

Climate Change Report

Task Force on Climate-related
Financial Disclosures (TCFD) update

June 2023

Acknowledgement of Country

AustralianSuper acknowledges the Traditional Custodians of the lands on which we work and their ongoing connections to land, sky, sea and Country. We pay respects to Elders past and present and extend that respect to all Aboriginal and Torres Strait Islander peoples. Our global office is on the land of the Wurundjeri people of the Kulin Nation.

Traditional Custodians of the lands on which our offices are placed:

Melbourne - the Wurundjeri people of the Kulin nation

Sydney - the Gadigal people of the Eora nation

Perth - the Whadjuk Nyoongar people

Adelaide - the Kurna people

Brisbane - the Turrbal people from the north side of the river and the Yuggera/Jagera people from the south side of the river

Hobart - the Muwinina people

Canberra - the Ngunnawal people

Darwin - the Larrakia people

Newcastle - the Awabakal and Worimi people

The Wurundjeri people take their name from the Woiwurrung language word 'wurun', meaning manna gum (*Eucalyptus viminalis*), which is common along 'Birrarrung' (Yarra River), and 'djeri', the grub which is found in or near the tree. Wurundjeri are the 'Witchetty Grub People' and their ancestors have lived on the land for millennia!

¹ wurundjeri.com.au/our-story/ancestors-past



About this report

AustralianSuper (the Fund) is pleased to publish its third Climate Change Report, which is informed by the TCFD framework. This Report provides an update on the Fund's governance, strategy, risk management and metrics employed to manage climate change investment risk.

This 2023 edition, which covers FY22 and FY23, supersedes our 2021 Climate Change Report. It includes the most recent analysis undertaken at the time of the preparation of this report. Different analysis types are performed at different times and frequencies, as detailed in this report.

All reasonable care is taken to ensure this information is correct at the date of publication. Any errors or misprints will be corrected by the Fund in future reports.

AustralianSuper makes all disclosures in this report in good faith and based on its current knowledge and understanding. Nevertheless, certain representations in this report rely on the disclosures and information sourced from third parties. Emissions data in this report is based on company reported or estimated emissions, as sourced from our research provider/s and/or publicly available information from investee companies. AustralianSuper has not taken steps to independently verify these disclosures or information (or their underlying assumptions), which may vary over time and may, in certain circumstances beyond AustralianSuper's control, include inaccuracies. We acknowledge that the data can vary and be impacted by changes in methodologies and other factors over time. These factors may impact on AustralianSuper's disclosures, including on its ability to meet commitments and goals.

Following the publication of the 2021 Climate Change Report, we identified a discrepancy in the data used to prepare our 30 September 2020 carbon footprinting disclosure. This resulted in our absolute emissions being overstated in our 2021 Report. Given this was an overstatement and it did not materially impact our carbon intensity and other metrics, it did not invalidate the key findings of the report. Nevertheless, we have removed the 2020 data from our disclosure in this Report to maintain the integrity of our historical data. This has been noted under the impacted charts.

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Message from Chief Investment Officer and Deputy Chief Executive Mark Delaney

AustralianSuper is committed to helping members achieve their best financial position in retirement. Climate change will impact economies, industries, societies and the environment. As such, climate change presents risks and opportunities for companies and assets in our investment portfolio.

With members' assets of almost \$300 billion as at 30 June 2023, AustralianSuper is a large investor in Australian and international markets with investments that touch many areas of the global economy. AustralianSuper aims to manage the risks and opportunities of climate change, which we believe are likely to have a significant impact on members' investment returns, including through our consideration of ESG issues in the investment process and stewardship activities. However, as described in this report, practical considerations, including an investment's characteristics, financial materiality and investment strategy, influence the extent to which we undertake these activities in different asset classes in the portfolio.

