



Climate Change Report

2026

New Zealand Superannuation Fund

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# Overview

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Sustainable  
investment  
delivering  
strong returns  
for all New  
Zealanders

*Kia toitū te  
haumi hei hua  
mā ngā  
tangata katoa  
o Aotearoa*

## FOREWORD

The Guardians of New Zealand Superannuation ('Guardians') has a long-standing commitment to sustainable investment, informed by our mandate, purpose and investment beliefs.

Our Guardians of the Future strategy establishes key principles and focus areas to guide pursuit of that purpose through our culture, systems, people and decision making. The strategy acknowledges climate change as a major source of future uncertainty - along with the need for an adaptive approach to managing broader systemic risks and opportunities.

The Board recognises that best practice includes navigating the transition to a more sustainable financial system, as reflected in our Purpose: *'Sustainable investment delivering strong returns for all New Zealanders'*.

The Guardians' Sustainable Investment Goal reflects one of our key investment beliefs – that sustainability considerations are fundamental to long-term risk and return.

We view sustainability as a means of managing risk, supporting long-term, resilient returns, and driving positive real-world outcomes. Sustainability considerations are integrated across our portfolio management activities, including: how we select benchmarks for our Reference Portfolio; allocate risk budgets; analyse, define, and undertake due diligence on new opportunities, and; through our active ownership initiatives.

We have published annual climate-related disclosures since 2017, reflecting the recommendations of the Taskforce on Climate-related Financial Disclosures. Since 2024, our disclosures have been made in alignment with the Aotearoa New Zealand Climate Standards issued by the External Reporting Board.

As global good practice, standards, and data integrity evolve, we are committed to refining our approach to climate-related strategy, analysis and reporting.



JO TOWNSEND  
 CHIEF EXECUTIVE OFFICER  
 24 SEPTEMBER 2026

### **Guardians' Sustainable Investment Goal**

*'Incorporate sustainability considerations into investment decision-making and support the development of a sustainable financial system'.*

This means we seek to:

- include environmental, social and governance (ESG) factors in investment decisions with the intention of advancing sustainability, while fulfilling our financial purpose;
- consider the impact of ESG on our investments, and the impact of our investments on society and the environment, and;
- work with others to overcome barriers to a more sustainable financial system.

## DISCLOSURE STATEMENT

The disclosures in this Climate Change Report (the 'Report') are made in alignment with the Aotearoa New Zealand Climate Standards (the 'Standards') issued by the External Reporting Board (XRB), and in respect of the New Zealand Superannuation Fund (the 'Fund').

The Guardians of New Zealand Superannuation ('Guardians') is not a climate-reporting entity under the Financial Markets Conduct Act 2013. Nonetheless, we have adopted the Standards as the basis for our climate-related disclosures, due to our commitment to transparency, best practice, and application of the Crown Responsible Investment Framework (December 2021).<sup>1</sup>

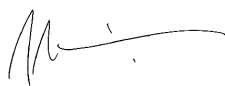
In preparing this Report, the Guardians has elected to rely - in full, or in part - on some of the adoption provisions in the Standards (see 'Overview of Disclosures').

The Report contains some disclosures that may rely on incomplete or estimated data, partial or provisional assessments of current and forward-looking information, and related judgements, opinions and assumptions.

The preparation of the Report requires the Board and Management to make judgements and use estimates that affect the reported risks, opportunities, metrics, and accompanying disclosures. Uncertainty about these judgements and estimates could result in outcomes that require a material adjustment to climate-related disclosures in future periods. The judgements and estimates used in respect of the Fund are believed to be reasonable under the current circumstances, and are re-evaluated on an annual basis. They are based on a range of factors, including projections of plausible but uncertain futures that may impact on the Fund.

The judgements and estimates that the Board and Management consider the most significant are: Climate change scenarios (Section 4.3.a); Greenhouse gas emissions of our investment portfolio (Section 5.1), and; Climate value-at-risk (Section 5.2).

For and on behalf of the Guardians Board, who authorised the issue of this Climate Change Report:



**JOHN WILLIAMSON,**  
Chair - Guardians Board  
30 September 2026



**HINERANGI RAUMATI-TU'UA, MNZM**  
Chair - Audit & Risk Committee  
30 September 2026

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1. <https://nzsuperfund.nz/assets/Uploads/Enduring-Letter-of-Expectations-to-Crown-Financial-Institutions-in-relation-to-Responsible-Investment.pdf>

## OVERVIEW OF DISCLOSURES

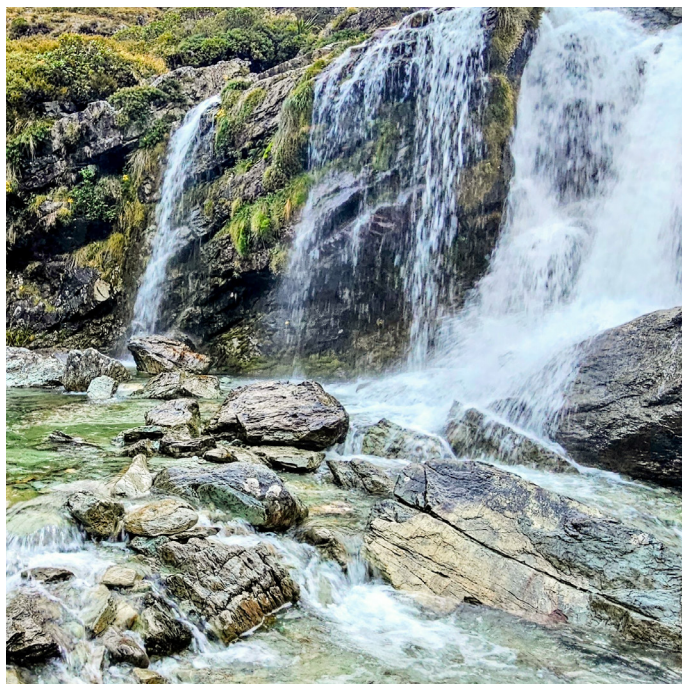
| NZ Climate Standards Theme/Topic [NZCS reference] <sup>1</sup>                                                                                                                      | NZ Super Fund Report reference (section / page)                                                                                                                                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>GOVERNANCE:</b> Respective roles of governance body and management in overseeing, assessing, and/or managing climate-related risks and opportunities [CS1-6]; Section 2 (p10-12) |                                                                                                                                                                                |
| Governance body responsible for oversight of climate-related risks and opportunities [CS1.7-8]                                                                                      | 2. Governance (p10; Figure 2)                                                                                                                                                  |
| Management role in assessing and managing climate-related risks and opportunities [CS1.7; CS1.9]                                                                                    | 2. Governance (p11; Figure 2)<br>3. Risk Management (p13; Figure 3)                                                                                                            |
| <b>RISK MANAGEMENT:</b> How climate-related risks are managed and integrated as part of Guardians' wider risk management processes [CS1.17]; Section 3 (p13)                        |                                                                                                                                                                                |
| Processes for identifying and assessing climate-related risks [CS1.18a; CS1.19]                                                                                                     | 3.2 Climate-related enterprise risk management (p13)<br>4.3 Climate Change Investment Strategy (CCIS), (a) Analyse, (ii) <i>Climate-related investment risk analysis</i> (p21) |
| Integration of climate-related risk management into overall risk management system [CS1.18b]                                                                                        | 3.2 Climate-related enterprise risk management (p13; Figure 3)                                                                                                                 |
| <b>STRATEGY:</b> How climate-related scenarios, risks, opportunities and impacts are identified and assessed; approach to climate transition [CS1.11]; Section 4 (p17; Figure 4)    |                                                                                                                                                                                |
| Current physical and transition impacts, including material financial impacts [CS1.12]                                                                                              | 4.3 Climate Change Investment Strategy (CCIS), (a) Analyse, (iii) Climate-related investment impacts – Current and potential future (p21; Figure 4)                            |
| Climate scenario analysis undertaken [CS1.13; CS3.51]                                                                                                                               | 4.3 CCIS, (a) Analyse, (i) Climate Scenario Analysis (p18; Table 1; Figure 5)                                                                                                  |
| Climate-related risks, opportunities [CS1.14]                                                                                                                                       | 4.3 CCIS, (a) Analyse, (ii) Climate-related investment risk analysis (p21)                                                                                                     |
| Anticipated physical and transition impacts, inc. material financial impacts [CS1.15]                                                                                               | 4.3 CCIS, (a) Analyse, (iii) Climate-related investment impacts (p21)                                                                                                          |
| <i>Adoption Provision 2 - Anticipated Financial Impacts [CS2.12]: Partially applied</i>                                                                                             | 4.3 CCIS, (a) Analyse, (iii) Climate-related investment impacts (p21; Box 1)                                                                                                   |
| Transition plan aspects of strategy [CS1.16]                                                                                                                                        | 4.3 CCIS (p18; Figure 4); 4.4. Climate Action Plan (p25)                                                                                                                       |
| <b>METRICS AND TARGETS:</b> Targets and measures established in relation to climate-related risks and opportunities [CS1.21]; Section 5 (p28)                                       |                                                                                                                                                                                |
| Metrics used to assess climate-related risks and opportunities [CS1.21; CS3.40-43]                                                                                                  | 5.1 GHG emissions (p28; Tables 2-7; Figure 8). Annex A (p43).<br>5.2 Climate Value-at-Risk (p35; Table 8)<br>5.3 Carbon Price (p36)                                            |
| <i>Adoption Provision 6 - Comparatives for Metrics [CS2.20]: Partially applied</i>                                                                                                  | p29; Box 2; Box 3                                                                                                                                                              |
| <i>Adoption Provision 7 - Analysis of trends [CS2.22]: Partially applied</i>                                                                                                        | p29; Box 2; Box 3                                                                                                                                                              |

| NZ Climate Standards Theme/Topic [NZCS reference] <sup>1</sup>                                                 | NZ Super Fund Report reference (section / page)                              |
|----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| Targets used to manage climate-related risks and opportunities [CS1.23]; Performance against targets [CS1.23d] | 5.1 GHG emissions (p28; Tables 2 and 4; Figure 8)                            |
| Greenhouse gas (GHG) emissions [CS1.22a-b; CS1.24; CS3.52-54]                                                  | 5.1 GHG emissions (p28; Tables 2-7; Figure 8). Annex A (p43).                |
| <i>Adoption Provision 4 - Scope 3 GHG emissions [CS2.17]: Partially applied</i>                                | 5.1 GHG emissions (p29; Box 2; Box 3)                                        |
| <i>Adoption Provision 5 - Comparatives for Scope 3 GHG emissions [CS2.18-19]: Partially applied</i>            | 5.1 GHG emissions (p29; Box 2; Box 3)                                        |
| <i>Adoption Provision 8 - Scope 3 GHG emissions assurance [CS2.24]: Not applied</i>                            | 5.1 GHG emissions (p29; Box 3)<br>Independent Assurance Report (see website) |

1. Aotearoa New Zealand Climate Standards, effective 1 January 2023, amended Nov 2025 (<https://standards.xrb.govt.nz>)

# 1.

## Introduction



This report  
 addresses the  
 New Zealand  
 Climate  
 Standards,  
 whilst also  
 summarising  
 the Guardians'  
 broader  
 strategic  
 approach,  
 processes &  
 actions around  
 climate change

### 1.1. WHO WE ARE

The New Zealand Superannuation Fund ('NZSF', or the 'Fund') exists to help pre-fund the increasing cost of government-provided superannuation due to New Zealand's ageing population, driven through our Purpose: *'Sustainable investment delivering strong returns for all New Zealanders'*.

The NZSF is a growth-oriented investment portfolio, holding a mix of public and private assets from New Zealand and around the world (Figures 1a and 1b).

Our governing legislation, the New Zealand Superannuation and Retirement Income Act 2001, requires the Guardians of New Zealand Superannuation (the 'Guardians') to invest the NZSF 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 returns 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.

### 1.2. ABOUT THIS REPORT

The Guardians is not a climate-reporting entity under the Financial Markets Conduct Act 2013. Nonetheless, we have referenced the Standards as the basis for our climate-related disclosures, due to our commitment to transparency, best practice, and the Crown Responsible Investment Framework.

This Climate Change Report serves the dual purpose of addressing the Standards, while also summarising the Guardians' broader strategic approach, processes and practical actions around climate change. We have applied some of the Standards' adoption provisions to reflect limitations in data quality and evolving good practice in the domain of climate-related analysis, planning and reporting.

This report sets out how we address climate change considerations across the four thematic areas of the Standards: Governance, Risk management, Strategy, Metrics & targets.

A glossary of key terms, statement of limitations, assumptions and estimation uncertainties, and basis of preparation (Annex A) are included to clarify more technical aspects.

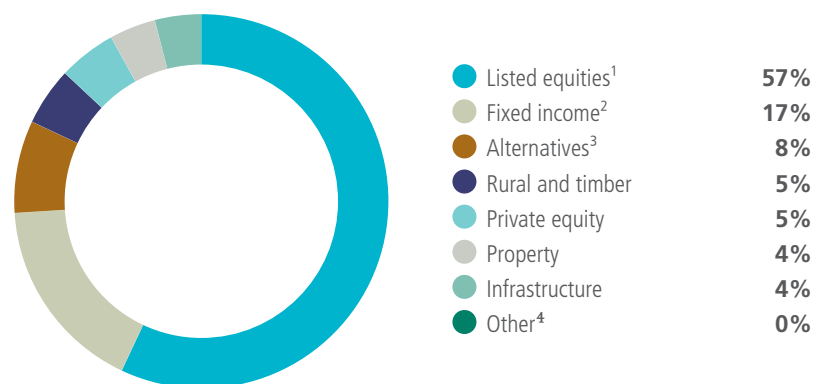
The Guardians' financed (Scope 3, Category 15) greenhouse gas (GHG) emissions - representing the transition risk exposure of the underlying securities and investee companies in the NZSF - are the most material aspect of climate-related risk from across our value chain. Accordingly, the primary focus of this report is our financed emissions and related

climate risks. Gross emissions arising from the Guardians' operations (including investment management, administration and other services) are considered immaterial (<0.1%) relative to our financed emissions and are not addressed in this Climate Change Report.

While the Guardians is also administrator of the 'Elevate Fund', this is an entirely separate fund from the NZSF, managed by a separate entity, and does not form part of these disclosures.

Further information on the NZSF, the Guardians' broader investment approach and Sustainable Investment Goal can be found in our Annual Report and on our website.

**Figure 1a: NZ Super Fund asset allocation breakdown (as of 30 June 2026)**



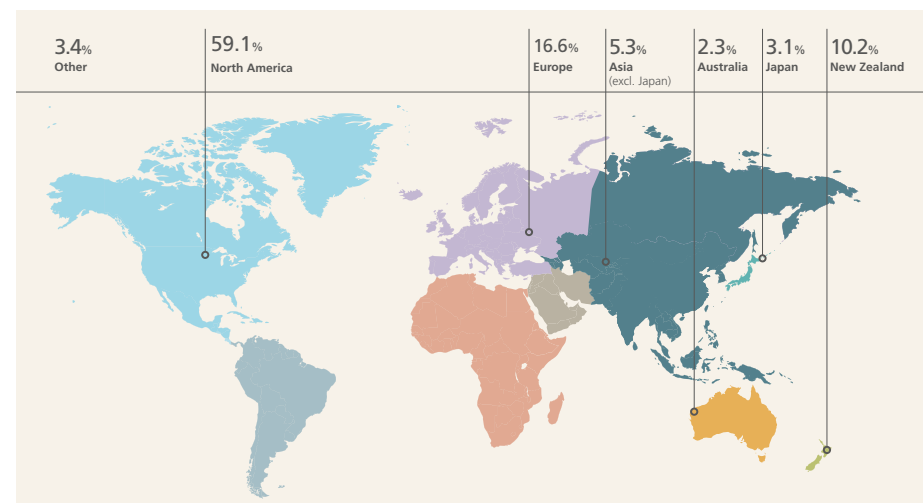
1. New Zealand 4%, other developed markets 49%, emerging markets 4%

2. Corporate debt securities 6%, Treasuries 8%, other 3%

3. Includes hedge funds and other liquid alternatives exposures

4. Cash, cash equivalents, and miscellaneous

**Figure 1b: Where the Fund is invested (as of 30 June 2026)**



# 2.

## Governance



The Guardians' Board has responsibility for the oversight of climate-related aspects of the NZSF's investment strategies, risks & reporting

1. <https://www.nzsuperfund.nz/publications/policies>

### 2.1. OVERSIGHT

The Board has responsibility for the oversight of climate-related aspects of the Guardians' operations, investment strategies, risks, and reporting as they relate to the NZSF.

Governance arrangements for sustainability-related risks and opportunities are integrated into the Guardians' general governance mechanisms, with climate change considerations addressed as part of our organisational strategy and investment approach.

The Board sets the Guardians' overall strategic direction and investment settings for the NZSF, including approving our: Investment beliefs; Investment risk and liquidity appetite; Reference Portfolio, and; Statement of Investment Policies, Standards and Procedures (SIPSP) and its associated policies, including a Sustainable Investment Policy.<sup>1</sup>

In 2024-25, the Board and CEO adopted the '*Guardians of the Future*' as our organisational strategy, including reference to climate change as a consideration in strengthening our investment approach, optimising our organisation, and enhancing our external presence. The Board set a clear ambition by approving an enduring *Sustainable Investment Goal* (see Foreword).

During the 2026 financial year (FY26), the Board's climate-related activities included:

- approving updated Investment Beliefs, including reaffirming the Guardians' long-standing belief that: '*Sustainability considerations, such as climate change, are fundamental to long-term risk and return*'.
- overseeing the five-yearly Reference Portfolio review, including adoption of benchmark indices that help address our *Net Zero Asset Owners Commitment* (see Section 4.4).
- approving a further step-up in our ambition and commitment to sustainable investment as part of *Guardians of the Future*. Management is developing a roadmap to strengthen the incorporation of sustainability considerations into investment activities, increase our focus on long-horizon and systemic sustainability risks, and build relevant organisational capacity.

### 2.2. BOARD SKILLS AND EXPERIENCE

The Board recognises that effective oversight of climate-related risks and opportunities requires an appropriate mix of expertise, alongside ongoing capacity development.

The Guardians maintain a Board skills matrix addressing the skills, knowledge and experience necessary for the effective governance of the Guardians, including: *‘An understanding of sustainable finance principles and an intergenerational perspective on investing’*.

The Board enhances its capability through regular reporting and discussion of sustainability-related topics (including climate) provided by Management and/or external experts. An annual conference calendar supports ongoing Board capacity development, including on sustainability topics. In FY26, sustainability themes were addressed through relevant conferences and peer exchanges. Individual Board members have varying degrees of exposure to climate-related issues. New Board member induction includes sustainable investment as a key module.

### 2.3. AUDIT & RISK COMMITTEE

The Guardians’ governance of climate-related reporting (Figure 2) is aligned with existing processes applied to our financial reporting, where applicable. The Audit & Risk Committee terms of reference explicitly refer to *‘...assisting the Board with oversight of the Guardians’ climate-related disclosures (CRD)’*, with specific responsibilities for the Committee to review and recommend the Guardians’ CRD for approval by the Board. In this regard, the Committee:

- oversees the integrity of the Guardians’ CRD, including compliance with applicable reporting standards.
- reviews the annual CRD and any supporting information.
- reviews the systems of internal control and satisfies itself, including through Management representations, that the Guardians CRD are supported by adequate controls.
- reviews the scope and terms of engagement of the assurance provider for aspects of CRD subject to external assurance, and reviews any CRD-related external assurance reports (where applicable).

CRD continued to be a key focus for the Audit & Risk Committee in FY26. The Committee participated in periodic discussion on climate change and reporting regimes to support informed oversight of evolving requirements and Management’s approach.

1. <https://nzsuperfund.nz/publications/statement-intent/>

### 2.4. MANAGEMENT RESPONSIBILITIES

Our CEO is responsible for executing the Guardians’ overall strategy and implementing our SIPSP, Statement of Intent, annual Strategic Plan, and delivery of our strategic objectives. Our wider Leadership Team plays an active role in promoting a focus on climate change across the New Zealand and global finance sector.

