



Independent Limited Assurance Report to the Directors of the Guardians of New Zealand Superannuation

Conclusion

Our limited assurance conclusion has been formed on the basis of the matters outlined in this report.

Based on our limited assurance engagement, which is not a reasonable assurance engagement or an audit, nothing has come to our attention that would lead us to believe that the 2023 Carbon Footprint (Emissions Intensity and Fossil Fuel Reserves) presented in Table 1 and Carbon Intensity and Fossil Fuel Reserves Reductions relative to 2019 presented in Table 2 of the Carbon Footprint Report 2023 for the period from 1 July 2022 to 30 June 2023 (the 'Subject Matter') has not, in all material respects, been prepared in accordance with the requirements of Guardians of New Zealand Superannuation ('GNZS') management criteria (the 'Criteria').

Emphasis of matter

We draw attention to the disclosure in 'Box 2', which describes the inherent limitations arising from the reliance on external data providers and the data they provide in calculating the Subject Matter reported. The disclosure highlights that inherent limitations and risks exist regarding the lack of completeness of data, unverified data sources, and complexity and judgement involved when the emissions data is sourced by the external data providers.

Our opinion is not modified in respect of this matter.

Information subject to assurance

We have performed an engagement to provide limited assurance in relation to New Zealand Superannuation Fund's ('NZSF') 2023 Carbon Footprint (Emissions Intensity and Fossil Fuel Reserves) presented in Table 1 and Carbon Intensity and Fossil Fuel Reserves Reductions relative to 2019 presented in Table 2 of the Carbon Footprint Report 2023 for the period from 1 July 2022 to 30 June 2023.

Criteria

The criteria used as the basis of reporting include the Criteria specified in 'Box 2: The Fund's Approach to Carbon Footprinting' contained within the Carbon Footprint Report 2023 ('Box 2'). As a result, this report may not be suitable for another purpose.

Standards we followed

We conducted our limited assurance engagement in accordance with International Standard on Assurance Engagements (New Zealand) 3000 (Revised) *Assurance Engagements Other Than Audits or Reviews of Historical Financial Information* and International Standard on Assurance Engagements (New Zealand) 3410 *Assurance Engagements on Greenhouse Gas Statements* issued by the New Zealand Auditing and Assurance Standards Board. We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our conclusion. In accordance with those standards we have:



- assessed the suitability of the circumstances of GNZS’s use of the criteria as the basis for preparation of the Subject Matter;
- used our professional judgement to assess the risks of material misstatement and plan and perform the engagement to obtain limited assurance that the Subject Matter is free from material misstatement, whether due to fraud or error;
- considered relevant internal controls when designing our assurance procedures, however we do not express a conclusion on the effectiveness of these controls; and
- ensured that the engagement team possess the appropriate knowledge, skills and professional competencies.

How to interpret limited assurance and material misstatement

A limited assurance engagement is substantially less in scope than a reasonable assurance engagement in relation to both the risk assessment procedures, including an understanding of internal control, and the procedures performed in response to the assessed risks.

The procedures we performed were based on our professional judgement and included enquiries, observation of processes performed, inspection of documents, analytical procedures, evaluating the appropriateness of quantification methods and reporting policies of the Criteria, and agreeing or reconciling with underlying records.

The 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.

Misstatements, including omissions, within the Subject Matter, are considered material if, individually or in the aggregate, they could be reasonably expected to influence the relevant decisions of the intended users taken on the basis of the Subject Matter.

Restriction of distribution and use

Our report is made solely for the Directors of GNZS. Our assurance work has been undertaken so that we might state to the Directors of GNZS those matters we are required to state to them in the assurance report and for no other purpose. No other third party is intended to receive our report.

Our report should not be regarded as suitable to be used or relied on by any third parties other than the Directors of GNZS (the ‘Recipient’) for any purpose or in any context. Any other party who obtains access to our report or a copy thereof and chooses to rely on our report (or any part thereof) will do so at its own risk.