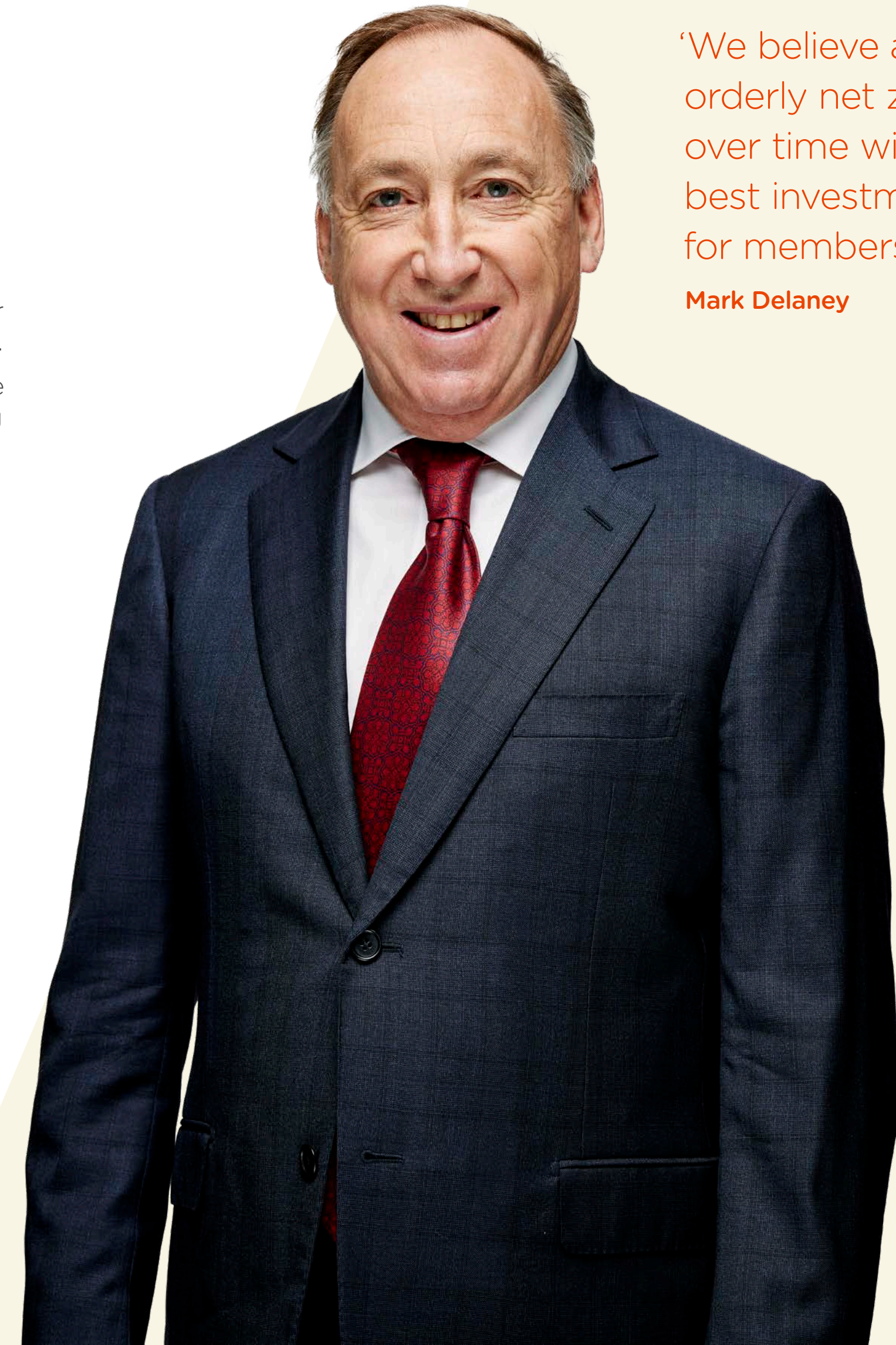
We believe a smooth and orderly net zero transition over time will deliver the best investment outcomes for members. This will require the early introduction of policies and actions that seek to minimise the physical and transition risks of climate change. We expect these policies and actions are likely to become more stringent over time². We recognise that the economy-wide transformation will take time, particularly for carbon-intensive energy sectors and hard-to-abate industries, which need to transform their business models, adapt to new technologies, and transition their workforces to align with a net zero economy.

Net zero 2050 portfolio commitment

In 2020, AustralianSuper made a commitment to achieve net zero carbon emissions by 2050 in the investment portfolio (based on scope 1 and scope 2

emissions of portfolio investments)³. For further details, see page 7 of this report.