Our Co-Chief Investment Officers (Co-CIOs), Investment Heads and internal committees have designated roles in ensuring that our policies, investment strategies and processes remain appropriate and effective, as they relate to climate change considerations. This includes Co-CIOs and Investment Committee oversight of the implementation of our Board-approved Climate Change Investment Strategy (CCIS).

The Co-CIOs, Investment Committee and/or delegates are responsible for overseeing investment risks and opportunities – including material climate-related aspects. Progress regarding CCIS implementation, targets, and addressing climate-related issues is reported to the Investment Committee and the Board in the form of an annual Sustainable Investment Report.

### 2.5. STAFF PERFORMANCE

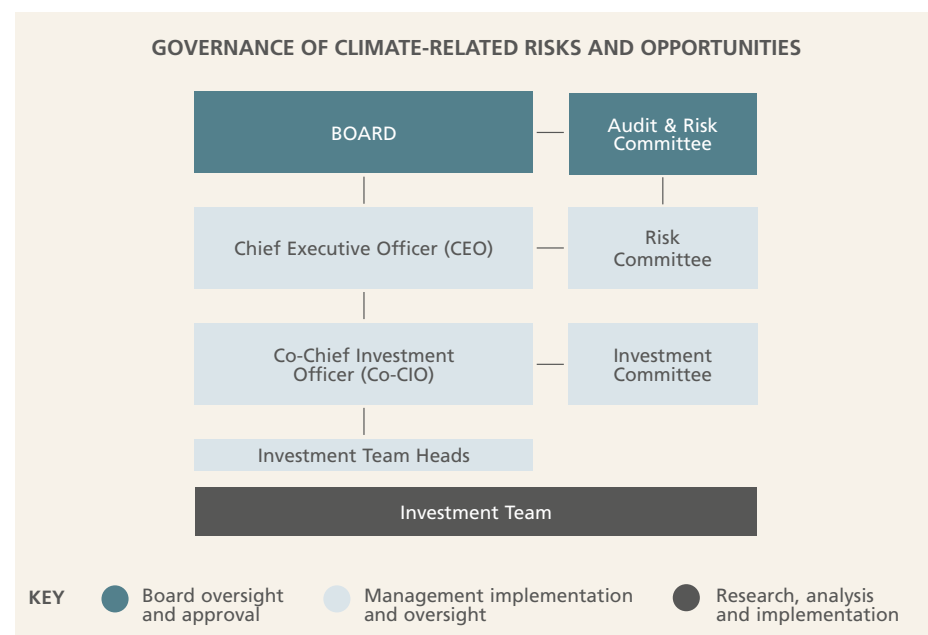
Members of our Investment Team, including sustainable investment subject-matter experts, are responsible for addressing climate-related risks and opportunities, and integrating key considerations into the Guardians’ investment strategies, due diligence, and portfolio management processes.

We aim to offer all Guardians the knowledge and tools they need to address climate-related issues relevant to their role, incorporating key aspects of our approach in the staff induction process. Our onboarding, Investment Forums and education sessions for the Board, Leadership Team and Team members on climate change help to maintain competencies as our approaches evolve. These internal initiatives are supplemented with external sustainable investment training and certification for a number of the Guardians.

Our Statement of Intent sets out the key performance indicators determined by the Guardians’ Board, while the Statement of Performance Expectations includes near-term expectations about progress against strategic priorities.<sup>1</sup>

Key aspects of these Statements may be rolled into individual objectives for relevant team members. Where teams or individuals have been set specific process-related objectives relevant to the CCIS, performance against those objectives may be linked to a discretionary portion of remuneration. We do not currently link staff performance incentives to outcome-based climate targets.

**Figure 2: Policy, governance and strategy around the Guardians' climate-related risks, opportunities and reporting**



## FOUNDATIONS OF OUR SUSTAINABLE INVESTMENT APPROACH

**Statutory Investment Mandate:** Invest the Fund on a prudent, commercial basis in a manner consistent with:

- Best practice portfolio management;
- Maximising returns without undue risk to the Fund as a whole, and;
- Avoiding prejudice to NZ's reputation as a responsible member of the world community.

## BOARD-APPROVED POLICY, STRATEGY AND TARGETS

**Purpose:** Sustainable investment delivering strong returns for all New Zealanders.

**Policies:** Statement of Investment Policies, Standards and Procedures; Sustainable Investment Policy and Procedures.

**Strategy:** Guardians of the Future; Sustainable Investment Goal; Climate Change Investment Strategy.

### Practice:

- Sustainable Investment Roadmap
- GHG emissions reduction targets (2020; 2025; 2030)
- Reference Portfolio shifted to Paris-aligned benchmark
- Climate Action Plan (2022-)

# 3.

## Risk Management



The Guardians  
 prioritises  
 climate change  
 as a strategic  
 risk. Our  
 Sustainable  
 Investment  
 Policy & CCIS  
 help manage  
 climate-related  
 investment,  
 reputational,  
 legal &  
 regulatory risks

### 3.1. OVERVIEW OF RISK MANAGEMENT APPROACH

Our Board has established that it is willing to take risks to achieve the Guardians' Mandate, Purpose and Vision, commensurate with the return objective and time horizon of the NZSF. The Board expects the Guardians to use all reasonable measures - without imposing excessive costs or constraints - for managing risk across four broad categories of response: Culture, Governance, People, Processes.

Our Annual Report describes the Guardians' risk appetite, culture, and general approach to risk management. Our Risk Management Framework states that accountability for investment and enterprise risk identification and mitigation sits across all parts of our Team.

Climate-related investment risk is addressed through the SIPSP and relevant associated policies and procedures (Figure 3). The SIPSP is subject to annual review by Management and the Board. Its associated policies are reviewed annually by Management and at least every five years by the Board.

The Board has overall responsibility for the oversight of key risks, supported by the Board Audit & Risk Committee, the Leadership Team, and Management committees including the Risk Committee and Investment Committee.

The Board receives periodic Enterprise Risk reports, reflecting the strategic and emerging risks identified by the various Guardians' business units and Leadership Team. Each business unit conducts annual Business Environment Scans and Risk Register reviews that identify existing, evolving or emerging risks, appropriate controls, and action plans relevant to its specific objectives and activities.

The Risk Committee oversees management of these risks, determining which should be escalated. The Board and the Leadership Team review the top risks and evaluate the effectiveness of our risk management plans and if any further action is warranted.

### 3.2. CLIMATE-RELATED ENTERPRISE RISK MANAGEMENT

The Guardians prioritises climate change as a Strategic Risk. In 2023, we conducted a Risk Control Effectiveness Assessment, determining that the nature of climate-related enterprise risk could be more accurately defined as: *'the Guardians does not effectively manage climate-related risk'*, over which we have agency. The assessment considered risk drivers, impacts and transmission pathways – especially in terms of how climate-related investment risks may translate into enterprise risk.

The following six climate-related risks were determined to have the potential to lead to impacts on our portfolio and/or organisation:

- Potential investment underperformance due to miscalculated climate risk, along with concerns related to reporting.
- Market volatility affecting public or private climate-related commitments and/or investments in vital climate change mitigation and adaptation initiatives.
- Reputational damage if our climate change response actions are perceived as insufficient, excessively ambitious, and/or financially imprudent.
- Legal or quasi-legal actions being taken against the Guardians.
- 'Greenwashing', where our climate metrics and/or standards deviate from evolving good practices over time.
- Organisational disruption due to more frequent or severe natural hazards.

Along with the six causes and impacts, the assessment identified a set of risk controls, activities and actions that support the Guardians in managing and monitoring this risk (Figure 3). The findings of the assessment demonstrated that our SIPSP, Sustainable Investment Policy, and CCIS collectively act as effective risk controls; addressing climate-related enterprise risks and supporting the delivery on our mandate.

The Sustainable Investment Policy and CCIS address investment risks to the portfolio, assist the Guardians to play its role in the shift to a more sustainable financial system, and help manage climate-related reputational, legal and regulatory risks.

The SIPSP and associated Sustainable Investment Policy are approved by the Board and are the main controls for investment-related environmental, social and governance (ESG) risks, including climate change. The Board's approval of the Paris-aligned benchmark portion of the Reference Portfolio itself reflects recognition and action on climate change risks and opportunities.

The assessment also noted that our investment teams and committees frequently identify areas for further climate research and refinement of systems, processes and tools - emphasising the importance of professional judgement often required when assessing this complex area. The design and operating effectiveness of the control environment we rely on to manage climate risk was deemed adequate for managing the defined risk. Figure 3 highlights the primary controls used in managing the Guardians' climate risk effectively, as reviewed on an annual basis as part of our business environment scan and CRD process.

### 3.3 THIRD PARTY RISK

The key third parties linked to the Guardians climate-related activities and disclosures include: the Network for Greening the Financial System (NGFS), MSCI, and external investment managers. Section 6 and Annex A discuss third party data, methods, assumptions and limitations in more detail.

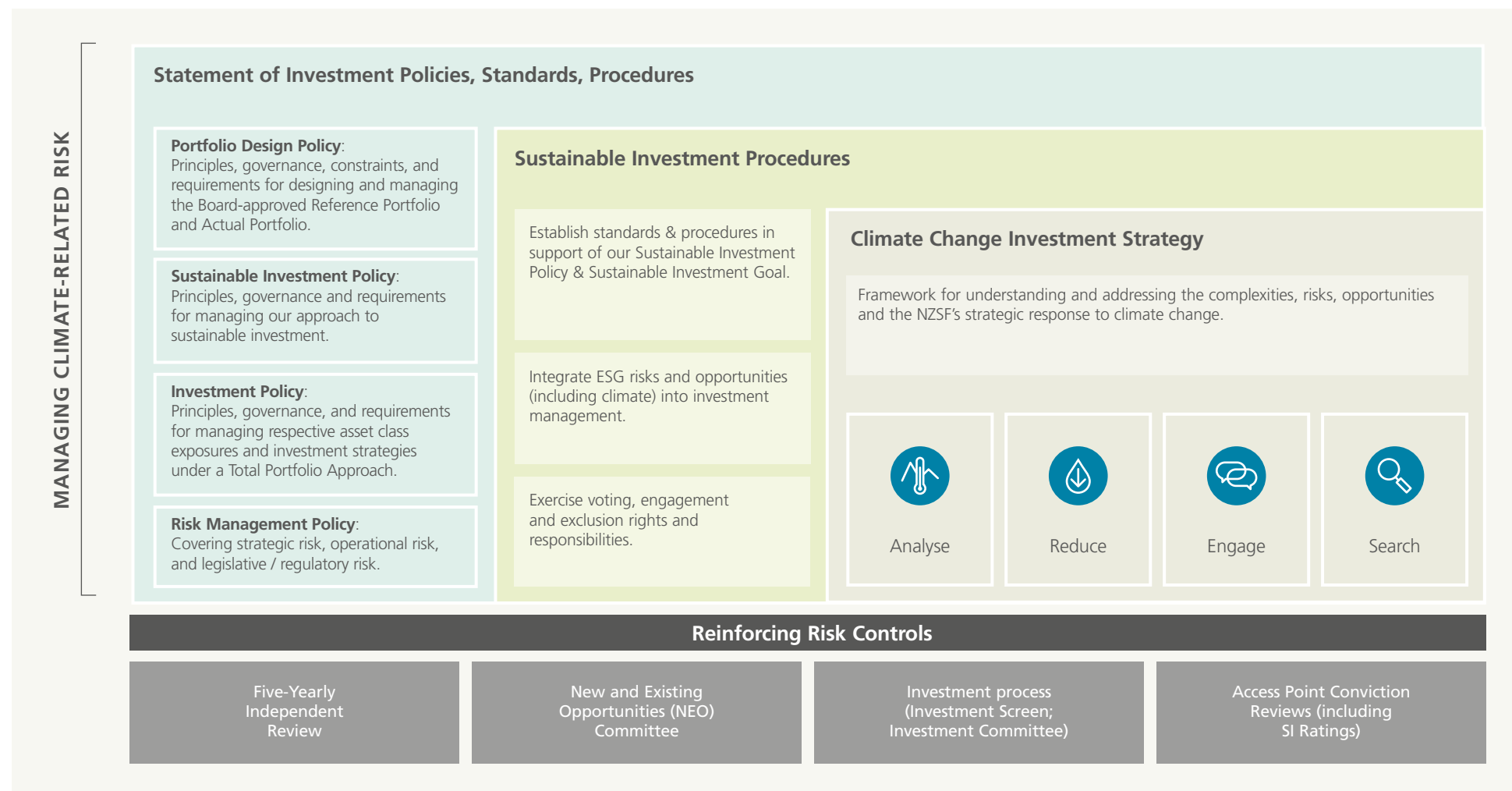
The **NGFS** is the key climate change scenario source for the majority of central banks and financial supervisory agencies in the markets where we invest. Given their transparency and our awareness of the limitations inherent in the NGFS approach and outputs, we have not prioritised specific third-party risk analysis for NGFS.

**MSCI** is our principal ESG data service provider, covering GHG emissions data, climate value-at-risk (CVaR) analysis, and our Paris-aligned benchmark information. Risks regarding the quality and accuracy of third party supplied data are difficult to fully mitigate, with the potential for results to vary from an under- to an over-reporting of climate-related risks. MSCI looks at a broad range of dimensions when assessing the quality of input data used in their ESG and climate models, including completeness, exhaustivity, timeliness, accuracy and traceability back to sources.

We rely on the system and organisation controls (SOC) reports by independent external auditors over the design of MSCI controls related to data processing, security, availability and confidentiality. This improves our confidence in the MSCI systems and processes. Following a series of engagements by the Guardians and others since 2023, MSCI now provides SOC 2; Type 2 reports describing external assurance over their ESG and climate data services. Whilst this doesn't eliminate the risk of inherent uncertainty with Scope 3 GHG emissions data, it does provide objective, third-party confirmation of the 'operating effectiveness' of these services.

We expect our **investment partners** to consider relevant climate change risks and impacts when investing on our behalf. Before we invest, we undertake due diligence with partners, communicate our sustainable investment belief and materiality of climate change, and ask them to consider climate change in the investment process, as appropriate. Since 2024-25, we have applied our Access Point Sustainable Investment Rating framework to allow us to more effectively and objectively monitor and engage around our partners' sustainable investment performance over time. This framework considers the quality and maturity of partners' climate risk management approach, performance, and disclosures for assets they manage on our behalf.

Figure 3: Nested controls approach to addressing climate-related risk

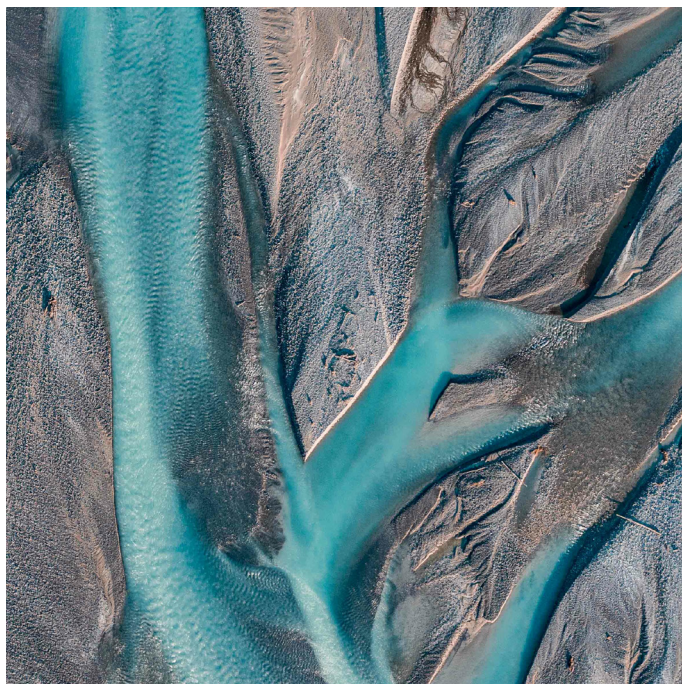


### 3.4 FRAUD RISK

The risk of fraud linked to climate-related disclosures was determined as very low likelihood due to the lack of any direct incentive or opportunity by Guardians' individuals, groups, or suppliers. We will continue to monitor and assess fraud risk as our climate-related strategies, practices and targets evolve.

# 4.

## Strategy



Our CCIS sets out a four-pillar framework for understanding & addressing the complexities, risks, opportunities & our strategic response to climate change

### 4.1. OVERVIEW

We take climate change into account in designing our investment approach, launching our dedicated Climate Change Investment Strategy (CCIS) in 2016.

Our broader Sustainable Investment Goal sets out the interlinked intentions of:

- incorporating ESG into investment decisions to advance sustainability, whilst fulfilling our financial purpose;
- considering the impact of ESG on our investments, and the impact of our investments on society and the environment, and;
- working with others to overcome barriers to a sustainable financial system.

Our *Guardians of the Future* strategy established key principles and focal areas to guide our organisational culture, systems, thinking and decision-making within the context of an uncertain future. This strategy acknowledges climate change as one source of uncertainty, along with the need for an adaptive approach to managing broader sustainability risks and opportunities in support of our Purpose.

We continue to explore and progressively integrate sustainability-related considerations into our thinking, operations, systems and processes, as appropriate.

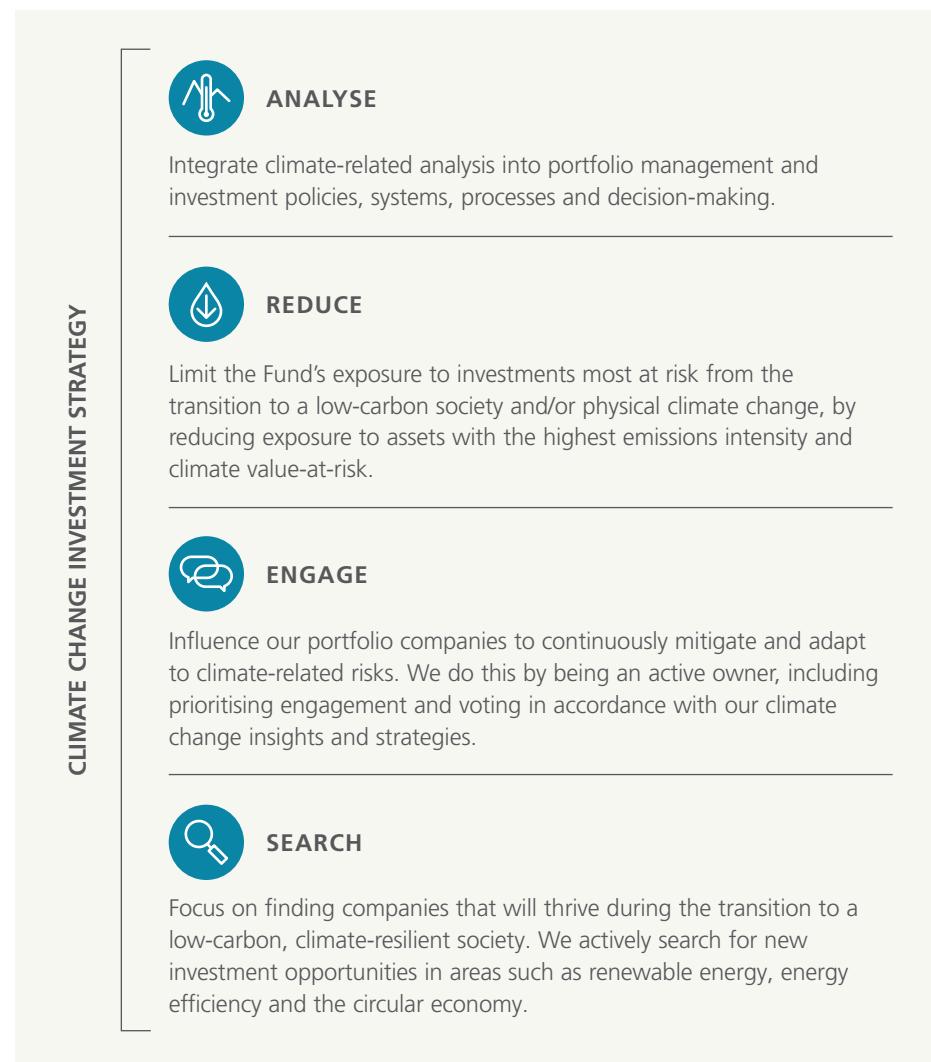
### 4.2. CLIMATE CHANGE INVESTMENT CASE

Climate change is an intergenerational and transboundary challenge, necessitating unprecedented levels of constructive coordination across diverse countries and stakeholders. We developed our initial CCIS because we came to the view that climate change involves substantial market and policy failures and material physical risks - which may present both systemic and specific risks and opportunities for which we are not always rewarded. While many climate-related impacts will take time to be revealed, financial markets are forward-looking. Prices may adjust quickly when a greater appreciation of the risks and opportunities from climate change emerges.