Our report is released to the Recipient on the basis that it shall not be copied, referred to or disclosed, in whole or in part, without our prior written consent.

To the fullest extent permitted by law, none of KPMG, any entities directly or indirectly controlled by KPMG, or any of their respective members of employees accept or assume any responsibility and deny all liability to any party other than the Directors of GNZS for our work, for this independent limited assurance report, and/or for the conclusions we have reached.

Management’s responsibility for the Carbon Footprint Report

Management of the GNZS are responsible for the preparation of the Subject Matter in accordance with the Criteria. This responsibility includes the design, implementation and maintenance of such internal control as Management determine is relevant to enable the preparation of the Subject Matter that is free from material misstatement whether due to fraud or error.

Emission intensity is subject to inherent uncertainty because of incomplete scientific knowledge used to determine emission factors and the values needed to combine emissions of different gases.



Our responsibility

Our responsibility is to express a limited assurance conclusion to the directors of GNZS on whether anything has come to our attention that the Subject Matter has not, in all material respects, been prepared in accordance with the Criteria for the period from 1 July 2022 to 30 June 2023.

Our independence and quality control

We have complied with the independence and other ethical requirements of 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 is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality, and professional behaviour.

The firm applies Professional and Ethical Standard 3 (Amended) and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards, and applicable legal and regulatory requirements.

Our firm has also provided advisory services including financial risk management, tax consulting and compliance, cyber and IT advice to GNZS. Subject to certain restrictions, partners and employees of our firm may also deal with GNZS on normal terms within the ordinary course of trading activities of the business of the GNZS. These matters have not impaired our independence as assurance providers of the GNZS for this engagement. The firm has no other relationship with, or interest in, GNZS.

A stylized, handwritten version of the KPMG logo in blue ink. The letters are slightly slanted and have a casual, sketchy appearance.

KPMG
Auckland, New Zealand

18 October 2023



Carbon Footprint

2023

The Fund has no material, long-term holdings of fossil fuel reserves.

Under our [climate change investment strategy and our commitment that the Fund will be net zero by 2050](#), the Guardians is reducing the NZ Super Fund's exposure to carbon. We define the Fund's carbon exposure as both current carbon emissions intensity ('emissions intensity') and potential future carbon emissions from fossil fuel reserves ('fossil fuel reserves'). We report on the Fund's carbon footprint annually in order to track our progress.

Our short-term targets to 2025, are to reduce the potential emissions from fossil fuel reserves held by the Fund, by at least 80% and to reduce the carbon emissions intensity of the Fund by at least 40%. We first achieved these targets in 2020 and have since made further carbon reductions, exceeding the targets, in 2023. The Fund has no material, long-term holdings of fossil fuel reserves.

Our climate change strategy is a long-term one and there may be volatility in the footprint from year to year. It is the trend in the footprint relative to our targets over time that is most important.

The methodology (see Box 2) and figures in this report have been assured by KPMG (refer to the Independent Assurance Report for the full details). The figures show the carbon reductions we have achieved relative to our 2025 targets.

The estimated reduction in the Fund's carbon footprint (as at June 2023) is:

- -59.7% as measured by emissions intensity (target -40%); and
- -98.8% as measured by fossil fuel reserves (target -80%).

These percentage reductions are measured against the Fund's unadjusted [Reference Portfolio](#) as at 30 June 2023 (i.e. what the Fund would have owned if we hadn't implemented the carbon reductions).

In addition, in order to compare performance against New Zealand's other Crown Financial Institutions, we provide figures for the reduction in the Fund's carbon intensity and fossil fuel reserves relative to a 2019 baseline, which we define as the carbon footprint of the (unadjusted) 2019 Reference Portfolio.