The Intergovernmental Panel on Climate Change (IPCC) proposed that achieving net zero by 2050 would be required to limit the average global temperature increase to 1.5 degrees Celsius by 2100 (which aligns with the more ambitious Paris Agreement temperature limit)⁴. Scenario modelling undertaken by the global central banks indicates that a net zero by 2050 scenario results in the lowest economic cost outcome in the long term⁵. This is consistent with our purpose of helping members achieve their best financial position in retirement.



'We believe a smooth and orderly net zero transition over time will deliver the best investment outcomes for members.'

Mark Delaney

² apra.gov.au/sites/default/files/2021-11/Final%20Prudential%20Practice%20Guide%20CPG%20229%20Climate%20Change%20Financial%20Risks.pdf

³ australiansuper.com/-/media/australian-super/files/about-us/media-releases/australiansuper-investment-portfolio-commits-to-net-zero-by-2050.pdf

⁴ IPCC, 2018: Summary for Policymakers. In: Global Warming of 1.5°C, an IPCC special report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty. [ipcc.ch/sr15](https://www.ipcc.ch/sr15)

⁵ Network for Greening Financial System: NGFS Scenarios for central banks and supervisors, September 2022. Scenarios show the transition and physical risk impacts on GDP deviation at 2050 and 2100. ngfs.net/en/ngfs-climate-scenarios-central-banks-and-supervisors-september-2022



Message from Chief Investment Officer and Deputy Chief Executive cont.

AustralianSuper monitors its progress towards our net zero commitment through our internal carbon tracking activities, which measure the current and estimated 2050 emissions (scope 1 and scope 2) of approximately 65% of our investment portfolio based on their current commitments⁶. This analysis shows that investee companies responsible for almost 88% of emissions in our internally managed fundamental portfolios in the Australian shares asset class have made net zero by 2050 commitments⁷. (These portfolios represented around 80% of the Australian shares asset class, with that asset class representing 23% of the total portfolio as at 30 June 2022.)

Momentum is building towards a net zero world by 2050, with more than 130 countries, including Australia, now having committed or proposed to achieve net zero emissions by 2050⁸. The Australian Government has committed to net zero emissions by 2050 and has set an emissions reduction target of 43% by 2030 from 2005 levels. Coordinated and supportive policy settings across all areas of government will support the energy and business net zero transition.

Improving the transparency and consistency of climate change reporting is fundamental to measuring and monitoring the impact of climate change risks and our progress towards a net zero portfolio. We welcome the release of the ISSB reporting standards this year and also support the development of Australian climate reporting standards.

Paris Agreement

The Paris Agreement is a global commitment to climate change action signed in 2015 by nearly 195 countries, including Australia. The Paris Agreement sets out a framework to limit the devastating impacts of climate change by addressing greenhouse gas mitigation, adaptation and climate finance.

It aims to keep the average rise in global temperatures to well below change to 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5 degrees Celsius by 2100.

In its 2018 landmark report, the IPCC advised that global greenhouse gas emissions would need to reach net zero by 2050 to limit global warming to 1.5 degrees Celsius, which requires “rapid and far-reaching transitions in land, energy, industry, buildings, transport, and cities”⁹.

⁶ Asset classes AustralianSuper has measured as at 30 June 2022 include Australian shares, international shares, unlisted and listed property, and unlisted and listed infrastructure. Coverage rates for each asset class vary subject to data availability. Excludes transition accounts, equitised cash accounts, unlisted infrastructure accounts being divested or wound down, and overlays. Unlisted property excludes non-operational assets. Asset classes we have not measured at this date include private equity, credit, fixed interest and cash.

⁷ This data is based on holdings as at 30 June 2022. AustralianSuper has calculated the portfolio emissions based on the proportion that we own of the market capitalisation of each company and their reported or estimated scope 1 and 2 emissions, as sourced from our research provider. Emissions data covers approximately 97% of the value of our internally managed fundamental portfolios in the Australian shares asset class.

⁸ zerotracker.net (sourced 15 September 2023)

⁹ IPCC, 2018: Summary for Policymakers. In: Global Warming of 1.5°C, an IPCC special report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty. [ipcc.ch/sr15](https://www.ipcc.ch/sr15)





Our progress against TCFD recommendations

The TCFD recommends that organisations structure their climate-related financial disclosures around four key thematic areas of their operations¹⁰. The following table summarises AustralianSuper’s progress in these areas between 1 July 2021 and 30 June 2023¹¹.