As a long-term investor, it is prudent to reduce portfolio exposure to uncompensated risks and seek exposure to opportunities now - rather than trying to anticipate when markets will adjust. As an asset owner with broad market exposure, we recognise the mutual benefits of playing our part to support orderly societal transition and resilience in response to climate change.

### 4.3. CLIMATE CHANGE INVESTMENT STRATEGY

**Figure 4: Overview of the Guardians Climate Change Investment Strategy**



Our CCIS sets out a framework for understanding and addressing the complexities, risks, opportunities and our strategic response to climate change (Figure 4).

Management is responsible for ensuring that the elements of our CCIS are integrated into relevant investment processes, decisions and actions. Progress on implementing the CCIS is a key component of the Guardians' annual reporting to the Investment Committee and the Board. Ultimately, the CCIS – together with the Crown Responsible Investment Framework and our Net Zero Asset Owners Commitment – provides the impetus for our Climate Action Plan [see Section 4.4].

#### **(A) ANALYSE**

The aim of the Analyse pillar is to progressively integrate climate-related analyses into our portfolio management policies, systems and processes. This includes considering a range of plausible climate-related scenarios, and incorporating climate-related risks and opportunities into investment analysis and decision-making for new and existing assets.

#### **Climate scenario analysis**

Climate scenarios represent a series of assumptions, analyses and informed judgement used to establish plausible projected future pathways and outcomes for global climatic and socio-economic conditions.

Climate scenario analysis and practice continue to evolve, with an enhanced evidence base, modelling sophistication, and consolidation of standards and approaches. However, most mainstream climate models and associated scenarios retain significant limitations due to inherent conceptual or practical constraints; this means approaches often underrepresent the degree of complexity, ambiguity and potential volatility in projected pathways or outcomes.

For example, interrelated transition and physical climate risks may compound or be unevenly distributed across time, geographies and/or sectors of society - potentially leading to divergent, unpredictable outcomes.

Recognising our diverse global portfolio and the inherent complexity and limitations of climate scenarios, we avoid assigning a high degree of conviction to any particular outcome or trying to optimise our Fund for a specific normative scenario. Our approach is to explore a series of plausible scenarios and position the portfolio to be resilient and responsive to a range of pathways.

We apply a dual approach to scenario analyses; considering both top-down / long-term, and bottom-up / near-term perspectives on our portfolio and underlying holdings. Our approach focuses on blending the use of top-down climate scenarios to explore implications, test sensitivities, frame narratives, and inform more detailed, bottom-up climate risk analyses.

The Guardians has adopted three Network for Greening the Financial System (NGFS) scenarios as our input to top-down, long-term (2050; 2100) horizon scanning and planning: *Current Policies*, *Delayed Transition* and *Net Zero by 2050*. We continue to use these base scenarios, as updated from time-to-time to account for evolving GDP data, demographic projections, geopolitical events, technological shifts, and country-level climate policy. See Figure 5 and Table 1 for further information.

Under the **Current Policies** scenario, the world is headed for around three degrees Celsius of global warming by 2100, meaning that physical risks are high and transition risk is relatively low. The **Delayed Transition** scenario indicates a disorderly pathway towards a net zero carbon economy, and assumes there are average physical risks to the portfolio. The **Net Zero** scenario assumes an orderly transition to a net zero economy by 2050, with low to average physical risks.

**Figure 5: High-level NGFS climate scenarios (blue) adopted**

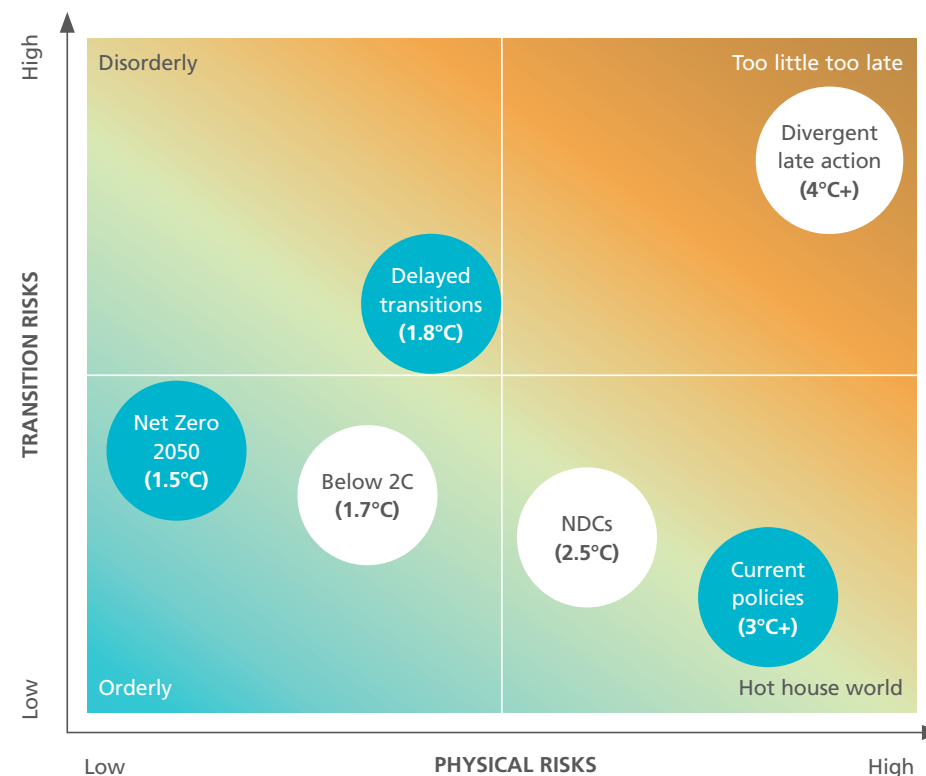


**Table 1: Narrative, key features and use cases for high-level climate scenarios adopted by the NZSF**

| Scenarios <sup>1</sup>                             | Net Zero 2050                                                                                                                                                                                                 | Delayed Transition                                                                                                                                                                                         | Current Policies                                                                                                                                                                                             |
|----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Implied (2100) temperature rise<sup>2</sup></b> | <b>1.5 °C</b>                                                                                                                                                                                                 | <b>&lt;2 °C</b>                                                                                                                                                                                            | <b>~3 °C</b>                                                                                                                                                                                                 |
| <b>Rationale for adoption</b>                      | <ul style="list-style-type: none"> <li>Aligns with Net Zero Asset Owners Commitment (NZAOC)</li> <li>Reflects our Paris-aligned Reference Portfolio</li> <li>Prescribed under NZ Climate Standards</li> </ul> | <ul style="list-style-type: none"> <li>Reflects stop/start nature of Paris Accord/COPs</li> <li>Reflects lower end of emissions trends and market pricing</li> <li>'Inevitable Policy Response'</li> </ul> | <ul style="list-style-type: none"> <li>Reflects higher end of emissions trends and market pricing</li> <li>Enables ongoing tracking of current ITR</li> <li>Prescribed under NZ Climate Standards</li> </ul> |
| <b>Exploratory use cases</b>                       | Extreme transition (policy/tech) risks                                                                                                                                                                        | Moderate transition (policy/tech) risks                                                                                                                                                                    | Lower transition (policy/tech) risk                                                                                                                                                                          |
|                                                    | Moderate physical climate risks<br>(potentially underestimated)                                                                                                                                               | Moderate-to-high physical climate risks                                                                                                                                                                    | Extreme physical climate risks                                                                                                                                                                               |
| <b>Key features</b>                                | Ambitious/stringent policy change; moderate regional variation                                                                                                                                                | Delayed, ambitious, disorderly policy change; high regional variation                                                                                                                                      | Deferred, unambitious or abandoned policy change; moderate regional variation                                                                                                                                |
|                                                    | Paris Accord goals ambitiously pursued                                                                                                                                                                        | Paris Accord action deferred                                                                                                                                                                               | Paris Accord goals missed; Current policies only - chronic political inaction                                                                                                                                |
|                                                    | High rate of technology transition                                                                                                                                                                            | Moderate rate of technology change, followed by rapid transition                                                                                                                                           | Slow rate of technology transition and investment                                                                                                                                                            |
|                                                    | Medium/high reliance on carbon dioxide removal methods                                                                                                                                                        | Low/medium reliance on carbon dioxide removal                                                                                                                                                              | Low/no reliance on carbon dioxide removal methods                                                                                                                                                            |
|                                                    | Net zero by 2050                                                                                                                                                                                              | Net zero by 2060                                                                                                                                                                                           | Net zero unclear                                                                                                                                                                                             |
|                                                    | 50% chance of limiting GW to 1.5°C by 2100 (low overshoot)                                                                                                                                                    | 67% chance of limiting GW to <2°C by 2100                                                                                                                                                                  | Low chance of limiting GW to <2°C by 2100                                                                                                                                                                    |
|                                                    | Moderate, 'locked-in' physical climate change impacts (greater certainty)                                                                                                                                     | High physical climate change impacts (moderate uncertainty)                                                                                                                                                | Extreme physical climate change impacts (moderate uncertainty)                                                                                                                                               |
| <b>Equivalent scenarios / sources<sup>3</sup></b>  | IPCC/NIWA: SSP2-RCP1.9<br>NZ Climate Change Commission (CCC): 'Tailwinds'                                                                                                                                     | SSP2-RCP2.6<br>CCC 'Headwinds'                                                                                                                                                                             | SSP2-RCP4.5<br>CCC 'Current Policy'                                                                                                                                                                          |

1. Source (model): NGFS (REMIND-MAGPIE 3.3-4.8 Nov 2024).

2. Relative to pre-industrial times.

3. Shared Socioeconomic Pathways (SSP)-Representative Concentration Pathways (RCP).

### Climate-related investment risk analysis

We continue to build further climate-related risk considerations into investment analyses and portfolio management processes as the methods and tools available evolve.

Our approach to climate risk analysis and integration includes:

- Requirement to apply climate scenario analysis within guidelines and templates for screening prospective new investments, where material and feasible.
- Estimating the Climate Value-at-Risk (CVaR) for our listed equity portfolios.
- Applying our Climate Change Valuation Framework (CCVF) for unlisted assets to assess and, where possible, integrate material and quantifiable climate-related risks and opportunities into our asset valuations.
- Supporting internal and external investment analysts and strategists to challenge key assumptions in their investment analyses, by applying climate change considerations.

### Climate-related investment impacts - current and potential future

As a globally diversified asset owner, the NZSF's assets are impacted by climate change in a range of manners. Some current climate impacts are already manifesting themselves.

Climate-related risks have multiple drivers including technological change, policy actions, and planetary processes. These drivers affect both listed and unlisted assets but may impact them in different ways across a range of timeframes, sectors and geographies.

Risks may arise from: 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/or; the inability to adapt at a reasonable pace, scale and cost. It is likely that the scale, complexity and compounding nature of these impacts will change significantly in the future, hence it is important for us - as a long-term investor - to take them into account now.

Mitigating climate change requires a range of transitions, of which the greatest is the shift to a low-carbon energy system, affecting all sectors of the global economy. Climate change offers opportunities for investment, including, for example, in the development of more efficient alternative energy technologies.

#### **BOX 1: Adoption Provision 2 – Anticipated Financial Impacts [CS2-12] - Partially applied**

The Guardians has opted to disclose approximations of current / anticipated financial implications of climate-related physical and transition impacts in the form of estimated CVaR for our listed portfolio only (see Section 5.2).

For the majority of our unlisted portfolio, we consider climate-related aspects in our risk and/or valuation processes. When factoring in the impact of our prior and ongoing efforts to avoid and mitigate climate risks (or exploit opportunities) through our CCIS, we have not yet found robust grounds for accurate, verifiable recognition of material net asset value adjustments. See below for further discussion.

The Guardians has adopted a prudent approach to pro-actively identifying and addressing current and anticipated future climate-related risks and opportunities where we assess them to be most material (see Section 4.4).

However, climate-related data quality, modelling and methods remain subject to significant limitations and uncertainties, such that it is not always feasible to effectively and consistently translate climate-related risks and opportunities into specific estimates of current and/or anticipated asset values (see Box 1).

#### **Listed (public) assets**

The NZSF listed equities portfolio accounts for the largest portion of assets under management. Since 2021, we have proactively monitored the exposure of this portfolio to climate change, using MSCI CVaR analysis. Section 5.2 presents the results from CVaR analysis as of FYE 2026.

The Guardians seeks to estimate the CVaR as a forward-looking and returns-based assessment to approximate the financial implications of climate-related risks and opportunities in our investment portfolio and underlying assets.

By integrating carbon price estimates, physical climate modelling, and company-specific attributes, CVaR projects how transition and physical risks might impact on a listed company's present value, under our three different NGFS climate scenarios (as updated from time to time).

CVaR combines current and anticipated future financial implications for public companies. However, it remains difficult to determine the extent to which climate-related factors have already been accurately priced into listed equities markets. Prices are subject to adjustment at any time as part of an active market.

The CVaR method includes limitations due to key data gaps, assumptions and approximations (Section 6), but can be useful for providing high level insights, indications for further analysis, and as an input to strategies to address the most obvious or extreme exposures to policy, technology and/or physical risks (see Section 4.4).

### Unlisted (private) assets

Due to often limited information availability for unlisted assets, we take a different approach to climate risk analysis for the NZSF's new and existing private investments. Our custom CCVF offers a structured approach to guiding investment professionals through a bottom-up process of identifying, assessing and addressing climate change considerations in their analysis of new and existing unlisted (private) investments. This involves five iterative steps (Figure 6).

For assets or initiatives assessed to have sufficient data, conviction and potentially-material climate risks and opportunities, qualitative aspects have been integrated into investment analysis and decision-making. This has contributed to a number of prospective new investments being rejected, or subjected to further dedicated climate risk due diligence, analysis, or integration of mitigation and resilience measures.

In some instances, our analysis established sufficient conviction for us to adjust projected yields, increase capital expenditure projections to mitigate climate risk, and/or make operational adjustments to address transition risks/opportunities or increase climate resilience over time.

We continue to enhance our approach by: improving tools to make it easier for investment professionals to implement the CCVF; further integrating the three NGFS climate change scenarios into our investment screening template, and; applying additional analytical tools such as MSCI's CVaR and Woodwell's 'Climate Exposure Risk Application'.

As climate-related data, modelling, methods and tools improve - and global good practice and standards on financial 'connectivity' evolve - we will continue to review our approach to climate-related risk, financial impact analysis, and disclosure.

### (B) REDUCE

The Guardians' financed GHG emissions (Scope 3, Category 15) - representing the transition risk exposure of the underlying securities and investee companies in the NZSF - are the most material aspect of climate-related risk from across our value chain.

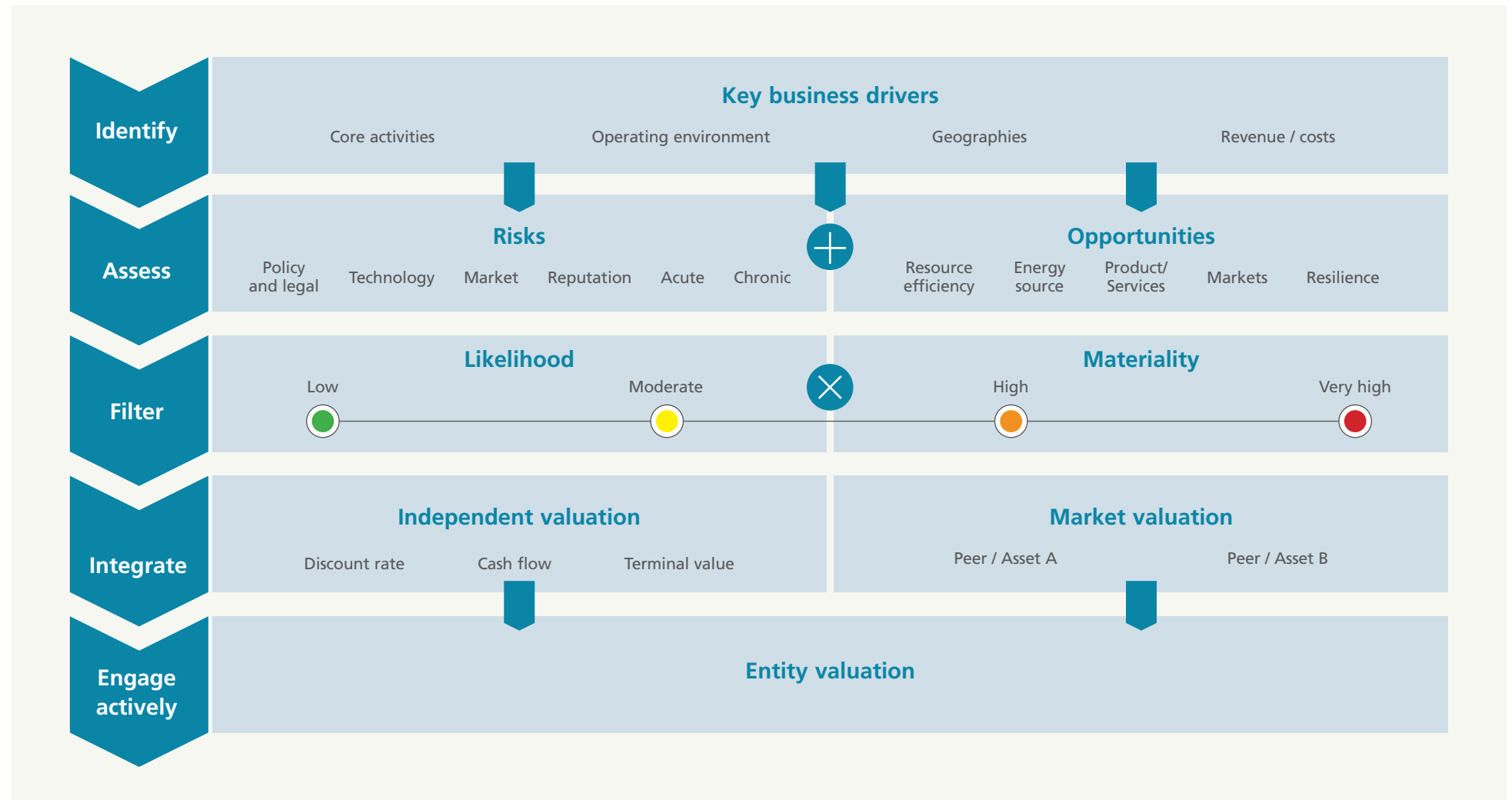
The aim of the Reduce pillar of our CCIS is to limit the NZSF's exposure to investments that are most at risk from the transition to a low-carbon society and physical climate change. We do this by reducing the exposure of our portfolio to investments with the highest emissions intensity, potential emissions from fossil fuel reserves, and/or climate value-at-risk.

The Board set our first Fund-wide GHG emissions reduction targets for 2020, followed by more ambitious targets for 2025. During FY25, the Board approved a revised approach and methodology for GHG emissions measurement to bring the Guardians into closer alignment with the internationally recognised GHG Protocol and Partnership for Carbon Accounting Financials (PCAF). The Board also approved new emissions reductions targets for 2030, aligning with global good practice and frameworks, while staying consistent with our mandate.

In setting these new targets, we considered: what level of effort is consistent with the world aligning with net zero; what we can achieve as part of prudent portfolio management, and; our ability to influence real-world change through strategic asset management (e.g. higher-emissions investments that demonstrate a strong climate transition strategy and potential for strong returns).