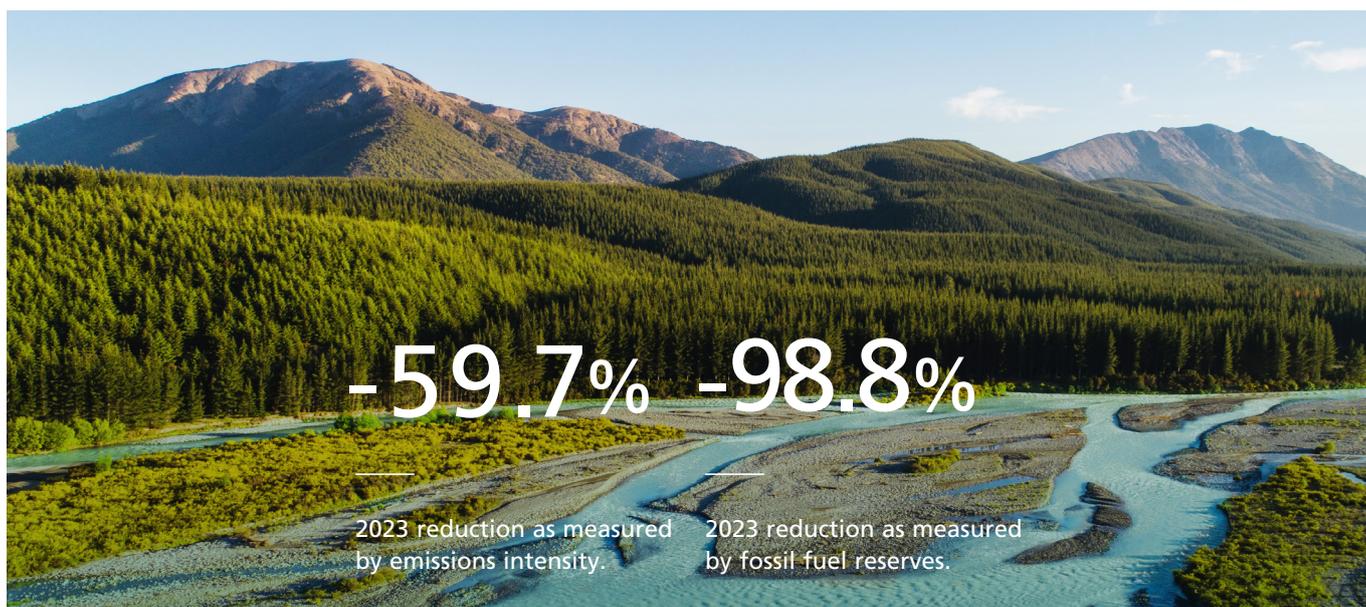


TABLE 1:

**2023 EMISSIONS INTENSITY AND FOSSIL FUEL RESERVES OF THE NZ SUPER FUND
RELATIVE TO CURRENT YEAR BENCHMARK¹**

| | 30 June 2019 | 30 June 2020 | 30 June 2021 | 30 June 2022 | 30 June 2023 |
|--------------------------------------|--|---------------|---------------|---------------|---------------|
| Footprint Metrics¹ | | | | | |
| | Emissions Intensity (tonnes CO ₂ e / \$USm in sales) ^{2,3} | | | | |
| Unadjusted Reference Portfolio | 230.7 | 212.9 | 207.1 | 194.8 | 175.8 |
| NZ Super Fund | 131.8 | 127.6 | 109.5 | 99.4 | 70.9 |
| % reduction | -42.9% | -40.0% | -47.1% | -49.0% | -59.7% |
| | Potential emissions from fossil fuel reserves per USD million invested (tonnes CO ₂ e / \$USm NAV) ⁴ | | | | |
| Unadjusted Reference Portfolio | 2,740 | 2,324 | 1,663 | 1,524 | 1,331 |
| NZ Super Fund | 1,319 | 233 | 106 | 134 | 16 |
| % reduction | -51.9% | -90.0% | -93.6% | -91.2% | -98.8% |

¹ Refer to Box 2 on definitions of reported metrics.