TCFD recommendation	Our progress
Governance <ul style="list-style-type: none"> Board oversight Management responsibility 	<ul style="list-style-type: none"> The Board and Investment Committee receive reporting on how climate change risk is being managed in the investment portfolio and AustralianSuper’s progress on meeting its net zero 2050 portfolio commitment. AustralianSuper-appointed non-executive directors on the boards of portfolio companies, where we have the right to nominate one or more directors, undertook ESG training programs which included coverage of climate change matters.
Strategy <ul style="list-style-type: none"> Climate-related risks and opportunities Impacts on business, strategy and financial planning Climate scenario analysis 	<ul style="list-style-type: none"> AustralianSuper worked with an external consultancy firm to develop a carbon pricing forecasting model to support the application of a carbon price into valuation modelling and risk management processes. The application of the carbon price model outputs will vary across asset classes. Further internal and external research was conducted to understand the key drivers of the transition and their relationship to macro risks and opportunities in the portfolio. This includes helping to better understand the likely impact on inflation and long-term interest rates from factors such as potential food inflation and changes in land use, fiscal and industrial policy and changes to tax regimes, greater economic volatility from climate events and the potential impact from cost inputs (and investment trends) of the shift into renewable energy.
Risk management <ul style="list-style-type: none"> Processes for identifying and assessing climate-related risks Processes for managing climate-related risks Integrating with overall risk management 	<ul style="list-style-type: none"> The Climate Action 100+ Net Zero Benchmark has been incorporated into our climate change assessment and ownership plans, which inform our investment and stewardship activities. Ownership plans and engagement strategies for companies in our internally managed fundamental portfolios¹⁴ in the Australian shares asset class were developed. These plans include an assessment of climate change management and net zero business strategies where relevant. An updated climate change integration and stewardship approach including: <ul style="list-style-type: none"> – an engagement program to assess the credibility of company plans to achieve their net zero goals for the major contributors to emissions in our internally managed fundamental portfolios¹² in the Australian shares asset class – development of physical risk due diligence guidance for assessments of physical climate risk exposure and vulnerability for direct assets in the unlisted infrastructure and unlisted property asset classes. During FY22, we held 75 direct engagement meetings with 41 S&P/ASX 300 companies and discussed climate change in more than 40% of these meetings. We also held 26 engagement meetings directly with representatives from our investments and external managers in the unlisted property and unlisted infrastructure asset classes, with climate change being a topic of discussion at over 80% of the meetings. The Australian Council of Superannuation Investors (ACSI) also held 314 engagement meetings with 193 S&P/ASX 300 companies on behalf of its members, including AustralianSuper. In FY23, we held 92 direct engagement meetings with 48 S&P/ASX 300 companies and discussed climate change in 57% of these meetings. ACSI also engaged in 306 engagement meetings with 194 S&P/ASX 300 companies on behalf of its members, including AustralianSuper. In FY23, we held 39 meetings with representatives from our investments and external managers in the unlisted property and unlisted infrastructure asset classes and discussed climate change in around half of these meetings.