See our Climate Action Plan (Section 4.4) for more information on our practical approach, and Section 5.1 for our GHG emissions inventory metrics and reduction targets.

Figure 6: Our Climate Change Valuation Framework (CCVF)



## (C) ENGAGE

The goal of the Engage pillar is to improve the analysis, management and reporting of climate-related risks by the companies we invest in. We report on our stewardship and engagement activities in our Annual Report and on our website. We are committed to being an active owner of assets, meaning we:

- exercise our voting rights for listed equities in line with our guidelines on climate change;
- work with the boards and management teams of companies that we invest in directly, to assess and address climate-related issues;
- include climate-related clauses within investment mandates (to the extent possible and relevant);
- ask external managers about their climate change approach and activities through sustainable investment due diligence surveys, approximately every two years;
- request our external managers report on their portfolio GHG emissions;
- engage with policy makers in areas that are relevant to our investment mandates. We have made submissions supporting increased climate action, including on the Standards.

Engagement activities specifically on climate change include the following:

- We share external engagement service provider Columbia Threadneedle Investments (CTI) with the other Crown Financial Institutions (CFIs), to lead engagements with listed companies based on mutually agreed priority themes. In 2025-26, CTI engaged with 100 companies held in the NZSF portfolio on climate-related issues, representing 176 individual activities and achieving 24 engagement milestones. Quarterly CTI engagement reports are published on our website.<sup>1</sup>

- In 2023, the CFIs launched an initiative to engage on climate change with listed New Zealand companies, in particular the NZX50. More detail is included in our annual Stewardship Reports.
- In addition to being a signatory to the Net Zero Asset Owners Commitment, our memberships include: Climate Action 100+, an investor-led initiative to encourage the world's largest corporate GHG emitters to take action on climate change; the Investor Group on Climate Change (IGCC), and; the Australian Council of Superannuation Investors (ACSI), which engage with companies on climate-related issues on behalf of institutional investors in Australasia.
- We play an active role in other organisations that are working to address climate change, including: the United Nations-backed Principles for Responsible Investment; the Responsible Investor Association of Australasia (RIAA); and the One Planet Sovereign Wealth Fund initiative - established to accelerate efforts to integrate financial risks and opportunities related to climate change in the management of large, long-term asset pools.<sup>2</sup>

1. <https://www.nzsuperfund.nz/how-we-invest/sustainable-finance/engagement>

2. <https://oneplanetewfs.org>

## (D) SEARCH

The Search pillar is about taking advantage of opportunities presented by the prospects of a transition to a lower-carbon and more climate-resilient world. Investing in climate solutions plays a role in mitigating or adapting to climate change, supporting national and international climate goals and commitments, and reducing systemic risks to the economy.

As part of the NZSF's 'Total Portfolio Approach', we determine how much risk we allocate to each of our 'Opportunities' through a periodic Risk Budget Review process. Our Risk Budget Review approach incorporates judgements on the inherent Sustainable Investment profiles of each of the Opportunities. In line with our investment beliefs, ESG factors - with a focus on climate change - are considered, alongside other dimensions of risk/return.

Leveraging upweighted risk budgets for opportunities with inherent potential for both positive investment returns and climate outcomes meant we were able to increase investment in sustainability solutions between 2023 and 2026. Additional information is available in the Sustainable Investment section of our Annual Report.

The Guardians defines **Impact Investments** as: *'Investments made with the intent to deliver measurable positive social and/or environmental impacts, and the Fund's required financial return.'*

Our objective is to integrate and scale Impact across our series of investment strategies, whilst maintaining our usual investment discipline.

We see especially strong Impact potential in areas such as low carbon, transitional or resilient infrastructure, innovative business models in private equity, and other assets that may drive and/or benefit from the system change and capital required to address systemic risks and opportunities in the coming years.

**As at FYE 2026, NZSF total assets qualified as Impact Investments amounted to NZ\$3.1b (~ 3.4% of AUM).**

## 4.4. CLIMATE ACTION PLAN

We do not seek to optimise our portfolio based on a single normative or 'base case' scenario. Rather, the Guardians of the Future, our Sustainable Investment Goal, CCIS and Climate Action Plan aim to position the NZSF in readiness to adapt to a range of uncertain global and local climate and socio-economic pathways and outcomes.

The Guardians and other CFIs signed up to the Paris Aligned Asset Owners Net Zero Commitment, involving approximately 60 investors representing over US\$3 trillion in assets under management (AUM). This means we will take deliberate actions to help put the world on a path to achieving net zero emissions by 2050. The Commitment requires us to:<sup>1</sup>

- review and update our targets every five years, or sooner;
- report annually on the strategy and actions implemented;
- track progress towards achieving objectives and targets, and;
- disclose in line with the TCFD (or equivalent).

Under this Commitment and informed by our existing CCIS, we submitted a Climate Action Plan in 2022 prioritising the most material climate-related risks and opportunities across the NZSF's largest asset classes covering approximately 58% of total AUM, comprising the following (as at FYE 2026):

- Passive global listed equities portfolio, representing approximately 39% of AUM;
- Active quantitative multi-factor strategies (approximately 15% AUM), and;
- Corporate debt securities portion of our passive fixed income portfolio (4% AUM).

We consider the materiality of climate-related risks for smaller asset class exposures on a case-by-case basis, as appropriate. We continue to review and revise our approach to climate-related strategy, transition planning, and disclosure on an annual basis.

### (A) PASSIVE GLOBAL LISTED EQUITIES

Following extensive research, analysis, testing and consultation - and in accordance with its responsibility to determine the benchmarks against which we measure our investment performance - the Board adopted a 'Paris-aligned' benchmark for our passive listed equities portfolio in 2022.

1. <https://www.parisalignedassetowners.org/signatory-disclosures>

The indices we chose were the MSCI World Climate Paris Aligned Index, and MSCI Emerging Markets Climate Paris Aligned Index. These indices involve applying key criteria and characteristics (Figure 7; Section 5.4) aimed at reducing exposure to climate-related risks, supporting transition of high impact sectors, and increasing exposure to companies allocating capital to climate solutions.

In FY26, we reviewed our Reference Portfolio and sought proposals from a range of alternative benchmark index providers. During that time, MSCI also reviewed the methodology underpinning the Paris-aligned indices to address concentration risk and complexity of the ESG-related performance criteria. The Guardians actively participated in consultation around the proposed methodological changes, ultimately opting to retain our current MSCI indices under the amended methodology.<sup>1</sup>

We also decided to remove our long-standing, custom screen which had been designed to remove additional exposure to fossil fuel reserves. This decision simplifies our portfolio management approach, given that we are satisfied that the MSCI Paris Aligned Benchmark settings retain only incidental exposure to fossil fuel reserves.

## (B) ACTIVE QUANTITATIVE MULTI-FACTOR PORTFOLIO

We have further advanced our Climate Action Plan by working with our external managers of active quantitative multi-factor investment strategies. This involved testing a range of options for meeting our GHG reduction targets and addressing similar ESG objectives to the (passive) Paris-aligned benchmark indices.

The outcome included amending some large investment mandates to more explicitly reflect our Sustainable Investment Goal, whilst allowing our managers flexibility in how they address ESG objectives as part of their custom strategies and investable universe.

## (C) CORPORATE FIXED INCOME / BOND PORTFOLIO

We reviewed our Fixed Income portfolio, seeking opportunities to improve ESG incorporation and outcomes. As part of the review, we considered: approaches to ESG integration in fixed income assets (bonds); options for aligning our fixed income portfolios with our net zero commitment, and; explored bringing our fixed income portfolio in scope of our GHG emissions inventory.

We shifted the corporate portion of our passive bond mandate to a Paris-aligned benchmark in January 2025.<sup>2</sup> Similar to our passive equity index, this new index applies a range of improvements to the ESG performance of our corporate fixed income portfolio, including reducing emissions intensity, increasing holdings from companies actively investing in climate solutions, and removing holdings of a number of companies facing severe controversies.

1. <https://www.msci.com/downloads/documents/indexes/consultations/equity/Climate%20Paris%20Aligned%20-%20Consultation%20Deck%20-%20Final%201.pdf>

2. This shift to the corporate bond portfolio applies to the benchmark we use to implement our corporate fixed income exposure only, not to the Reference Portfolio benchmark.

Figure 7: Climate-related criteria applied to the NZSF's passive equity portfolio benchmark (as at FYE 2026<sup>1</sup>)<sup>2</sup>

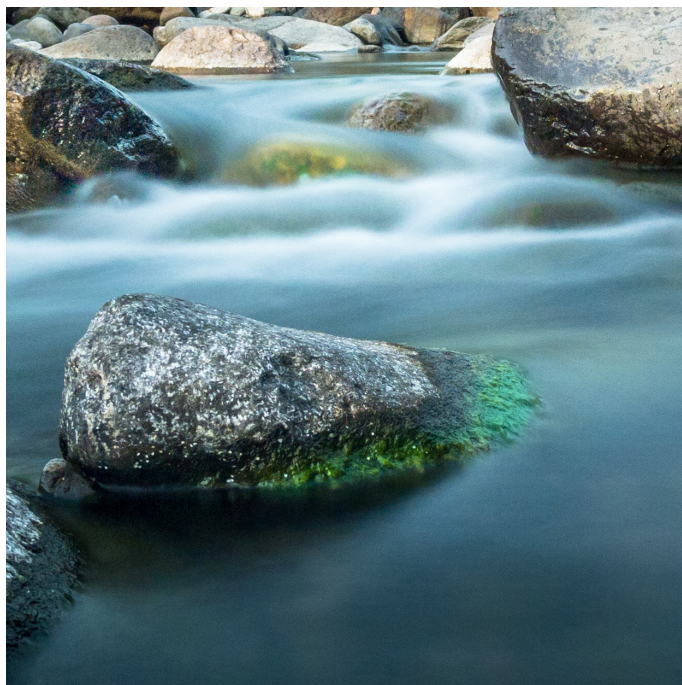
| TRANSITION RISK                                |                                                                          | GREEN OPPORTUNITY                                     | 1.5°C ALIGNMENT                                    | PHYSICAL RISK                                   |
|------------------------------------------------|--------------------------------------------------------------------------|-------------------------------------------------------|----------------------------------------------------|-------------------------------------------------|
| 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 |
| 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 |                                                 |
| 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                   |                                                       |                                                    |                                                 |

1. Criteria to be updated in late-2026 to reflect methodological changes consulted and agreed with MSCI.

2. See Section 5.4 'Other climate and ESG performance measures' for further information.

# 5.

## Metrics and Targets



We estimate the GHG emissions intensity, potential emissions from fossil fuel reserves, and climate value-at-risk of the NZSF portfolio each year

### 5.1. GREENHOUSE GAS EMISSIONS

Management determined the Guardians' financed (Scope 3, Category 15) GHG emissions - representing the transition risk exposure of the underlying securities and investee companies in the NZSF - as the most material aspect of climate-related risk from across our value chain.

Emissions arising from the Guardians' own operations (including investment management, administration, and other services) are classified as our Scope 1 and Scope 2 emissions and considered immaterial (<0.1%) relative to the emissions financed through the NZSF and, as such, are not addressed in this report.

Every five years, the Board sets targets for reduction of the GHG emissions financed through the NZSF - covering the Scope 1 and 2 emissions of our portfolio investments.

To monitor annual performance, we calculate the emissions intensity of the NZSF's investments - including Scope 1 and 2 emissions - along with potential emissions from fossil fuel reserves held by our investees each financial year end (FYE as at 30 June). We report annually via an internal Sustainable Investment Report and this public Climate Change Report (see Figure 8).

In FY25, the Board approved **GHG emissions reduction targets for 2030**, relative to our benchmark (the market-weighted, unadjusted Reference Portfolio as at 30 June 2019), to:<sup>1</sup>

- *reduce the emissions intensity of the NZSF by at least 75%, and;*
- *reduce potential emissions from fossil fuel reserves of the NZSF by at least 80%.*

As at FYE 2026, NZSF emissions intensity (Table 2) is estimated as **75.6% lower** than the target benchmark, whilst our exposure to potential emissions from fossil fuel reserves (Table 4) is estimated as **99.8% lower** versus our benchmark.

We also disclose a wider GHG emissions inventory (Table 5), including Scope 3 emissions of portfolio investments and the overall carbon footprint of the NZSF (Table 7) - neither of which are the subject of targets. For some metrics, we isolate data for our sovereign bond holdings separately. These also do not form part of our target benchmark.

The basis of preparation for our FY26 GHG emissions disclosures is discussed below and detailed in Annex A. We do not claim full alignment, but our Management Criteria draw primarily on the GHG Protocol and PCAF.<sup>2</sup>

1. See Glossary for detailed definition and description of the 'unadjusted Reference Portfolio'.

2. The PCAF Standard 3rd edition introduced additional methodologies and recommendations in December 2025 (<https://carbonaccountingfinancials.com/files/standard-launch-2025/PCAF-PartA-2025-V3.pdf>).

Our Management Criteria were revised in FY26 (Annex A; Box A). Management deemed that the changes were sufficiently significant that recalculation and restatement of FY25 figures according to the revised FY26 method would provide clearer, more useful comparative information. Box 2 outlines the basis, nature, and implications of recalculation and restatement.

Metrics are expressed as metric tonnes of carbon dioxide equivalent (tCO<sub>2</sub>e), and calculated on an enterprise value including cash (EVIC) basis, except where noted. We provide estimates of data coverage for some metrics, indicating the portion of total exposure for each asset class for which minimum required data is available in a usable format.

The FY26 GHG Emissions Inventory and associated disclosures have been subject to external limited assurance. Refer to the Independent Assurance Report for details.

#### **BOX 2: Recalculation and restatement of GHG emissions FY25**

Management concluded that applying the revised FY26 methodology to the FY25 GHG emissions inventory was practical and reasonable, and would provide users with clearer, more relevant and comparable information, whilst satisfying the criteria expressed in the basis of preparation (Annex A, Section 1.6).

Section 5.1 and Tables 2-7 include figures derived from application of the common methodology for FY25 and FY26. The recalculated FY25 figures supersede the corresponding figures published in the 2025 Climate Change Report, supporting more direct comparison of FY26 with reference to a restated FY25 baseline. The recalculation does not change NZSF's holdings or financial information as at 30 June 2025 and should not, by itself, be interpreted as a change in underlying investee emissions.

The restated FY25 inventory and associated disclosures were not within the scope of the FY26 Independent Assurance engagement.

#### **BOX 3: Adoption Provisions 4-8**

##### **Adoption Provision 4 - Scope 3 GHG emissions [CS2.17]; Adoption Provision 5 - Comparatives for Scope 3 emissions [CS2.18-19]**

For FY26, we have elected to disclose Scope 3 GHG emissions metrics for the majority of our portfolio, including financed emissions, emissions intensity, and potential emissions from fossil fuels. Section 5.1 includes comparative data for our benchmark, trends linked to one preceding reporting period, and performance against our 2030 targets.

We disclose comparative information and trend analysis for the Guardians' Scope 3 GHG emissions metrics (Section 5.1) only. We may consider other climate-related metrics in the future, as standards and data integrity improve.

##### **Adoption Provision 6 - Comparatives for Metrics [CS2.20]; Adoption Provision 7 - Analysis of trends [CS2.22]**

Our 2025 Climate Change Report discloses GHG emissions under both our legacy approach to emissions assessment, and our revised PCAF-based method, to provide for transparency, comparability, and the Standards' intention to encourage trend analysis. For FY26, we have opted to cease disclosure under our legacy approach in favour of the enduring PCAF-based method as the sole basis of our GHG emissions inventory and associated disclosures.

Whilst we include metrics for the previous reporting year (FY25), Management believe that including a second prior reporting year (FY24) of trend analysis based on our legacy method, would introduce unwarranted complexity for users. Nonetheless, Figure 8 provides a visual representation of our long-term GHG emissions reduction pathway, spanning the two methods and across three emissions reduction target periods.

##### **Adoption Provision 8 - Scope 3 GHG emissions assurance [CS2.24-25]**

Scope 3 GHG emissions measurement approaches and outputs have been subject to external limited assurance. Refer to the Independent Assurance Report for full details.

Annex A provides our basis of preparation, with detail on scope, asset class coverage, and associated methodologies.

**Table 2: Emissions intensity of the NZSF (excluding sovereign bonds) at financial year end (FYE)<sup>1</sup>**

| Asset class (excluding sovereign bonds)          | Emissions intensity Scope 1 and 2 (tCO <sub>2</sub> e / US\$m total sales) |                                     |               |                     |                                     |               |                     |               |                     |
|--------------------------------------------------|----------------------------------------------------------------------------|-------------------------------------|---------------|---------------------|-------------------------------------|---------------|---------------------|---------------|---------------------|
|                                                  | 2030 Target                                                                | FYE 2026                            |               |                     | FYE 2025 <sup>2</sup>               |               |                     | 2019          |                     |
|                                                  | Emissions intensity                                                        | Exposure (% total AUM) <sup>3</sup> | Data coverage | Emissions intensity | Exposure (% total AUM) <sup>3</sup> | Data coverage | Emissions intensity | Data coverage | Emissions intensity |
| Listed equities <sup>d</sup>                     |                                                                            | 67.5%                               | 99.7%         | 36.81               | 63.7%                               | 99.5%         | 30.86               |               |                     |
| Corporate bonds <sup>d</sup>                     |                                                                            | 4.1%                                | 95.4%         | 108.23              | 4.0%                                | 94.5%         | 106.14              |               |                     |
| Unlisted assets (private equity)                 |                                                                            | 14.0%                               | 97.1%         | 64.34               | 14.1%                               | 85.6%         | 153.07              |               |                     |
| Unlisted assets (business loans)                 |                                                                            | 0.3%                                | 17.8%         | 138.16              | 0.4%                                | 13.6%         | 63.23               |               |                     |
| Commercial real estate                           |                                                                            | 4.2%                                | 72.9%         | 18.67               | 3.9%                                | 34.8%         | 12.86               |               |                     |
| Total Actual Portfolio <sup>3</sup>              |                                                                            | N/A                                 | 97.6%         | 48.90               | N/A                                 | 93.2%         | 52.57               |               |                     |
| Benchmark: Unadjusted Reference Portfolio (2019) |                                                                            |                                     |               |                     |                                     |               |                     | 80.1%         | 200.27              |
| % reduction Actual versus Benchmark              | -75%                                                                       | -75.6%                              |               |                     | -73.7%                              |               |                     |               |                     |
| -----                                            |                                                                            |                                     |               |                     |                                     |               |                     |               |                     |
| <sup>d</sup> includes equivalent derivatives.    |                                                                            |                                     |               |                     |                                     |               |                     |               |                     |

- Figures for FYE2025 and FYE2026 are not directly comparable with those disclosed under our Legacy approach (FY2017-25) due to changes in both the methodology and benchmark used. The Revised benchmark (Unadjusted RP 2019) has a materially higher emissions intensity than the benchmark applied under the Legacy approach. To address this issue transparently, our 2025 Climate Change Report and Figure 8 present FYE2025 metrics in accordance with both our Legacy and our Revised Management Criteria.
- Restated figures (see Box 2).
- Total does not reflect total NZSF assets under management (AUM) as some assets have been excluded from the GHG emissions inventory (See Table 2.1 of Annex A).