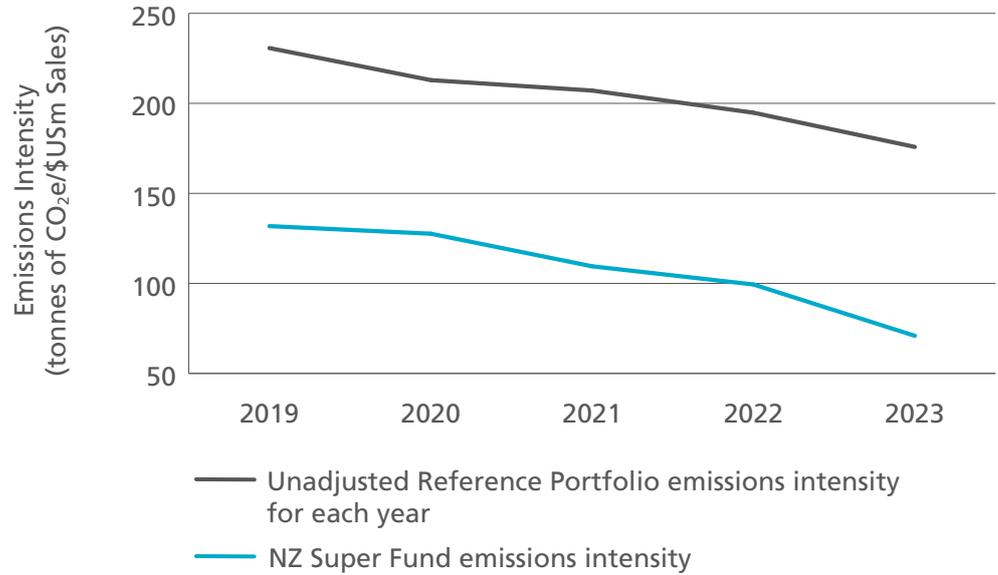
² Greenhouse gases are usually measured as tonnes 'carbon dioxide equivalent (CO₂e)'. For simplicity sake, we use the word 'carbon' to refer to all major greenhouse gases. See <https://www.msci.com/www/research-report/carbon-footprinting-%20101-a/0229050187>.

³ For the sake of clarity, we use the exchange rates as of 30 June 2023 rather than a twelve month average to convert currencies.

⁴ Net Asset Value (NAV) (including NAV of nil positions).

GRAPH 1

NZ SUPER FUND EMISSIONS INTENSITY (2019-2023)



GRAPH 2

POTENTIAL EMISSIONS FROM FOSSIL FUEL RESERVES (2019-2023)

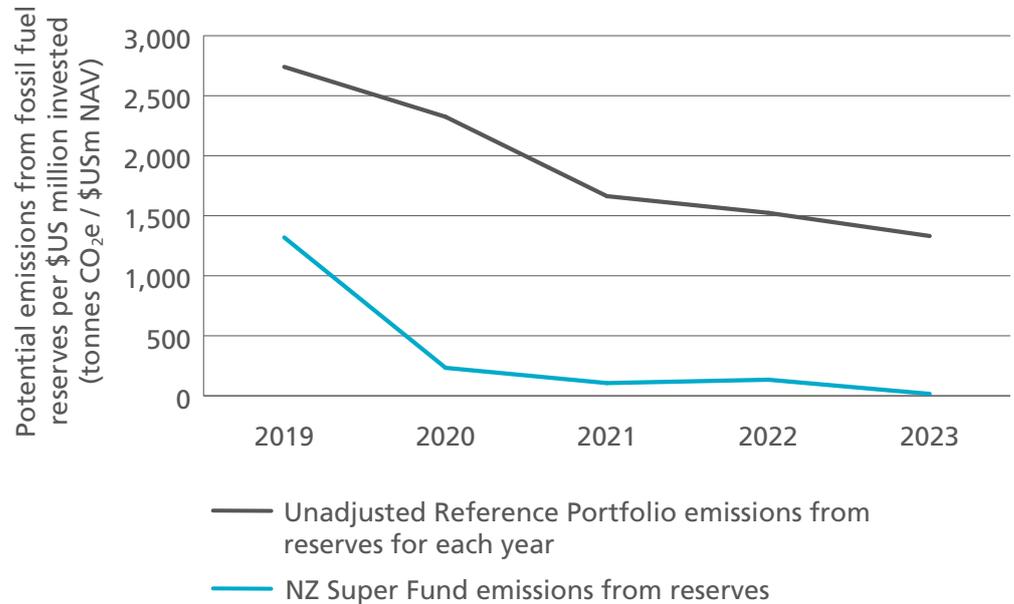


TABLE 2:

