainable finance. This means we'll be thinking harder about the impact of our investments on society and the environment and how we can contribute towards the development of a sustainable financial system and help play a part in the global transition to a net zero carbon economy. We are in the process of deciding what this means for our Climate Change Investment Strategy.

This year, we have also made progress on understanding our listed portfolio's exposure to climate risk (see the Climate VaR Analysis) and as discussed above, we have started to develop a strategy to make our agricultural assets more resilient to climate change.

However, we still have work to do in the future. This includes:

- introducing additional metrics and targets to provide a more complete measure of our performance against our Strategy; and
- continuing to develop a view of how specific industries will need to evolve in response to climate change. In particular, we want to ensure that we have an appropriate plan in place for our New Zealand agriculture and forestry assets.

We have found the TCFD framework helpful in reviewing and expressing our Climate Change Investment Strategy and are committed to continuously improving our reporting as the TCFD framework evolves and develops.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