**Table 3: Emissions intensity of the NZSF sovereign bonds**

| Sovereign bonds (and derivatives)                                                                                  | FYE 2026      | FYE 2025 <sup>1</sup> |
|--------------------------------------------------------------------------------------------------------------------|---------------|-----------------------|
| Data coverage                                                                                                      | 93.5%         | 99.7%                 |
| Portfolio weighted population (capita)                                                                             | 97,366        | 104,275               |
| <b>Consumption (demand) emissions per capita</b> (tCO <sub>2</sub> e per capita)                                   | <b>13.14</b>  | <b>12.45</b>          |
| <b>Production emissions per million dollars of GDP</b> (tCO <sub>2</sub> e per PPP-adjusted GDP international \$m) | <b>184.76</b> | <b>192.58</b>         |

1. Restated figures (see Box 2).

**Table 4: Potential emissions from fossil fuel reserves per amount invested**

| Portfolio                                                          | Potential emissions (tCO <sub>2</sub> e / US\$ Net asset value) | % reduction against benchmark |
|--------------------------------------------------------------------|-----------------------------------------------------------------|-------------------------------|
| <i>Benchmark unadjusted Reference Portfolio (2019)<sup>1</sup></i> | <i>2,548.36</i>                                                 | <i>N/A</i>                    |
| Actual Portfolio FYE 2025 <sup>1</sup>                             | 6.32                                                            | -99.8%                        |
| <b>Actual Portfolio FYE 2026</b>                                   | <b>6.20</b>                                                     | <b>-99.8%</b>                 |
| <b>Target: 2030 Actual Portfolio</b>                               | <b>509.67</b>                                                   | <b>-80%</b>                   |

1. Restated figures (see Box 2)

**Table 5: NZSF financed GHG emissions (excluding sovereign bonds)<sup>1</sup>**

| Asset class (excluding sovereign bonds)       | FYE 2026 financed GHG emissions (tCO <sub>2</sub> e) |              |            |                  |              |            | FYE 2025 financed GHG emissions (tCO <sub>2</sub> e) <sup>2</sup> |              |            |                  |              |            |
|-----------------------------------------------|------------------------------------------------------|--------------|------------|------------------|--------------|------------|-------------------------------------------------------------------|--------------|------------|------------------|--------------|------------|
|                                               | Scope 1 + 2                                          |              |            | Scope 3          |              |            | Scope 1 + 2                                                       |              |            | Scope 3          |              |            |
|                                               | Emissions                                            | Coverage     | Quality    | Emissions        | Coverage     | Quality    | Emissions                                                         | Coverage     | Quality    | Emissions        | Coverage     | Quality    |
| Listed equities <sup>d</sup>                  | 274,176                                              | 99.7%        | 1.35       | 3,756,528        | 99.7%        | 2.16       | 265,244                                                           | 99.6%        | 2.18       | 3,756,475        | 99.6%        | 2.28       |
| Listed corporate bonds <sup>d</sup>           | 67,891                                               | 98.4%        | 1.87       | 418,259          | 92.7%        | 2.42       | 69,199                                                            | 97.6%        | 2.53       | 332,670          | 92.3%        | 2.50       |
| Unlisted assets (private equity)              | 261,832                                              | 98.8%        | N/A        | 348,411          | 98.8%        | N/A        | 287,714                                                           | 94.9%        | N/A        | 586,781          | 94.3%        | N/A        |
| Unlisted assets (business loans)              | 7,700                                                | 92.9%        | N/A        | 53,990           | 92.9%        | N/A        | 10,267                                                            | 87.8%        | N/A        | 48,904           | 87.8%        | N/A        |
| Commercial real estate                        | 4,431                                                | 89.7%        | N/A        | 44,413           | 89.7%        | N/A        | 1,860                                                             | 68.6%        | N/A        | 19,682           | 68.6%        | N/A        |
| <b>Total Actual Portfolio</b>                 | <b>616,030</b>                                       | <b>99.0%</b> | <b>N/A</b> | <b>4,621,600</b> | <b>98.8%</b> | <b>N/A</b> | <b>634,283</b>                                                    | <b>97.1%</b> | <b>N/A</b> | <b>4,744,513</b> | <b>96.7%</b> | <b>N/A</b> |
| -----                                         |                                                      |              |            |                  |              |            |                                                                   |              |            |                  |              |            |
| <sup>d</sup> includes equivalent derivatives. |                                                      |              |            |                  |              |            |                                                                   |              |            |                  |              |            |

1. 'Quality' scores reflect PCAF method, indicating what proportion of data is measured, reported, estimated, and/or verified (1=Highest quality, 5=Lowest quality). Disclosed for Listed Equities and bonds only.

2. Restated figures (see Box 2).

**Table 6: NZSF financed GHG emissions - sovereign bonds**

| Sovereign bonds (and sovereign bond derivatives) | Financed GHG emissions (tCO <sub>2</sub> e) |                       |
|--------------------------------------------------|---------------------------------------------|-----------------------|
|                                                  | FYE 2026                                    | FYE 2025 <sup>1</sup> |
| Financed Scope 1 emissions                       | 1,098,909                                   | 1,150,301             |
| Data coverage                                    | 93.9%                                       | 100.0%                |
| Consumption (demand) emissions                   | 1,279,331                                   | 1,298,557             |
| Production emissions                             | 1,105,219                                   | 1,146,134             |

1. Restated figures (see Box 2).

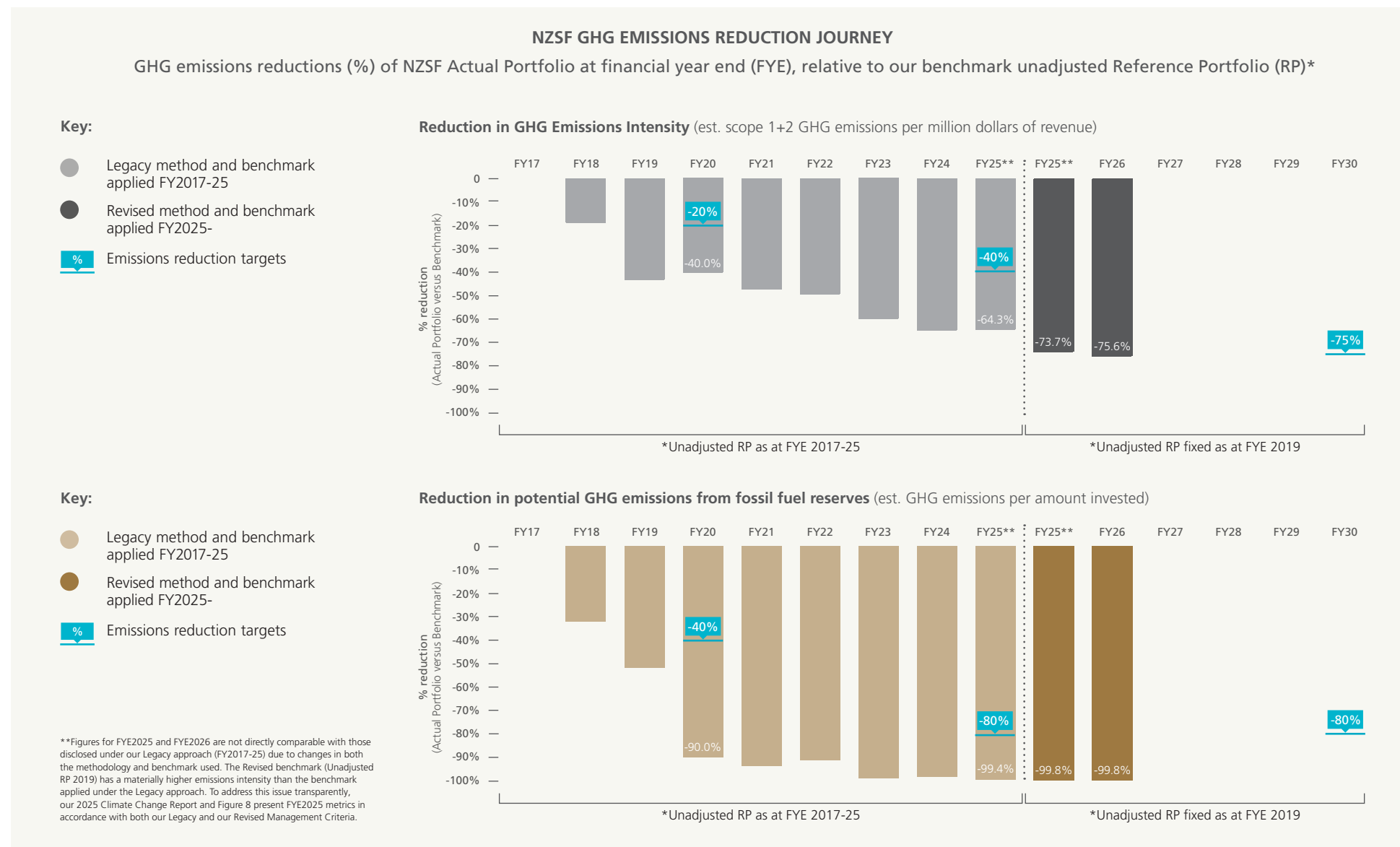
**Table 7: Carbon footprint of the NZSF**

| Asset Classes                                                          | FYE 2026 Carbon footprint (Scope 1 + 2) |              |                                                       |               | FYE 2025 Carbon footprint (Scope 1 + 2) <sup>1</sup> |              |                                                       |               |
|------------------------------------------------------------------------|-----------------------------------------|--------------|-------------------------------------------------------|---------------|------------------------------------------------------|--------------|-------------------------------------------------------|---------------|
|                                                                        | Net Asset Value / NZ\$                  | Exposure     | Emissions (tCO <sub>2</sub> e / NZ\$m total invested) | Data coverage | Net Asset Value / NZ\$                               | Exposure     | Emissions (tCO <sub>2</sub> e / NZ\$m total invested) | Data coverage |
| Listed equities <sup>d</sup>                                           | 63,643,151,613                          | 67.5%        | 4.32                                                  | 99.7%         | 54,251,232,040                                       | 63.7%        | 4.91                                                  | 99.6%         |
| Listed corporate bonds <sup>d</sup>                                    | 3,862,549,895                           | 4.1%         | 17.86                                                 | 98.4%         | 3,408,006,775                                        | 4.0%         | 20.79                                                 | 97.6%         |
| Unlisted assets ( private equity)                                      | 13,174,117,926                          | 14.0%        | 20.12                                                 | 98.8%         | 12,005,324,062                                       | 14.1%        | 25.36                                                 | 94.9%         |
| Unlisted assets (business loans)                                       | 279,244,063                             | 0.3%         | 29.68                                                 | 92.9%         | 359,712,470                                          | 0.4%         | 32.50                                                 | 87.8%         |
| Commercial real estate                                                 | 3,994,746,970                           | 4.2%         | 1.23                                                  | 89.7%         | 3,308,852,998                                        | 3.9%         | 0.78                                                  | 68.6%         |
| Other assets <sup>2</sup>                                              | -1,895,369,043                          | -2.0%        | N/A                                                   | N/A           | 1,955,729,501                                        | 2.3%         | N/A                                                   | N/A           |
| <b>Total Actual Portfolio</b> (excluding Sovereign bonds) <sup>2</sup> | <b>83,058,441,424</b>                   | <b>88.1%</b> | <b>7.32</b>                                           | <b>99.0%</b>  | <b>75,288,857,846</b>                                | <b>88.5%</b> | <b>8.88</b>                                           | <b>97.1%</b>  |
|                                                                        |                                         |              |                                                       |               |                                                      |              |                                                       |               |
| <i>Sovereign bonds<sup>3 d</sup></i>                                   | <i>11,215,862,011</i>                   | <i>11.9%</i> | <i>97.98</i>                                          | <i>93.8%</i>  | <i>9,815,518,845</i>                                 | <i>11.5%</i> | <i>117.19</i>                                         | <i>99.9%</i>  |

<sup>d</sup> includes derivatives, with NAV taken as exposure of physical equivalents for: Listed equities and corporate bonds (notional/delta-adjusted), and; for Sovereign bonds (World Bank GDP, adjusted for PPP). See Section 2 of Annex A.

1. Restated figures (see Box 2).
2. NAV of positive and negative notional exposures of NZSF assets addressed as part of the GHG emissions inventory (See Table 2.1 of Annex A), less sovereign bonds.
3. Scope 1 emissions only.

Figure 8: The NZSF emissions reduction journey



## 5.2. CLIMATE VALUE-AT-RISK

CVaR links listed companies' net present value with an estimate of indicative value-at-risk (or opportunity) under a range of climate change scenarios and time horizons. The CVaR method is subject to limitations due to data gaps, necessary over-simplifications, assumptions and approximations. However, the outputs can be useful for providing high level insights and indications for further analysis.

We apply the CVaR model to our listed equities portfolio using the three NGFS scenarios outlined in Section 4.3 and compare results for our Actual Portfolio against our unadjusted Reference Portfolio, as at FYE (Table 8).

We do not disclose year-on-year trends as it is difficult to distinguish shifts in CVaR as attributable to changes in our holdings, underlying climate risk exposures, and/or scenario and model updates.

**Table 8: Difference between estimated CVaR of our Actual Portfolio versus unadjusted Reference Portfolio**

| Estimated net Climate Value-at-Risk (%) <sup>1</sup> |                   |                        |                    |                  |
|------------------------------------------------------|-------------------|------------------------|--------------------|------------------|
| Portfolios                                           |                   | Scenarios <sup>2</sup> |                    |                  |
|                                                      |                   | Net Zero 2050          | Delayed Transition | Current Policies |
| Unadjusted Reference Portfolio                       | Overall net VaR   | -10.0                  | -5.3               | -5.4             |
| (ACWI IMI + NZX50) <sup>3</sup>                      | Physical risk     | -0.5                   | -1.1               | -2.4             |
|                                                      | Transition risk   | -9.5                   | -4.1               | -3.0             |
|                                                      | • Policy risk     | -10.7                  | -4.4               | -3.3             |
|                                                      | • Technology risk | 1.2                    | 0.3                | 0.3              |
| Actual Portfolio                                     | Overall net VaR   | -1.3                   | -1.1               | -1.6             |
| (as of FYE 30 June 2026)                             | Physical risk     | -0.3                   | -0.7               | -1.5             |
|                                                      | Transition risk   | -1.0                   | -0.4               | -0.1             |
|                                                      | • Policy risk     | -3.3                   | -0.8               | -0.6             |
|                                                      | • Technology risk | 2.3                    | 0.5                | 0.5              |
| Overall improvement in net VaR (%)                   |                   | 8.7                    | 4.2                | 3.8              |

1. Negative figures indicate a net risk to portfolio value from climate change (e.g. physical hazard to coastal assets from sea level rise), whilst positive figures indicate net opportunity (e.g. through increased exposure to clean technology assets).

2. NGFS Scenarios (Table 1).

3. MSCI All Country World Investable Market Index (ACWI IMI) + NZX50 (the 50 largest companies by market cap trading on the New Zealand Stock Exchange).

Based on our FY26 analysis:

- Our Actual Portfolio is estimated to be better positioned than the unadjusted Reference Portfolio across all scenarios, with lower estimated net CVaR of 8.7 percent under Net Zero 2050, 4.2 percent under Delayed Transition, and 3.8 percent under Current Policies.
- Total estimated CVaR varies across the scenarios, reflecting different contributions from physical risk, policy risk, and technology opportunities.
- The higher policy CVaR under the Net Zero 2050 scenario is likely driven by the upfront costs and market risks of a relatively more rapid transition in climate-related policy. Technology opportunities are also higher under this scenario, reflecting potential upside from clean technology revenues and green innovation.
- In every scenario, our Actual Portfolio shows lower estimated physical and policy CVaR than the unadjusted Reference Portfolio.
- Across all scenarios, the NZSF remains exposed to net negative climate-related risks. However, these risks are reduced, and the potential upside from technology opportunities is enhanced, compared with the unadjusted Reference Portfolio.

The results are not predictive of the state that is most likely to occur. Like all climate change scenarios, the NGFS scenarios contain significant degrees of inherent uncertainty. The economic impacts of physical climate change are likely to be substantially different than those anticipated by current modelling.

Chronic physical climate-related risks under 'Current Policies' - including the impact of critical tipping points - are expected to take longer to emerge and be reflected in asset values, compared to nearer-term acute physical impacts and policy or technology shifts.

Companies have a greater degree of agency over their positioning relative to policy and technology risks and local, near-term physical risks - in comparison to the large-scale impacts from macro shifts in planetary processes such as sea level rise.

CVaR analysis does not yet factor in companies' transition plans, meaning that some of the estimated value-at-risk from the transition may be overestimated for those with well-established and feasible plans. Section 6(c) details some of the methods, assumptions, limitations and estimation uncertainties associated with climate scenarios and CVaR models applied.

### 5.3. CARBON PRICE

We do not use a common internal carbon price across the Fund given the range of sectors and geographies in which we invest. Carbon prices may be factored in as relevant data points for specific investment analyses.

### 5.4. OTHER CLIMATE AND ESG PERFORMANCE MEASURES

Adoption of MSCI Paris Aligned Benchmark indices enables us to track and improve the ESG performance of our global passive equities portfolio against their benchmark parent indices by adjusting relative weightings according to climate-related measures, including:<sup>1</sup>

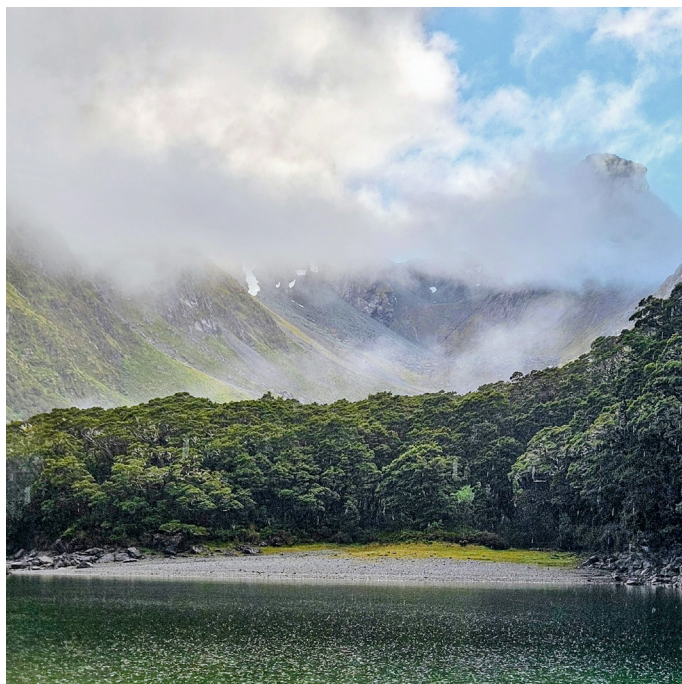
- Companies facing high transition and physical climate risk (underweight)
- Companies providing climate solutions (overweight)
- Companies with credible emissions-reduction targets (overweight)
- Exposure to 'green revenues' (overweight, by at least double)
- Low Carbon Transition (LCT) Score (improved)
- Physical Climate Value-at-Risk (at least 50% lower than benchmark).

Our active multifactor portfolios aim to achieve many of the same performance improvements.

1. <https://www.msci.com/our-solutions/esg-investing/esg-indexes/climate-paris-aligned-indexes>

# 6.

## Statement on methods, assumptions and estimation uncertainty



This report contains disclosures that rely on incomplete or estimated data, partial or provisional assessments of current and forward-looking information, and related judgements, opinions and assumptions.

Climate change is an evolving concept with high levels of uncertainty - especially over longer-term time horizons. Descriptions of the current and anticipated risks and impacts relating to climate change represent estimates only. In particular, this document contains forward-looking statements and opinions about the NZSF, markets, our portfolio companies and the environment in which the Guardians operates - including climate-related scenarios, metrics, targets, and statements of the Guardians' and our partners' future intentions and performance relating to them.

We base our statements and opinions on reasonable information available to us at the date of publication. These statements and opinions necessarily involve assumptions, forecasts and projections about the Guardians' future strategies and operating contexts, which may be inherently uncertain and/or subject to contingencies outside of the Guardians' direct control, particularly as to inputs, available data and modelling which are likely to change.

The risks and opportunities described in this report, and our strategies to achieve our targets, may not eventuate or may be more or less significant than anticipated. There are many factors outside of the Guardians' control that could cause the NZSF's actual performance or climate-related metrics (including targets) to differ materially from that described, including economic factors, technological developments, climatic shifts, and government, consumer and/or market behaviours.

### (A) FINANCIAL INFORMATION

The Guardians use net asset value for some assets to calculate the GHG emissions inventory, this treatment may result in year-on-year fluctuations caused by valuation. This approach is considered appropriate and accepted as a known risk by Management.