2023 EMISSIONS INTENSITY AND POTENTIAL EMISSIONS FROM FOSSIL FUEL RESERVES RELATIVE TO 2019 BASELINE (CFI COMPARISON MEASURE)

| | Emissions Intensity (tonnes of CO ₂ e/\$USm sales) |
|--|--|
| Unadjusted Reference Portfolio in 2019 | 230.7 |
| NZ Super Fund's current emissions | 70.9 |
| % Reduction | -69.3% |

| | Potential emissions from fossil fuel reserves per \$USm invested (tonnes CO ₂ e / \$USm NAV) |
|--|--|
| Unadjusted Reference Portfolio in 2019 | 2,740 |
| NZ Super Fund | 15.5 |
| % Reduction | -99.4% |

The methodology we have used in order to reduce the Fund's carbon footprint is set out below in Box 1. Box 2 outlines the main metrics used for the calculations.

BOX 1:

OUR REDUCTION METHODOLOGY – APPLIED TO PASSIVE PHYSICAL LISTED GLOBAL EQUITIES

Between 2019 and 2022, we calculated our performance against Fund-wide targets by applying a bespoke carbon methodology to our physical passive equity holdings, and by applying a carbon short to neutralise our exposure to any companies with high carbon reserves that we incidentally took a position in; for example, when we used an index derivative to complete our passive equity exposure⁵. Our focus was on stocks with high carbon footprints without regard to sector. The methodology identified stocks that exceed thresholds for either emissions intensity and/or potential emissions from fossil fuel reserves.

EMISSIONS INTENSITY

In 2022 the Board elected to change the ACWI IMI building block of our Reference Portfolio to the MSCI World Climate Paris Aligned Index and the MSCI EM Climate Paris Aligned Index (see our [2022 Annual Report](#) for more information on this decision).

Relative to the unadjusted ACWI IMI, the new indices will:

- reduce the GHG emissions intensity by 50%;
- reduce the GHG emissions intensity by 10% each year until 2050;
- integrate Scope 3 emissions into targets;

As well as improving the overall ESG profile of the Fund, these indices will ensure that the Fund's passive equity positions are better aligned with net zero objectives.

⁵ See *Climate Change Reports 2019-2020* on our [website](#).



BOX 1:

OUR REDUCTION METHODOLOGY – APPLIED TO PASSIVE PHYSICAL LISTED GLOBAL EQUITIES – *Continued*

FOSSIL FUEL RESERVES

This year we aimed for a 100% reduction in fossil fuel reserves within the Fund’s global listed equity portfolio in order to exceed our Fund-wide target of an 80% reduction in reserves. We therefore removed holdings in all listed companies with fossil fuel reserves from the Fund’s portfolio. The indices reduce but do not eliminate exposures to fossil fuel reserves. We will continue to apply an overlay to achieve this, in line with our targets.

For a fuller explanation of these changes please refer to the 2023 Climate Change Report.

BOX 2:

THE FUND’S APPROACH TO CARBON FOOTPRINTING⁶

METHODOLOGY

NZ Super Fund has made reference to the Greenhouse Gas Protocol’s (GHG Protocol) approach to measuring our emissions. The GHG Protocol provides standards, guidance, tools and training for business and government to measure and manage climate-forcing emissions.

NZ Super Fund has emissions reductions targets for 2025 and will continue to use the GHG Protocols methodology to avoid introducing methodological changes which would have implications for the ambitions of our 2025 emissions reduction targets.