## (B) CLIMATE SCENARIOS - NETWORK FOR GREENING THE FINANCIAL SYSTEM (NGFS)

Most mainstream climate models and associated scenarios like the NGFS 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.<sup>1</sup> For example, the approach and assumptions underlying NGFS scenarios are characterised by:

- Poor appreciation and integration of complex but real physical risks, such as non-linear changes via climate tipping points, feedback loops and compounding, cumulative and interdependent climate and nature-related risks;
- Frequent lack of data granularity, geographical resolution, and consideration of asset-level vulnerabilities – a major driver of real-world risk;
- Absence of certain transition risks, such as acutely disruptive policy or technology ('social tipping points'), extreme financial market volatility (climate change-induced or otherwise), and the implications of certain physical climate impacts on asset prices.
- Reliance on various assumptions about future social, economic, technological, and policy developments and pathways, which are inherently uncertain.
- Absence of non-climatic drivers of risk such as civil unrest or geopolitical conflict over e.g. diminished and/or newly accessible natural resources, systemic vulnerabilities.

In reality, 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.

## (C) MSCI CLIMATE VALUE AT RISK (CVAR)

The CVaR method is subject to key limitations due to data gaps, necessary oversimplifications, assumptions and approximations. Nevertheless, the outputs can be useful for providing high-level insights and indications for further analysis. The complete CVaR methodology is available from MSCI.<sup>2</sup>

Each scenario provides a point estimate of indicative value at risk. The estimates MSCI has produced are based on various assumptions and scenarios that, if adjusted, could significantly alter the indicative values. In particular, we note that CVaR assumes companies discount at their Weighted Average Cost of Capital, rather than the social discount rate. Therefore, CVaR results should not be interpreted as reflecting the full social cost, nor are they predictive of the state that is most likely to eventuate.

For the purposes of this CVaR analysis we exclude some of our synthetic positions. This is because there are data limitations, and because including derivative positions that can change significantly on a day-to-day basis, would introduce undesirable short-term fluctuations which could obfuscate the more material long-term trends. We note that including these derivative positions could have a material short-term impact on these measures so these results should be interpreted with caution.

## (D) GHG EMISSIONS

See Annex A for details on the basis of preparation, including the approach, methodology, assumptions, limitations and estimation uncertainties specific to our GHG emissions metrics and targets.

1. <https://www.ngfs.net/ngfs-scenarios-portal/data-resources>

2. <https://www.msci.com/legal/sustainability-and-climate-resources-and-disclosures/msci-sustainability-and-climate-methodologies>

# Glossary

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| Term                                          | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Access point</b>                           | The actual investment the Guardians makes to gain exposure to a desired risk (e.g. buying a listed equity). Access points are our way of exploiting opportunities, themes, stress-test outcomes and manager skill. The access point can be passive, active, synthetic, or funded, directly (internally) or externally managed.                                                                                                                                                                                                                                                                                                                   |
| <b>Actual Portfolio</b>                       | The Fund's portfolio at any point in time reflecting all the positions arising from the Fund's implementation of Opportunities. Conceptually, the actual portfolio equals the Reference Portfolio, plus the active portfolio.                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Asset class</b>                            | A group of securities or assets that share common risk and return characteristics.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Baseline year</b>                          | A baseline (base) year is a reference point in the past with which current emissions can be compared. Baseline years are set to maintain consistency between data sets and enable readers to make comparisons of data over time using a consistent calculation methodology.                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Business loans (corporate credit)</b>      | Business loans include all on-balance sheet loans and lines of credit to businesses, non-profits, and any other structure of organisation that are not traded on a market and are for general corporate purposes, i.e., with unknown use of proceeds as defined by the GHG Protocol.                                                                                                                                                                                                                                                                                                                                                             |
| <b>Cash</b>                                   | Generally taken to mean a very short-term investment earning interest from a highly rated bank or an equivalent bank bill.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Climate scenarios</b>                      | A series of assumptions, analyses and informed judgement used to establish plausible projected future pathways and outcomes for global climatic and socio-economic conditions.                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Climate value-at-risk (CVaR)</b>           | A forward-looking and return-based valuation assessment to estimate climate-related risks and opportunities in an investment portfolio.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Commercial real estate</b>                 | This asset class includes on-balance sheet loans for specific corporate income-generating purposes, namely the purchase and refinance of commercial real estate and on-balance sheet investments in commercial real estate. Assets include properties used as retail, hotels, office space, industrial, or large multifamily rentals.                                                                                                                                                                                                                                                                                                            |
| <b>Corporate Bonds</b>                        | This asset class includes all on-balance sheet listed corporate bonds that are traded on a market and are for general corporate purposes, i.e., unknown use of proceeds as defined by the GHG Protocol.                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Crown Responsible Investment Framework</b> | In 2020–21, the Guardians collaborated with other Crown Financial Institutions (CFIs) and the New Zealand Government in developing a common 'Crown Responsible Investment Framework' which outlined the basis for CFIs' alignment on carbon emissions measurement, net zero 2050 commitments, and climate-related disclosures [ <a href="https://nzsuperfund.nz/assets/Uploads/Enduring-Letter-of-Expectations-to-Crown-Financial-Institutions-in-relation-to-Responsible-Investment.pdf">https://nzsuperfund.nz/assets/Uploads/Enduring-Letter-of-Expectations-to-Crown-Financial-Institutions-in-relation-to-Responsible-Investment.pdf</a> ]. |
| <b>Currency exposure</b>                      | Foreign exchange hedging. Currency hedging is where we adjust our currency hedges to match the Reference Portfolio currency exposure, which is 100% hedged to the NZ dollar.                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Derivative exposures</b>                   | A financial instrument that derives its value from the value of underlying entities such as an asset, index or interest rate - it has no intrinsic value in itself. Derivatives are designed to gain exposure to an asset without having to physically hold the asset. Given that much of our equity exposure is completed through derivatives, we have created a look-through tool which allows us to footprint these positions. The result mimics the physical listed equity holding.                                                                                                                                                          |

| Term                                          | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Discount rate</b>                          | 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 prospect of 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.                                                                                                                                                                                             |
| <b>Downstream Scope 3 emissions</b>           | Indirect carbon emissions related to sold goods and services.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Endowments</b>                             | A characteristic of the NZSF that provides the Guardians with a natural advantage or edge over the typical investor.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>EVIC</b> (enterprise value including cash) | The sum of the market capitalisation of ordinary shares at financial year-end, the market capitalisation of preferred shares at fiscal year-end, and the book values of total debt and minorities' interests. No deductions of cash or cash equivalents are made to avoid the possibility of negative enterprise values.                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Fossil fuel reserves</b>                   | This measures the carbon equivalent emissions stored in fossil fuel reserves that would be released if those fossil fuel reserves were produced and used in the future, relative to dollars invested. Fossil fuel reserves include thermal coal, gas and oil. In line with MSCI, fossil fuel reserves include: metallurgical coal, thermal coal, conventional oil, shale oil, oil shale & tar sands, natural gas, shale gas. MSCI ESG Research calculates the potential emissions should all fossil fuel reserves be produced and burnt expressed as metric tonnes of CO <sub>2</sub> equivalent using the Potsdam Institute methodology. This includes proved and probable fossil fuel reserves. |
| <b>Greenhouse gas</b>                         | The greenhouse gases listed in the Kyoto Protocol: carbon dioxide (CO <sub>2</sub> ); methane (CH <sub>4</sub> ), nitrous oxide (N <sub>2</sub> O), hydrofluorocarbons (HFCs), nitrogen trifluoride (NF <sub>3</sub> ), perfluorocarbons (PFCs), and sulphur hexafluoride (SF <sub>6</sub> ).                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Information Ratio</b>                      | A measurement of return per unit of risk.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Investment</b>                             | An allocation of risk capital to a specific manager or activity. This could include an individual investment undertaken by our internal management under an Internal Investment Mandate.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Listed equities</b>                        | A company is described as listed if its stock shares can be bought and sold through a public stock exchange. This asset class includes all on-balance sheet listed equity that is traded on a market and is for general corporate purposes. This may include listed NZ equities and listed global equities, and covers both active and passive listed physical equities.                                                                                                                                                                                                                                                                                                                          |
| <b>Long position</b>                          | In the context of derivatives, a long position is one in which the investor expects to make a gain if the price of the underlying asset rises.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Market capitalisation</b>                  | Total market value of a company's outstanding shares.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Net neutral strategies</b>                 | Refers to investment strategies where we expect to be long and/or short across a range of markets, regions and/or asset classes over interim periods, with positions expected to net to zero over time. Relevant strategies are excluded from the GHG Emissions Inventory.                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Opportunity</b>                            | A term used by the Guardians, referring to an explicitly-defined investment activity that is expected to improve the risk-adjusted expected return of the Actual Portfolio. It can be temporal (cyclical or short term) or structural (of a more enduring nature). Opportunities can be aligned with sectors, asset classes, or more nuanced, custom concepts or strategies.                                                                                                                                                                                                                                                                                                                      |

| Term                                  | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Passive management</b>             | Passive management, or 'index-tracking', is a style of investment management through which a fund's portfolio mirrors a selected market index. Stocks move in and out of the portfolio according to index inclusion rather than through an active investment decision.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Project Finance</b>                | Financed emissions include all on-balance sheet loans or equities to projects or activities that are designated for specific purposes.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Reference Portfolio</b>            | A low-cost, passively managed and well-diversified portfolio of listed asset classes that is consistent with the NZSF achieving its return objectives without undue risk. The Reference Portfolio risk profile has an 80:20 split between growth and fixed-income investments and acts as the key benchmark for performance of the NZSF Actual Portfolio.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Risk budget</b>                    | Articulates the average amount of active risk that is expected to be allocated to an Opportunity or group of Opportunities. Risk budgets aggregate to the total active risk budget. Risk budgeting is a stage of the risk allocation process.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Short position</b>                 | A short or short position is an investment strategy where an entity sells a security, currency or derivative with the view of buying back the same amount of the relevant instrument at a lower price. In the context of derivatives, a short position refers to a situation where the investor expects to make a gain if the price of the underlying asset decreases.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Sovereign Bonds (debt)</b>         | A debt security issued by a national government. This asset class includes sovereign bonds of all maturities issued in domestic or foreign currencies.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Synthetic portfolios</b>           | Obtaining exposures using derivatives. Generally does not require funding.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Unadjusted Reference Portfolio</b> | <p>The term 'Unadjusted Reference Portfolio' links back to the benchmark indices in use as the NZSF's Reference Portfolio (see above) when we established our GHG emissions reduction targets in 2019-20.</p> <p>That benchmark comprised a combination of the MSCI All Country World Investable Market Index (ACWI IMI) and the NZX50.</p> <p>For our legacy 2020-2025 GHG emissions method/targets and CVaR, we considered what those original benchmark indices owned at each subsequent financial year end (e.g. 30 June 2023) as the 'unadjusted Reference Portfolio' – as the baseline against which to compare performance of our Actual Portfolio on GHG metrics, targets – and for CVaR.</p> <p>For our current 2025-2030 GHG emissions method/targets, we adopt those original benchmark indices as a fixed instance of the 'unadjusted Reference Portfolio' as at 30 June 2019 - for the purposes of a baseline against which to compare performance of our Actual Portfolio on GHG metrics and targets.</p> |
| <b>Unlisted</b>                       | An unlisted security is a financial instrument that is not traded on a formal exchange. For example, unlisted equities include all on-balance sheet equity investments to businesses, nonprofits, and any other structure of organization that are not traded on a market and are for general corporate purposes, i.e., with unknown use of proceeds as defined by the GHG Protocol. This includes private equity investments.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Upstream Scope 3 emissions</b>     | Indirect carbon emissions related to purchased or acquired goods and services.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

# Annex A

## Basis of Preparation – NZSF Greenhouse Gas Emissions Inventory



Methods, rationale, assumptions, estimations and limitations involved in measuring the financed GHG emissions of the NZSF

### BASIS OF PREPARATION – NZSF GHG EMISSIONS INVENTORY

#### 1. INTRODUCTION

##### 1.1. PURPOSE

This Basis of Preparation (BOP) describes the methods, rationale, assumptions, estimations and limitations involved in measuring the financed greenhouse gas (GHG) emissions of the New Zealand Super Fund (NZSF) investment portfolio.

This BOP applies to the GHG Emissions Inventory as at financial year end (FYE), 30 June 2026, along with any recalculations and restatements of previous years' inventories conducted after this date.

The document is structured around the key features and processes of the inventory, with additional asset class-specific details progressively added within each section.

##### 1.2. STANDARDS AND MANAGEMENT CRITERIA

The GHG Emissions Inventory for the NZSF is calculated using the **Management Criteria** as set out in this BOP. The standards used as a basis to develop our Management Criteria include the World Resources Institute and World Business Council for Sustainable Development's Greenhouse Gas Protocol standards and guidance (collectively, the 'GHG Protocol').<sup>1</sup>

Specifically, our Management Criteria are based on elements of the following standards, with further information presented in Table 2.1:

- GHG Protocol: A Corporate Accounting and Reporting Standard (revised edition).
- GHG Protocol: Corporate Value Chain (Scope 3) Accounting and Reporting Standard.
- Partnership for Carbon Accounting Financials (PCAF): The Global GHG Accounting and Reporting Standard Part A: Financed Emissions, Third Edition. (PCAF, 2025).<sup>2</sup>

The PCAF Standard 3rd edition introduced additional methodologies and recommendations in December 2025. The Guardians reviewed these developments and their relevance to the NZSF portfolio and approach.

1. [Homepage | GHG Protocol](#)

2. <https://carbonaccountingfinancials.com/files/standard-launch-2025/PCAF-PartA-2025-V3.pdf>

Management have determined specific aspects where it is unfeasible or impractical to fully align with the PCAF standards – especially where methodologies and/or data integrity are not well established and/or where implementation would require changes to data sourcing, asset classification, calculation models, controls, and/or assurance procedures in the middle of our financial year. Significant deviations from PCAF and corresponding rationales are summarised in Table 2.1. In some respects, the Guardians may defer adoption until global good practice and/or our supporting systems are sufficiently well established and robust.

Key changes in our GHG emission inventory approach for FY2026 are summarised in Box A.

#### BOX A: KEY CHANGES IN OUR GHG EMISSION INVENTORY APPROACH FOR FY2026

Our Management Criteria and methods were revised in FY2026, with key changes including:

- (i) revised attribution methods for unlisted equity and business loans to better align our asset valuation methods with the PCAF standard, including greater use of investee equity and debt information, in place of the NAV data previously used for FY2025.
- (ii) use of a fixed baseline property value at each asset's GHG emissions inventory baseline year for the commercial real estate attribution denominator, in place of the annual FYE NAV data used for FY2025.

### 1.3. SCOPE

This BOP applies to financed emissions associated with NZSF investments, based on the fact that NZSF has the potential to benefit economically from our investees activities.

Whilst the Guardians is also administrator of the 'Elevate Fund', this is an entirely separate fund from the NZSF and is managed by a separate entity appointed by the Guardians. The Elevate Fund is established under its own legislation, with a distinct purpose, governance framework, and largely standalone reporting. See Guardians Annual Report for more information.

This BOP covers the Guardians' Scope 3, Category 15 GHG emissions arising from the underlying securities and investee companies in the NZSF. Under the GHG Protocol Value Chain (Scope 3) Accounting and Reporting Standard, these emissions are described as the *'operation of investments (including equity and debt investments and project finance) in the reporting year, not included in scope 1 or scope 2'*.<sup>1</sup>

Operational GHG emissions associated with the Guardians as an entity lie outside of scope. Specifically, the Scope 1, 2 and 3 operational emissions arising from the Guardians' service functions (investment management, fund administration, etc.) are calculated and disclosed separately in the Guardians' Annual Report.<sup>2</sup>

The Guardians does not separately estimate or include emissions from land use, land-use change and forestry (LULUCF), within the NZSF financed GHG emissions inventory, metrics and/or targets. However, LULUCF emissions may be incidentally included, to the extent that they are reported or estimated for specific assets, as part of their broader investee emissions dataset.

Avoided and/or removed emissions are not in the scope of the inventory, metrics and/or targets.

1. [Corporate-Value-Chain-Accounting-Reporting-Standard\\_041613\\_2.pdf](#)

2. [NZ Super Fund - Annual Report](#)

#### 1.4. INVENTORY BASELINE AND ACCOUNTING PERIOD

The GHG Emissions Inventory is calculated in line with the NZSF financial accounting cycle. This means the inventory is calculated annually, covering the 12 months included within the financial year ending 30 June (i.e. 1 July to 30 June inclusive).

The GHG Emissions Inventory is based on data available at the time of preparation, reflective of the NZSF's FYE. Due to delays between an investee reporting their GHG emissions and our inventory being calculated, disclosures may include data from outside the financial year.

The GHG emissions **baseline year** under this Management Criteria is FY2025 (i.e. 30 June 2025). Note that this is distinct from the 'benchmark year' established for our 2030 emissions reduction targets (30 June 2019), as described in the main section of our Climate Change Report.

#### 1.5. CONSOLIDATION APPROACH

We use the *financial control approach* to define organisational boundaries and report the financed emissions from the Guardians investments as Category 15, according to NZSF's relative share of ownership. Consistent with our financial reporting (investment entity) approach, we treat all investments as Category 15 regardless of our level of ownership.

The Guardians' governance mechanisms - including our Statement of Investment Policies, Standards and Procedures - mean that although we may acquire a majority interest in some directly-owned assets, the investee retains general operational independence. The Guardians is not directly involved in the management of the asset, and does not typically control the entity or direct investees' activities.<sup>1</sup>

NZSF financed emissions are typically estimated based on the NZSF's proportional exposure, assessed at the asset class level using fair value, and reflected on the balance sheet as separate assets. Derivatives are subject to distinct treatment, as described in Section 2.

#### 1.6. RESTATEMENTS AND RECALCULATIONS APPROACH

Management will apply reasonable endeavours to restate or recalculate the baseline year and/or subsequent years' GHG emissions inventories, if it is considered beneficial to users' understanding, where:

- material errors, omissions, or misstatements are identified in data or calculations;
- material changes in standards or methodologies are applied;
- new asset classes are included, with the asset baseline set at first year of inclusion and;
- restatement is practical and reasonable.

A matter is generally considered material where it affects total portfolio emissions (ex. sovereign debt) by 5% or more, or where - in Management's judgement - the matter could reasonably influence users' understanding of the inventory. The scope, rationale and associated implications of any restatements will be disclosed.

Management will not restate or recalculate the GHG emissions inventory where it is judged impractical or unreasonable to do so, such as where:

- accurate, complete and/or comparable historical data is unavailable, based on reasonable endeavours (e.g. using our existing third-party data service providers);
- such endeavours would require disproportionate amount of Guardians' resources.

1. <https://www.nzsuperfund.nz/publications/policies/>

## 2. ASSET CATEGORISATION AND TREATMENT

Table 2.1 presents an overview of how NZSF portfolio holdings are identified, categorised and treated in relation to PCAF standards for the GHG emission inventory, along with high-level rationale for inclusion, omission, deviation, or deferral. More detailed methodology information is provided for each asset category in subsequent chapters.

Whilst emissions from most asset classes have been measured since 2019, new asset classes are added from time-to-time, to reflect updated standards or Management Criteria.

In general, we aim to use data that is available and consistent with our financial treatment and valuation of an asset.

Some asset types may be excluded for one or more of the following reasons:

- No firmly established global methodology for some asset classes.
- Inability to source reliable data.
- Inability to readily distinguish asset classes within our holdings data.
- Individual activities are considered insignificant (i.e. <5%) to total GHG emissions.
- Investments that are considered net neutral over the long term.
- Cash assets. These are typically excluded, except when included by default i.e. where we are unable to determine whether an investment includes cash or not.

**Derivatives:** Using derivatives allows the NZSF to enter into agreements to either buy or sell an underlying asset at a predetermined price and future date, without directly owning it. Derivatives have been included in our 2019 emission reduction targets and have previously been disclosed.

PCAF does not currently provide a standard for apportioning emissions associated with derivatives. We are aware of evolving voluntary guidance for measuring and reporting GHG emissions on derivative positions. However, as a globally-accepted standard does not yet exist, we will continue with our established approach.

We have opted to align with our financial reporting approach by accounting for GHG emissions from derivative positions linked to our listed equity, listed corporate bonds, and sovereign bonds. All other types of derivatives are excluded. We also exclude derivatives we deem to be net neutral. We treat derivatives according to the physical equivalent of notional values using exposure, calculate the total longs held and the total shorts held and net them.

**Table 2.1: Overview of NZSF treatment of PCAF asset categories**

| Asset category (PCAF chapter)                   | NZSF treatment                | Treatment rationale and associated disclosures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------------------------------------|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Listed equities</b> (5.1)                    | Included                      | Core PCAF methodology applied for active and passive listed equities (inc. listed property) and listed equity exposures gained via derivative positions.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Listed corporate bonds</b> (5.1)             | Included                      | <p>Core PCAF methodology applied for listed corporate bonds for general corporate purposes (inc. exposures gained via derivative positions). For investments where we are not able to distinguish if the bond is a general or special purpose bond, the methodology for corporate bonds applies.</p> <p>Current market value is applied rather than nominal value.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Unlisted equity and business loans</b> (5.2) | Included, with deviation      | Core PCAF methodology applied for business loans. Guardians methodology applied for unlisted equity deviates from PCAF through our use of EVIC (or total company valuation) as the attribution factor denominator, in place of total equity and debt.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Project finance</b> (5.3)                    | Absent or immaterial exposure | Assets that meet this classification are absent or assessed as not material based on available holdings data and reasonable emissions estimates. There is no established global methodology to quantify the financed emissions of some project finance and alternative real estate assets such as loans for construction and renovation.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Commercial real estate (unlisted)</b> (5.4)  | Included, with deviation      | <p>Core PCAF methodology applied for unlisted commercial real estate assets, with the property value fixed at FYE 2025, or subsequent FYE after the asset first enters the NZSF portfolio and GHG inventory. That value is then fixed for subsequent reporting periods, unless there is a material change in the NZSF holding or transaction structure that results in a new basis for valuation.</p> <p>Our approach is acceptable under PCAF but deviates from the standard approach which fixes property values at initial loan/equity origination for the underlying asset. Our approach aligns with NZSF financial valuation in the asset's baseline year in our GHG Inventory which is more feasible than trying to source original asset valuation information at loan/equity origination.</p> <p>N.B. Property investments listed on the stock market are classified and treated as listed equity.</p> |
| <b>Mortgages</b> (5.5)                          | Absent or immaterial exposure | Assets that meet this classification are absent or assessed as not material based on available holdings data and reasonable emissions estimates.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Motor vehicle loans</b> (5.6)                | Absent or immaterial exposure | Assets that meet this classification are absent or assessed as not material based on available holdings data and reasonable emissions estimates.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

| Asset category (PCAF chapter)                              | NZSF treatment                          | Treatment rationale and associated disclosures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------------------------------------------------|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Use of Proceeds structures</b> (5.7)                    | Included, but not explicitly identified | General Guardians corporate bond or sovereign bond methodology applied, as appropriate. Exposure to special purpose vehicles is not reliably distinguishable, so this asset category is not separately identified. Business bonds and loans with specific corporate purposes (e.g. a green loan or green bond) are covered by PCAF, but we are not yet able to reliably distinguish such 'special purpose bonds'.                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Securitisation and structured products</b> (5.8)        | Not included                            | Adoption and implementation deferred in FY2026, pending holdings classification, data sourcing and assurance readiness.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Sovereign debt</b> (5.9)                                | Included, with deviation                | Core sovereign debt methodology generally applied (including for sovereign bond exposures gained via derivative positions), with deviation from PCAF where current market value is applied rather than nominal value. Land use, land-use change and forestry (LULUCF) is excluded from the primary sovereign Scope 1 territorial metric based on the EDGAR data source used.                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Sub-sovereign and supra-national debt</b> (5.10)        | Included, but not explicitly identified | General sovereign bond methodology applied. Exposure to sub- or supra-sovereign assets is not reliably distinguishable, thus this asset category is not separately identified.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Cash, currency exposure and tax credits/liabilities</b> | Included, but not explicitly identified | Some cash investments are not excluded in commercial real estate, and unlisted investments due to the inability to isolate the asset class at this granular level.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Strategic tilting and selected derivatives</b>          | Not included                            | Our strategic-tilting programme is intended to be net neutral over the long-term and fluctuates significantly over any given period. Including such positions could obfuscate more material long-term trends. Given these factors, it would not be a fair reflection of GHG emissions exposure of the portfolio to include net neutral positions in an annual inventory. These activities are estimated as <5% of NZSF's total anticipated financed GHG emissions.                                                                                                                                                                                                                                                                                                                            |
| <b>Other private credit</b>                                | Not included                            | Off-balance sheet loans and lines of credit have no present investment value.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Other</b>                                               | Not included                            | <p>There is no global methodology to quantify the financed emissions for some other asset classes, including:</p> <ul style="list-style-type: none"> <li>Natural catastrophe insurance: <i>Involves the purchase of natural catastrophe linked bonds and other products.</i></li> <li>Active collateral: <i>Cash and non-cash assets pledged as collateral.</i></li> <li>Wireless spectrum: <i>A tactical opportunity within private equity and unconsolidated subsidiaries in the telecommunications sector.</i></li> <li>Global Macro: <i>A market-neutral strategy that produces return by exploiting inefficiencies within and across a broad range of liquid markets.</i></li> <li>Tactical Credit Opportunities: <i>Short-term credit positions.</i></li> <li>Carbon credits</li> </ul> |

### 3. METRICS

The key metrics we measure as part of the GHG Emissions Inventory are outlined below for each of the major asset class categories, with units typically expressed as metric tonnes of carbon dioxide equivalent (tCO<sub>2</sub>e) and all values taken as at most recent FYE, unless stated otherwise.

**Figure 3.1: General approach to calculating financed emissions (as per PCAF)**

$$\text{Financed emissions} = \sum_i \frac{\text{Attribution factor}_i \times \text{Emissions}_i}{\frac{\text{Outstanding amount}_i}{\text{Total equity} + \text{debt}_i}}$$

(with  $i$  = borrower or investee)

Figure 3.1 is the general approach to calculating financed emissions. Section 4 provides further detail on the attribution factors to be used when calculating the outstanding amount and asset values below.

Key changes in our GHG emission inventory calculations for FY2026 are summarised in Box B.

#### BOX B: KEY CHANGES IN OUR GHG EMISSION INVENTORY CALCULATIONS FOR FY2026

Our GHG emissions inventory calculation method and model were amended in FY2026, with key changes from FY2025 including:

(i) Aligning our approach to calculating emissions intensity and potential emissions from fossil fuel reserves to be consistent with the methodology applied to other portfolio emissions metrics, such that calculations are based only on assets for which the complete underlying data are available. Specifically:

- FY2025 published **emissions intensity** was calculated as the total attributed emissions (numerator), relative to total attributed revenue (denominator), with the model aggregating total portfolio revenue data, even where assets lack corresponding emissions data. This risked misstating emissions intensity for the NZSF. The revised FY2026 model calculates portfolio emissions intensity by including only the assets for which we have both emissions and revenue figures, presenting a more robust representation of NZSF emissions intensity.
- The revised FY2026 methodology for calculating **potential GHG emissions from fossil fuel reserves** (per amount invested) was similarly refined, with the denominator (NAV) adjusted to reflect only the portion of the portfolio for which corresponding potential emissions data (numerator) are available (including assets assessed as having 'zero' potential emissions), reducing the risk of understating emissions.

(ii) The availability of more complete financial data for underlying unlisted entities from our third party data provider increased the proportion of private market assets for which attribution could be calculated using EVIC. Where adequate financial data remain unavailable, the IFRS 10 assessment of control continues to be used as a fallback to measure our attribution factor.

### 3.1. LISTED EQUITIES

**Table 3.1: Metrics for listed equities and derivative exposures<sup>1</sup>**

| Metric                                                                                                                                                                                                                                                                       | Outstanding amount (numerator)                          | Asset value (denominator)                                                                                                                       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Scope 1 and 2 (tCO<sub>2</sub>e):</b> Sum of scope 1 and 2 GHG emissions associated with NZSF investment portfolio (financed emissions).                                                                                                                                  | Outstanding amount invested based on market value       | Enterprise Value Including Cash (EVIC) <sup>2</sup>                                                                                             |
| <b>Scope 3 (tCO<sub>2</sub>e):</b> Sum of scope 3 GHG emissions associated with NZSF investment portfolio (financed emissions).                                                                                                                                              | Outstanding amount invested based on market value       | EVIC                                                                                                                                            |
| <b>Carbon footprint (tCO<sub>2</sub>e / NZ\$M total invested):</b> Financed emissions per million dollars invested.                                                                                                                                                          | Scope 1 and 2 emissions as per above                    | Current investment portfolio value (NAV, NZ\$M) for this asset class <sup>3</sup><br><br>For derivatives we use the equivalent exposure amount. |
| <b><sup>4</sup>Emissions intensity (tCO<sub>2</sub>e / US\$M sales):</b> Volume of GHG emissions per million dollars of revenue <sup>5</sup>                                                                                                                                 | Scope 1 and 2 emissions                                 | Total sales (US\$M)                                                                                                                             |
| <b><sup>4</sup>Potential emissions from fossil fuel reserves (tCO<sub>2</sub>e / US\$M NAV):</b> The equivalent emissions stored in fossil fuel reserves that would be released if these reserves were produced and used in the future based on the current portfolio value. | Outstanding amount in the reserve based on market value | Current investment portfolio value US\$M (for fossil fuel reserves)                                                                             |

1. CDP (v5.0, 21 May 2025) [[https://cdn.cdp.net/cdp-production/cms/guidance\\_docs/pdfs/000/005/932/original/CDP\\_Technical\\_Note\\_on\\_Portfolio\\_Impact\\_Metrics\\_for\\_Financial\\_Services\\_Sector\\_Companies.pdf](https://cdn.cdp.net/cdp-production/cms/guidance_docs/pdfs/000/005/932/original/CDP_Technical_Note_on_Portfolio_Impact_Metrics_for_Financial_Services_Sector_Companies.pdf)]
2. For derivatives, we adopt EVIC over revenue denominators, when computing intensity metrics for equity and credit positions.
3. For derivatives we use the exposure value as this provides a more comparable value to the NAV.
4. Metric used for emissions reduction targets.
5. No adjustments for fluctuations in EVIC are made.

### 3.2. LISTED CORPORATE BONDS

**Table 3.2: Metrics for listed corporate bond and derivative exposures**

| Metric                                                                                                                                                                                                                                                           | Outstanding amount (numerator)        | Asset value (denominator)                                                                                                                     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Scope 1 and 2 (tCO<sub>2</sub>e):</b> Sum of scope 1 and 2 GHG emissions associated with NZSF investment portfolio (financed emissions).                                                                                                                      | The market value of the debt (NAV)    | EVIC for listed issuers; Equity + debt for unlisted issuers.                                                                                  |
| <b>Scope 3 (tCO<sub>2</sub>e):</b> Sum of scope 3 GHG emissions associated with NZSF investment portfolio (financed emissions). <sup>1</sup>                                                                                                                     | The market value of the debt (NAV)    | EVIC for listed issuers;<br>Equity + debt for unlisted issuers.                                                                               |
| <b>Carbon footprint (tCO<sub>2</sub>e/NZ\$M total invested):</b> Financed emissions per million dollars invested.                                                                                                                                                | Scope 1 and 2 emissions as per above  | Current investment portfolio value (NZ\$M) (for this asset class) <sup>2,3</sup><br><br>For derivatives we use the equivalent exposure amount |
| <b>Emissions intensity (tCO<sub>2</sub>e/US\$M sales):</b> Volume of GHG emissions per million dollars of revenue <sup>4</sup>                                                                                                                                   | Scope 1 and 2 emissions               | Total sales (US\$M)                                                                                                                           |
| <b>Potential emissions from fossil fuel reserves (tCO<sub>2</sub>e / US\$M NAV):</b> The equivalent emissions stored in fossil fuel reserves that would be released if these reserves were produced and used in the future based on the current portfolio value. | Tonnes of equivalent carbon emissions | Current investment portfolio value US\$M (for fossil fuel reserves)                                                                           |

1. Includes all available data. Sector specific breakdowns are not monitored or disclosed.

2. MSCI uses the notional value of the bond as the outstanding amount. However, we use the market value of the bond at the time of the report to align with the valuation the NZSF has for the asset.

3. For listed corporate bond derivatives, we use the exposure value as this provides a more comparable value to the NAV.

4. No adjustments for fluctuations in EVIC are made.

### 3.3. UNLISTED ASSETS (PRIVATE EQUITY AND BUSINESS LOANS)

Where data is available, our default approach is to align with PCAF in the use of investee EVIC, including equity and debt. Where full EVIC and/or debt data is unreliable or not reasonably obtainable, our alternative approach is to assume zero debt and use NAV as a proxy.

**Table 3.3: Metrics for unlisted asset exposures (including private equity and business loans)**

| Metric                                                                                                                                                                                                                                                      | Outstanding amount (numerator)                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Asset value (denominator)                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Scope 1 and 2 (tCO<sub>2</sub>e):</b> Sum of scope 1 and 2 GHG emissions associated with NZSF investment portfolio (financed emissions).                                                                                                                 | <p>For business loans:</p> <ul style="list-style-type: none"> <li>the value of the debt owed to NZSF as at FYE, reflecting disbursed debt less repayments.</li> </ul> <p>For unlisted equity:</p> <ul style="list-style-type: none"> <li>default approach, calculated by multiplying our relative share in the investee, by the total enterprise value of the investee according to its balance sheet at FYE.</li> <li>Otherwise, we assume zero debt and apply our alternative approach.</li> </ul> | <p>For business loans to listed companies:</p> <ul style="list-style-type: none"> <li>EVIC</li> </ul> <p>For business loans to private companies:</p> <ul style="list-style-type: none"> <li>Equity + debt</li> </ul> <p>For unlisted equity:</p> <ul style="list-style-type: none"> <li>default approach of investee EVIC, including equity and debt.</li> <li>otherwise, we use our alternative approach of company valuation/NAV.</li> </ul> |
| <b>Scope 3 (tCO<sub>2</sub>e):</b> Sum of scope 3 GHG emissions associated with NZSF investment portfolio (financed emissions).                                                                                                                             | As per Scope 1 and 2 above                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | As per Scope 1 and 2 above.                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Carbon footprint (tCO<sub>2</sub>e / NZ\$M total invested):</b> Financed emissions per million dollars invested.                                                                                                                                         | Scope 1 and 2 emissions as per above                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Current investment portfolio value (NZ\$M)                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Emissions intensity (tCO<sub>2</sub>e / US\$M sales):</b> Volume of GHG emissions per million dollars of revenue <sup>1</sup>                                                                                                                            | Scope 1 and 2 emissions                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Total sales (US\$M)                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Potential emissions from fossil fuel reserves (tCO<sub>2</sub>e / US\$M NAV):</b> The equivalent emissions in reserves that would be released to atmosphere if these reserves were produced and used in the future, based on the current portfolio value | Tonnes of equivalent carbon emissions                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Current investment portfolio value US\$M (for fossil fuel reserves)                                                                                                                                                                                                                                                                                                                                                                             |

1. No adjustments for fluctuations in EVIC are made.

### 3.4. COMMERCIAL REAL ESTATE

**Table 3.4: Metrics for commercial real estate**

| Metric                                                                                                                                      | Outstanding amount (numerator)              | Asset value (denominator)                                                                                                            |
|---------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| <b>Scope 1 and 2 (tCO<sub>2</sub>e):</b> Sum of scope 1 and 2 GHG emissions associated with NZSF investment portfolio (financed emissions). | Outstanding investment amount (% ownership) | Property value at NZSF acquisition (fixed at FYE2025 or FYE for that asset's first entry (baseline) to the GHG emissions inventory). |
| <b>Scope 3 (tCO<sub>2</sub>e):</b> Sum of scope 3 GHG emissions associated with NZSF investment portfolio (financed emissions).             | Scope 1 and 2 emissions as per above        | As per Scope 1 and 2 above.                                                                                                          |
| <b>Carbon footprint (tCO<sub>2</sub>e/NZ\$M total invested):</b> Financed emissions per million dollars invested.                           | Scope 1 and 2 emissions as per above        | Current investment portfolio value (NZ\$M) for this asset class.                                                                     |

### 3.5. SOVEREIGN BONDS

**Table 3.5: Metrics for sovereign bonds and derivative exposures**

| Metric                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Outstanding amount (numerator)                                 | Asset Value (denominator)                                                                      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| <b>Scope 1 (tCO<sub>2</sub>e):</b> These are the absolute GHG emissions from sources located within the country territory.                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Scope 1 emissions (taken from the EDGAR database) <sup>1</sup> | Market value of the bond. <sup>2</sup> For derivatives, we use the equivalent exposure amount. |
| <b>Scope 1 – Production emissions (tCO<sub>2</sub>e):</b> Production emissions are emissions attributable to emissions produced domestically and include domestic consumption and exports. Production-based emissions are estimated according to the residence principle. They refer to the GHG emitted from the resident economic activities and households of a country.                                                                                                                                                                                                                       | Production emissions (taken from the OECD database)            | Market value of the bond. For derivatives we use the equivalent exposure amount.               |
| <b>Scope 1 – Consumption (demand side) emissions (tCO<sub>2</sub>e):</b> Consumption emissions represent the demand side of sovereign emissions, capturing consumption patterns and trade effects. This metric provides a broader view of a sovereign's GHG emissions and addresses leakage that arises due to offshore shifts in production from countries where goods and services are consumed. Demand-based emissions encompass GHG emissions from a country's resident households, as well as direct and indirect upstream emissions from their consumption of finished goods and services. | Consumption (demand) emissions (taken from the OECD database)  | Market value of the bond. For derivatives we use the equivalent exposure amount.               |
| <b>Carbon footprint (tCO<sub>2</sub>e/NZ\$M total invested):</b> The absolute domestic GHG emissions from sources located within a country by the NZD\$ million invested                                                                                                                                                                                                                                                                                                                                                                                                                         | Scope 1 emissions as per above (using EDGAR emissions)         | Current investment portfolio value (NZ\$M) (for this asset class) <sup>3</sup>                 |
| <b>Emissions intensity for sovereign production emissions (tCO<sub>2</sub>e / PPP adjusted GDP \$1M):</b> Production GHG emissions per \$1M GDP-PPP adjusted                                                                                                                                                                                                                                                                                                                                                                                                                                     | Production emissions (using OECD production emissions)         | GDP-PPP adjusted (uses the international \$).                                                  |
| <b>Emissions intensity for sovereign consumption (demand side) emissions (tCO<sub>2</sub>e / capita):</b> Consumption emissions per capita                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Consumption emissions (using OECD final demand emissions)      | Population per country.                                                                        |

1. Emissions Database for Global Atmospheric Research (EDGAR)

2. Note PCAF requires nominal value, however, as market value is tracked by the NZSF as part of NAV, we use this instead.

3. For sovereign bond derivatives we use the exposure value as this provides a more comparable value to the NAV.

#### 4. ATTRIBUTION FACTORS

An *attribution factor* is typically calculated by determining the share of the outstanding amount of loans and investments, over the total equity and debt of the investee. Attribution is based on our share of annual emissions of the investee, as determined by considering our proportional holdings exposure, relative to the total value of the investee (company, country, asset).<sup>1</sup>

We have deviated from PCAF for some attribution factors owing to data availability and our preference to align with our financial valuation approach. Deviations are expressed as part of our specific approach for each asset class, as detailed in Table 4.1. Derivative exposures for listed equities, sovereign bonds, and corporate bonds are treated as their physical equivalents.