We will consider new methodologies as part of reviewing and updating our next set of carbon reduction targets.

We rely on external data from a range of sources for calculating the potential emissions from fossil fuel reserves and emission intensity of our investments. There are certain inherent limitations with this external data, and the availability, quality, relevance, and accuracy of the data can affect our calculated emissions results. Due to our reliance on external data, and external data providers’ controls in producing the data, there are risks regarding the lack of completeness of data, unverified data sources, and complexity and judgement involved when the emissions data is sourced.

LISTED PORTFOLIO

We obtained MSCI ESG Research’s footprint calculations for our Actual Fund Equities (this includes active and passive listed physical equities, and passive equity derivative exposures), which accounts for 67.0% of the Fund’s holdings by asset value at 30 June 2023. Our equity derivative exposures were treated as equivalent in emissions intensity and fossil fuel reserves as their underlying physical equities equivalents, even though there is not necessarily any underlying holding of physical equities.

⁶ Note that the data from MSCI and external data providers does not necessarily align to 30 June 2023 as they both use only data that is available to them when we request it.

BOX 2:

THE FUND'S APPROACH TO CARBON FOOTPRINTING – *Continued*



The MSCI ESG Research data used covered 98.7% of our long listed equity holdings (by market value). MSCI is able to collect reported footprints for 92.0% (by market value) of the portfolio. Model- based estimates are used to calculate the emissions for 6.8% of the portfolio (by market value).

The MSCI ESG Research data used covered 99.9% of our short listed equity holdings (by market value). MSCI is able to collect reported footprints for 96.9% (by market value) of the portfolio. Model- based estimates are used to calculate the emissions for 3.0% of the portfolio (by market value).

MSCI ESG Research's data is subject to timing lags meaning data included in the footprint calculations may not directly correlate to our 30 June year end.

TREATMENT OF SHORT POSITIONS

We use the approach referred to as the Carbon Net Financial Exposure Approach to the short portfolios in the [IIGCC consultation on derivatives](#), whereby the emissions and reserves from the long and short portfolios are netted off to show the Fund's portfolio exposure to net carbon financial risk. We continue to monitor evolving best practices for measuring and reporting on derivative positions and may adjust our approach in the future.

UNLISTED PORTFOLIO

Where carbon data is available, we obtain information directly from our external managers or asset operators. This year we were able to collect data from entities representing approximately 8.4% of the Fund's holdings by asset value. This included: Fidelity Life, FarmRight, Palgrove, Fertility Associates, Bluelab, Horizon Roads, Altogether Group, Longroad, Galileo, CIM, KKR EIGF, Direct Capital, Fifth Wall, Generation, Slate, Pioneer, Stonepeak, Wellington Asset Management.

Our forestry assets (3.6% of the Fund's holding by asset value), we proxy these based on Kaingaroa Timberland's 2020 emission profile.

For the remaining unlisted assets where no data was available (3.9% of the Fund), the emissions intensity and fossil fuel reserves have been proxied based on the general sector of activity of the asset as referenced in the Global Industry Classification Standard (GICS). GICS periodically reviews and updates their industry classifications; the 2023 update had no material impact on our proxy sectors. MSCI provides carbon data on these sectors.

When a holding is invested in multiple assets or when the underlying assets are not known, we proxy it against the overall average emissions intensity and fossil fuel reserves.

We infer fossil fuel reserves, emissions intensity and revenue for individual assets by viewing them as some combination of equities and bonds/cash. We determine this mix from the proxy system used to control portfolio risk by the Asset Allocation team, thus ensuring consistency.

ASSETS EXCLUDED OR ASSUMED TO HAVE NIL EMISSIONS

Our bond investments are considered to have no carbon footprint (and no revenue) assigned. This is based on the Market Capitalisation approach as set out in TCFD guidance⁷, where emissions are allocated based on equity ownership. In this approach, bonds are not allocated fossil fuel reserves, emissions and revenue as there is no equity ownership.

Additionally, equity positions taken as part of our [strategic tilting program](#) and other market neutral strategies, as well as life settlements, natural catastrophe insurance, active collateral, and wireless spectrum (17.1% of the Fund in total) have been excluded from this analysis for the purpose of calculating carbon intensity (and they are treated as having a zero fossil fuel reserves for the purposes of our fossil fuel reserve calculation – see the Fossil Fuel Reserve Calculation section for further details).

CALCULATION

Total portfolio foot-printing is a combination of our listed portfolio emissions (calculated by MSCI), obtained carbon data, and proxy-based estimates.

DATA AND DEFINITIONS

Greenhouse gases are usually measured as carbon dioxide equivalent (CO₂e), and for simplicity in this paper we use the word ‘carbon’ to refer to all major greenhouse gases.

See <https://www.msci.com/www/research-paper/carbon-footprinting-101-a/0229050187> for formulas for carbon metrics.

Our calculated footprint only includes Scope 1 and Scope 2 emissions.

Scope 1 emissions are the direct emissions from a company’s own production or controlled by the company. It includes emissions from combustion in the company’s own boilers, furnaces and vehicles, as well as fugitive emissions.

Scope 2 emissions are the emissions from the production of electricity, heat or steam used by that company (including the transmission and distribution losses associated with some purchased entities).

Scope 3 emissions are the indirect emissions from the production of goods and services purchased by that company or other indirect emissions that occur from sources not owned or controlled by the company. It includes the emissions of contractors and other outsourced activities, such as third party deliveries, business travel and the ultimate use of the product or service. Thus, it covers upstream and downstream emissions. We do not currently include scope 3 emissions in our footprint calculations other than for fossil fuel reserves (see below) as scope 3 estimation methodology is still developing⁸.

MSCI has used the Greenhouse Gas Protocol as the basis of their foot-printing calculations <https://ghgprotocol.org/>.

⁷ <https://www.tcfhub.org/wp-content/uploads/2022/04/Table-3.pdf>

⁸ Source: MSCI ESG Research

FOOTPRINT TARGET METRICS REPORTED⁹:

Emissions Intensity: measured tonnes CO₂e/\$m sales = Tonnes of carbon emissions divided by \$US million of company sales. This measures the portfolio in terms of carbon emissions per unit of output and provides a measure of the overall efficiency of the portfolio by comparing emissions to the economic activity that produces them. This metric is not as impacted by shifts in market valuations as approaches that measure emissions per dollar invested. The emissions/sales of listed equities is derived from MSCI.

Potential Emissions: measures tonnes CO₂e/\$m invested = Tonnes of carbon emissions divided by \$US million invested. 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. MSCI ESG Research calculates the potential emissions should all fossil fuel reserves be produced and burnt expressed as tonnes of CO₂ equivalent using the Potsdam Institute methodology. This includes proved and probable fossil fuel reserves.

FOSSIL FUEL RESERVES CALCULATIONS

For listed holdings, fossil fuel reserves data is received from MSCI. For our unlisted assets, we request that they report their fossil fuel reserves. Given our knowledge of the unlisted assets that report on their footprint, if they do not report, we assume that they own no fossil fuel reserves.

For assets with proxy-based estimates, we assumed that a company has no fossil fuel reserves unless it is proxied against the Overall category rather than a specific category (because we have deeper knowledge of these investments). In the latter case, fossil fuel reserves are proxied using the average fossil fuel reserves for our unadjusted Reference Portfolio, which was calculated by MSCI. We also treat life settlements, natural catastrophe insurance, active collateral, and 5G spectrum as having no fossil fuel reserves.

For our market neutral strategies, we assume that our fossil fuel reserves holdings are zero, as we expect our long term exposure to these assets to be neutral over the long run.

Portfolio footprints have been reported in USD terms to facilitate easier comparison both over time and to other international funds.

⁹ Source: MSCI ESG Research. MSCI ESG Research's data is subject to timing lags meaning data included in the footprint calculations may not directly correlate to our 30 June year end.