**Table 4.1: Attribution factors applied for each asset class**

| Asset class                                                                                                                      | Attribution factor descriptions [ <i>i</i> = NZSF share of investment; <i>c</i> = asset/company]                                                                                                                                                                     |
|----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Listed equities</b><br>Includes active and passive listed physical equities and listed property - and associated derivatives. | $\text{Attribution factor} = \frac{\text{Outstanding amount}_i}{EVIC_c}$ <p>Where the outstanding amount is taken as: (number of shares x price) + the net long/short exposure of the derivatives (based on physical equivalent of notional values) and options.</p> |

1. PCAF (2025). *The Global GHG Accounting and Reporting Standard Part A: Financed Emissions. Third Edition.*

| Asset class                                                | Attribution factor descriptions [ <i>i</i> = NZSF share of investment; <i>c</i> = asset/company]                                                                                                                                                                                                                                                                                                                                        |
|------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Listed corporate bonds</b> (and associated derivatives) | <p>For listed bonds, the outstanding amount is the market value of the bond based on our NAV, for both corporate listed bonds and corporate listed bond derivatives.</p> <p>For listed issuers of public debt:</p> $\text{Attribution factor} = \frac{\text{Outstanding amount}_i}{EVIC_c}$ <p>For unlisted issuers of public debt:</p> $\text{Attribution factor} = \frac{\text{Outstanding amount}_i}{\text{Equity} + \text{Debt}_c}$ |

| Asset class                                               | Attribution factor descriptions [ <i>i</i> = NZSF share of investment; <i>c</i> = asset/company]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Unlisted assets – business loans                          | <p>The outstanding amount is the value of the loan recognised at the amortised cost (i.e. outstanding principal with interest).</p> <p>For unlisted loan investments to private companies, the attribution factor is the outstanding value of the loan using our NAV, divided by the equity + debt of the unlisted asset.</p> $\text{Attribution factor} = \frac{\text{Outstanding amount}_i}{\text{Equity} + \text{Debt}_c}$ <p>For unlisted loan investments to listed companies, the attribution factor is the outstanding value of the loan using NAV, divided by the enterprise value of the company.</p> $\text{Attribution factor} = \frac{\text{Outstanding amount}_i}{\text{EVIC}_c}$ |
| Unlisted assets - equity investments in private companies | <p>For unlisted equity investments, we use a hierarchy approach for the attribution factor. The preferred attribution factor is the share of our investment (using EVIC), divided by the total Company EVIC (as of FYE, or closest quarter available). This is akin to the percentage ownership in the investment.</p> $\text{Preferred attribution factor} = \frac{\text{Outstanding amount}_i}{\text{EVIC}_c}$ <p>This is a deviation from PCAF, which requires the denominator to be total equity + debt.</p>                                                                                                                                                                               |

| Asset class                                  | Attribution factor descriptions [ <i>i</i> = NZSF share of investment; <i>c</i> = asset/company]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Commercial real estate                       | <p>For commercial real estate, the attribution factor is represented by NZSF's estimated outstanding amount, divided by each property asset's value at baseline.</p> $\text{Attribution factor} = \frac{\text{Outstanding amount}_i}{\text{Property value at baseline}_c}$ <p>Baseline refers to the property value recorded for each asset at FYE2025, or the first year in which that asset enters the NZSF portfolio and was included in our GHG emissions inventory.</p> <p>This approach preserves the PCAF intent of using a stable denominator, while reflecting NZSF's investment context, valuation approach and data availability. It differs from the standard PCAF approach, which fixes the asset's property value at initial loan or equity origination by the developer, bank, and/or other entity which may pre-date entry to the NZSF portfolio.</p> |
| Sovereign Bonds - and associated derivatives | $\text{Attribution factor} = \frac{\text{Exposure to Sovereign Bond (USD)}_i}{\text{PPP-adjusted GDP (international USD)}_c}$ <p>For exposure to sovereign bonds, we use the market value of the bond. This is a deviation from PCAF which requires nominal value. For derivative exposures, we use the equivalent exposure amount.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

## 5. DATA SOURCES

The GHG Emissions Inventory relies on a range of internal and third-party data sources, as described below with supporting methodologies referenced as necessary.

### 5.1. LISTED EQUITIES AND LISTED CORPORATE BONDS

MSCI GHG data services provide either reported or estimated emissions, company revenue and fossil fuel reserves data for most listed equities and listed corporate bonds. Data is collected once per year from most recent corporate sources, including annual reports, sustainability reports, or websites. Other sources include the CDP database or government databases.

Where company-reported data is absent or does not align with the GHG Protocol, MSCI provides estimates according to a prescribed data treatment hierarchy for Scope 1, 2, and 3 emissions data (see website).<sup>1</sup>

Valuations (e.g. EVIC) for listed investments is provided by MSCI. The percentage of shares is obtained internally. For derivative positions referencing assets or index of assets included in the GHG emissions inventory, exposure amount is used in place of NAV. The exposure amount is measured as the notional value of the derivative, split into individual constituent weights of the referenced index.

### 5.2. UNLISTED EQUITY, BUSINESS LOANS AND COMMERCIAL REAL ESTATE

MSCI GHG data services provide either reported or estimated emissions data for most unlisted equities, business loans and commercial real estate. Additionally, MSCI provides reported revenue figures for assets where data can be sourced. MSCI collects information periodically, in line with their policies from the most recent corporate sources including annual reports, sustainability reports, or websites. Other sources include the CDP database or government databases.

If data has not been reported, does not represent emissions across all its geographies and operations, or does not align with the GHG Protocol, MSCI provides either estimated gross emissions or financed emissions using relevant datapoints of an asset such as the relevant GICS code or property type (as per MSCI classifications).<sup>2</sup> MSCI does not footprint forestry assets so we use proxy data for these (refer below).

Valuations for unlisted investments are obtained internally or via MSCI. We use the valuation (e.g. EVIC) of the respective asset according to its balance sheet at NZSF financial year end, as this aligns with that used for our concurrent financial reporting purposes. We do not include unlisted derivative exposures in the GHG Emissions Inventory.

### 5.3. ALTERNATIVE UNLISTED EQUITY – FORESTRY

MSCI's data platform does not estimate emissions from unlisted forestry assets, leaving two options for estimating emissions for our unlisted forestry assets.

- Option 1: Treat the assets as companies and assign a General Industry Classification System (GICS) sub-industry code such as '15105010, Forest Products'.
- Option 2: Establish a proxy for these assets, based on the reported emissions of a comparable, representative asset.

Given the breadth of investment types in the GICS sub-industry code (which includes timber tract operations, forest nurseries, and manufacturers of lumber and plywood for the building industry), in addition to the limited dataset obtained to assess viability of this option, Management assessed Option 1 as having limited relevance to the NZSF's forestry assets.

Option 2 was deemed preferable, with our investment in Kaingaroa Tipu (KT) selected as our preferred asset for proxying the other forestry assets. We have worked closely with KT to measure their GHG emissions over many years, so have a greater understanding of their systems and processes and conviction in their emissions data. KT activities are reasonably comparable to other forestry assets in the NZSF portfolio.

As such, the emissions from KT are used as a proxy for emissions financed through our other unlisted forestry assets. The financed emissions of KT are scaled proportionate to the proxied asset. Subsequently, we expect the emissions intensity of the assets to be the same, while the absolute emissions associated with the investments will differ.

1. [www.msci.com/legal/sustainability-and-climate-resources-and-disclosures/msci-sustainability-and-climate-methodologies](https://www.msci.com/legal/sustainability-and-climate-resources-and-disclosures/msci-sustainability-and-climate-methodologies)

2. <https://www.msci.com/legal/sustainability-and-climate-resources-and-disclosures/msci-sustainability-and-climate-methodologies>

## 5.4. SOVEREIGN BONDS

For the value of the country, we use the World Bank GDP-PPP adjusted (current international \$) indicator as a proxy. We use our NAV for investments in sovereign bonds. This is based on the market value of the bond or for derivatives the exposure amount. Key data sources include:

**Table 5.4: Key GHG data sources for information on sovereign bonds**

| Source                                                                                                                                                                                                                                                                                                                                                      | Link                                                                                         | Date |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|------|
| <b>Emissions Database for Global Atmospheric Research (EDGAR):</b> EDGAR is a multipurpose, independent, global database of anthropogenic emissions of greenhouse gases on Earth. <sup>1</sup> We use EDGAR to provide the Scope 1 GHG emissions for our sovereign bond portfolio, which excludes LULUCF emissions as standard from sovereign Scope 1 data. | <a href="#">EDGAR - The Emissions Database for Global Atmospheric Research</a>               | 2024 |
| <b>OECD Greenhouse Gas Footprints (GHGFP) - Principal indicators:</b> Production-based emissions and consumption (demand-based) emissions.                                                                                                                                                                                                                  | <a href="#">OECD Data Explorer • Greenhouse Gas Footprints (GHGFP): Principal indicators</a> | 2022 |
| <b>OECD Greenhouse Gas Footprints (GHGFP) - Principal indicators:</b> Population data per country available for 56 countries.                                                                                                                                                                                                                               | <a href="#">OECD Data Explorer • Historical population data</a>                              | 2025 |
| <b>World Bank – GDP-PPP adjusted (international \$):</b> Provides the GDP PPP figures needed for the sovereign bond GHG emissions footprint.                                                                                                                                                                                                                | <a href="#">GDP, PPP (current international \$)   Data</a>                                   | 2025 |

1. Crippa, M. et al., 2024. GHG emissions of all world countries (<https://publications.jrc.ec.europa.eu/repository/handle/JRC138862>)

## 6. DATA QUALITY AND COVERAGE

### 6.1. DATA QUALITY SCORES (FOR LISTED INVESTMENTS)

GHG emissions data for listed investments can be based upon reported or estimated data. To give an indication of data reliability, PCAF developed a framework of 'data quality' scores, where 'high quality' data (score of 1) is typically reported and subject to independent verification, while a score of 5 represents the lowest quality, estimated, unverified type of data.

### 6.2. DATA COVERAGE

Where data is absent, and/or cannot be reliably proxied by our third-party data provider this impacts the available data set. We provide estimates of data coverage for some metrics, indicating the percentage share of total exposure for each asset class, for which minimum required data (e.g. emissions + revenue) is available in usable format.

Coverage reflects the availability of corresponding financial and emissions data for each asset within the dataset; it does not indicate the portion of investments actually exposed to emissions and/or potential emissions from fossil fuel reserves.

## 7. ASSUMPTIONS, LIMITATIONS, ESTIMATION UNCERTAINTIES

The data and methodologies for calculating the GHG emissions inventory are evolving and come with key assumptions, limitations and estimation uncertainties, as outlined below.

**Deviations from PCAF.** Whilst deviations of our Management Criteria from PCAF (asset class exclusions; attribution factors; etc.) may have significant impacts on the quantum of our reported GHG metrics relative to those expected under strict PCAF adherence, Management is comfortable with this approach on the basis that: a) the scale of net difference at portfolio level is expected to be proportional to the inherent margin for error of underlying Scope 3 emissions data uncertainty, and; b) the benefits to users of maintaining alignment between our GHG and financial reporting approaches, outweighs the risk of emissions misstatements. This position and approach will be reviewed as part of each annual climate-related disclosures cycle.

**Asset class categorisation.** The inventory does not capture all investment asset classes. This may be due to a range of reasons as discussed in Section 2 and Table 2.1. In some cases, we are unable to readily distinguish specific PCAF asset categories from within our holdings data. This may be because our custodian or investment managers are not always clear or consistent in their identification and/or classification of assets across the NZSF's diverse and complex portfolio. Finally, investments we define as net neutral over the long-term are excluded.

**Use of third-party data sources - data quality.** We rely on external GHG emissions and financial data from a range of third-party sources which have inherent limitations, including data availability, quality, relevance, accuracy, and timeliness. Third-party data can also be unverified, may differ materially from the most recent published information from other sources, and/or may use proxies in place of published data. Significant drivers of uncertainty include:

- **Data availability and reliability, especially for scope 3 emissions.** We include Scope 3 emissions reporting in our inventory in the interest of completeness and with the aim of encouraging improved availability and quality of Scope 3 data from our investments over time. We recognise that Scope 3 data can vary greatly in terms of comparability, coverage, transparency. Scope 3 data is often incomplete, inconsistent, and volatile. MSCI's Scope 3 emissions estimation model attempts to address these challenges by using global industry averages, a recognised approach within the PCAF hierarchy of emissions estimation methodologies. We expect variations in coverage, and fluctuations in the results for the Scope 3 aspects of our inventory.

- **Data sources used for sovereign emissions.** There are significant limitations associated with sovereign emissions data. This is due to several factors, including: i) Difficulty in obtaining an accurate allocation of emissions along the supply value chain; ii) Time lag in data availability of approximately two-three years delay in obtaining emissions data by country; iii) methodological limitations, such that sovereign financed emissions are attributed using PPP-adjusted GDP as a proxy denominator because there is no sovereign equivalent to EVIC, and; iv) sovereign emissions are based on national GHG inventories, which reflect economy-wide emissions as proxies, rather than calculating the share of national emissions directly attributable to operations of the sovereign, likely overstating inventories.

Other sources of uncertainty and model limitations are related to the following:

- **Timeframes.** We run the inventory using data available as of the 30 June FYE. There may be issues regarding the timing of emissions data and investment data availability and use at this point in time, due to inherent delays between data reporting, uploading to third-party databases, and being made available to use. Further, there are multiple financial year ends across our investments, and we acknowledge that our calculation contains information that does not necessarily align with our own 30 June FYE. To apply consistency across asset classes, we use data from the most recent 12-month period that is available to us, as at 30 June each year.
- **Market value and currency fluctuations.** Our calculations typically rely on the current market value of an investment, unless noted otherwise. Changes in market values can impact our calculations. This means metrics can change due to factors outside of our control. We do not apply any corrections to allow for market value fluctuations. Investment values are received in a range of currencies and converted into NZD by the NZSF custodian. Where financial data is required to be converted within the GHG emissions inventory model, the 30 June London Closing Time exchange rate, sourced from Bloomberg, is used for calculations.
- **Global Warming Potential and Greenhouse Gas coverage.** Global Warming Potentials (GWP) are typically set by individual countries. The data we use relies on our asset managers adopting GWPs based upon their assessment of geographical location and using globally-recognised standards such as the GHG Protocol which requires consideration of all GHGs. Since we receive data from thousands of assets, it is neither feasible nor practical to aggregate country-based or investment-level GWPs, and the gases that have been captured. MSCI does not calculate nor report this, nor do they

modify the GWP equivalences reported by our access points. Accordingly, we calculate our GHG emissions using an aggregation of available emissions data based on CO<sub>2</sub> equivalents. For sovereign emissions, using the EDGAR database GHG emissions are expressed in tCO<sub>2</sub>e using the GWP values of the Fifth Assessment Report of the IPCC.



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## **Independent Limited Assurance Report to Guardians of New Zealand Superannuation**

### **Assurance Conclusion**

Based on our limited assurance procedures performed and the evidence we have obtained, nothing has come to our attention that causes us to believe that the 2026 financed greenhouse gas ("GHG") emissions, emission intensity metrics and explanatory notes (as specified below) in the New Zealand Superannuation Fund - Climate Change Report for the year ended 30 June 2026 (the "Report") are not prepared, in all material respects, in accordance with the Basis of Preparation explained in Annex A to the Report.

### **Emphasis of Matter**

We draw attention to the "Use of third party data sources - data quality" disclosure within section 7 "Assumptions, limitations, estimation uncertainties" of the Basis of Preparation on pages 61 and 62, which describes the significant uncertainty in estimating emissions from investments, specifically scope 3 emissions and sovereign debt emissions. Our conclusion is not modified in respect of this matter.

### **Scope**

Ernst & Young Limited ("EY") has undertaken a limited assurance engagement to report the 2026 financed GHG emissions and associated disclosures comprising of the financed emissions inventory, emission intensity metrics, and the explanatory notes (the "GHG Disclosures") included in section 5.1 on pages 28 to 33 of the New Zealand Superannuation Fund (the "Fund") - Climate Change for the year ended 30 June 2026.

### **Criteria applied by Guardians of New Zealand Superannuation ("Guardians")**

In preparing the GHG Disclosures, Guardians applied the Basis of Preparation disclosed in Annex A on pages 43 to 62, (the "Criteria"). In applying the Criteria the methods and assumptions used are described in Annex A, as are the estimation uncertainties inherent in the methods and assumptions used.

### **Guardians Board Members' Responsibility**

Guardians's Board Members are responsible for the preparation of the GHG Disclosures in accordance with the Criteria. This responsibility includes establishing and maintaining internal controls, maintaining adequate records and making estimates that are relevant to the preparation of the GHG Disclosures, such that it is free from material misstatement, whether due to fraud or error.

### **EY's Responsibility**

Our responsibility is to express a limited assurance conclusion on the GHG Disclosures based on the procedures we have performed and the evidence we have obtained.

Our engagement was conducted in accordance with International Standard for Assurance Engagements (New Zealand): *Assurance Engagements on Greenhouse Gas Statements* ("ISAE (NZ) 3410"). This standard requires that we plan and perform this engagement to obtain limited assurance about whether the GHG Disclosures have been prepared, in all material respects, in accordance with the Criteria. The nature, timing and extent of the procedures selected depend on our judgment, including an assessment of the risk of material misstatement, whether due to fraud or error.

We believe that the evidence obtained is sufficient and appropriate to provide a basis for our limited assurance conclusion.

Ernst & Young provides financial statement audits and other assurance related services to Guardians and the Fund. Partners and employees of our firm may deal with Guardians on normal terms within the ordinary course of trading activities of the business of Group. We have no other relationship with, or interest in, Guardians or the Fund.

### **Our Independence and Quality Management**

We have complied with the independence and other ethical requirements of the Professional and Ethical Standard 1 *International Code of Ethics for Assurance Practitioners (including International Independence Standards)* (New Zealand) issued by the New Zealand Auditing and Assurance Standards Board, which are founded on fundamental



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principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour.

The firm applies Professional and Ethical Standard 3 *Quality Management for Firms that Perform Audits or Reviews of Financial Statements, or Other Assurance or Related Services Engagements*, which requires the firm to design, implement and operate a system of quality management including policies or procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

### **Description of procedures performed**

Procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than, for a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed. Our procedures were designed to obtain a limited level of assurance on which to base our conclusion and do not provide all the evidence that would be required to provide a reasonable level of assurance.

Our procedures did not include testing controls or performing procedures relating to checking aggregation or calculation of data within IT systems.

A limited assurance engagement consists of making enquiries, primarily of persons responsible for preparing the report and related information, and applying analytical and other relevant procedures.

Our procedures included:

- ▶ Obtaining, through inquiries, an understanding of Guardians' control environment, processes and information systems relevant to the preparation of the GHG Disclosures. We did not evaluate the design of particular control activities, or obtain evidence about their implementation;
- ▶ Performing walkthroughs of key processes and data sets;
- ▶ Inquiring with relevant staff regarding any matters that arose in the application of the selected boundary in establishing the reported amounts
- ▶ Evaluating whether Guardians's methods for developing estimates are appropriate and had been consistently applied. Our procedures did not include testing the data on which the estimates are based;
- ▶ Testing a limited number of items to, or from, supporting records, as appropriate;
- ▶ Assessing a limited number of emission factor sources for appropriateness;
- ▶ Performing analytical procedures on selected emission categories and making inquiries of management to obtain explanations for any significant movements or unexpected variances; and
- ▶ Considering the presentation and disclosure of the GHG Disclosures.

We also performed such other procedures as we considered necessary in the circumstances.

Although we considered the effectiveness of management's internal controls when determining the nature and extent of our procedures, our assurance engagement was not designed to provide assurance on internal controls.

### **Inherent Uncertainties**

The GHG quantification process is subject to scientific uncertainty, which arises because of incomplete scientific knowledge about the measurement of GHGs. Additionally, GHG procedures are subject to estimation uncertainty resulting from the measurement and calculation processes used to quantify emissions within the bounds of existing scientific knowledge.

### **Other matters**

The comparative GHG disclosures (that is the GHG disclosures for the periods ended 30 June 2025 have been subject to limited assurance by another assurance provider, with their unmodified assurance report dated on 24<sup>th</sup> September 2025.



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**Use of our Assurance Report**

We disclaim any assumption of responsibility for any reliance on this assurance report to any persons other than the Board of Guardians, or for any purpose other than that for which it was prepared.

Our review included web-based information that was available via web links as of the date of this statement. We provide no assurance over changes to the content of this web-based information after the date of this assurance statement.

*Ernst & Young Limited*

Ernst & Young Limited  
Auckland  
30 September 2026