TCFD recommendation	Our progress
Risk management cont.	<ul style="list-style-type: none"> In 2022, we sent ESG questionnaires to our external managers in the international shares asset class, which included questions on climate change risk management and net zero 2050. Advocated for the adoption of ‘Say on Climate’ advisory votes in our investee company engagements (either individually or via collaborative networks with other investors) for improved consistency and transparency of company climate change reporting. We voted on ‘Say on Climate’ resolutions for 37 listed companies globally in FY22, and 33 companies globally in FY23. Continued key leadership roles in collaborative initiatives such as our rotation as global chair of Climate Action 100+ and completion of our founding partnership with the Australian Industry Energy Transitions Initiative in November 2022. Joined the board of the Institutional Investors Group on Climate Change (IIGCC) and co-authored the <i>Building Resilience to a Changing Climate: Investor Expectations of Companies on Physical Climate Risks and Opportunities</i> report. Signed the Investor Agenda’s 2022 Global Investor Statement to Governments on the Climate Crisis. Provided a submission to the International Sustainability Standards Board and Australian Accounting Standards Board on the IFRS Exposure Drafts on General Sustainability-related Disclosures and Climate-related Disclosures. We also provided submissions on the Australian Government’s second climate-related financial disclosure consultation and the Climate Change Authority’s <i>Setting, tracking, and achieving Australia’s emissions reduction targets</i> consultation paper.
Metrics and targets <ul style="list-style-type: none"> Metrics to assess climate-related risks and opportunities Targets to manage climate-related risks and opportunities and performance Disclose scope 1, scope 2 and, if appropriate, scope 3 greenhouse gas emissions and related risks 	<ul style="list-style-type: none"> Internal carbon footprint measurement and forward-looking trajectory modelling covering the current and estimated 2050 emissions (scope 1 and scope 2) of approximately 65% of our investment portfolio, including investments in the Australian shares, international shares, unlisted and listed property, and unlisted and listed infrastructure asset classes¹³. We also conduct external carbon footprinting analysis on the Australian shares, international shares and fixed interest asset classes through carbon consultancy, S&P Global Sustainable1. Since commencing this carbon footprinting analysis in 2013, the carbon intensity of the Australian shares and international shares asset classes, which represent around 55% of the portfolio, has fallen by 45% as at 30 September 2021¹⁴. See page 28 for further information. Our external carbon footprinting results, covering scope 1, scope 2, other direct emissions, and non-electricity first-tier supply chain emissions¹⁵ for these asset classes are included in the metrics section of this report. We have detailed our consideration of scope 3 emissions on page 7.

¹⁰ For more information on the TCFD recommendations visit fsb-tcdf.org/recommendations

¹¹ Table shows progress from 1 July 2021 to 30 June 2023 (unless otherwise specified).

¹² Excludes internally managed, quantitative portfolios. Our fundamental portfolios are actively managed by our in-house investment team. Our team uses research and insights, and applies their expertise and judgment to assess the quality and value of individual companies on a range of factors. These can include company financial information, management quality, market and industry outlooks and ESG considerations.

¹³ As at 30 June 2022. Coverage rates for each asset class vary subject to data availability. Excludes transition accounts, equitised cash accounts, unlisted infrastructure accounts being divested or wound down, and overlays. Unlisted property excludes non-operational assets. Asset classes we have not measured at this date include private equity, credit, fixed interest and cash.

¹⁴ S&P Global Sustainable1 analysis, Australian shares and international shares asset class data, 30 June 2013, 30 September 2015–2021. Carbon to value invested: CO₂e emissions per AUD million invested. Includes scope 1, scope 2, other direct emissions, and non-electricity first-tier supply chain emissions.

¹⁵ Coverage rates for asset classes vary subject to data availability. See page 29 for further information. Emissions include scope 1, scope 2, other direct emissions, and non-electricity first-tier supply chain emissions. See page 34 for further information.



Net zero 2050 portfolio commitment

AustralianSuper has made a commitment to achieve net zero carbon emissions by 2050 in the investment portfolio (based on scope 1 and scope 2 emissions of portfolio investments).

The IPCC proposed that achieving net zero emissions by 2050 would be required to limit the average global temperature increase to 1.5 degrees Celsius by 2100 (which aligns with the more ambitious Paris Agreement temperature limit)¹⁶. Scenario modelling undertaken by the global central banks indicates that a net zero by 2050 scenario results in the lowest economic cost outcome in the long term¹⁷. This is consistent with our purpose to help members achieve their best financial position in retirement.

AustralianSuper believes in a just transition to the low-carbon economy where dislocated workers and communities are treated fairly and supported in their gradual transition to other industries and opportunities.

About our net zero commitment

The focus of our integration of ESG considerations in the investment process and stewardship activities (detailed in Part 3 of this report) is on the measurement and management of scope 1 and scope 2 emissions of the investments in the portfolio. From an economy-wide perspective, we expect that scope 3 emissions will reduce as scope 1 and scope 2 emissions are managed to net zero across the economy.

We may engage with investments on their scope 3 emissions where:

- they have relevance to the expected risk and/or returns to the investment. This is based on the level of transition risk scope 3 emissions present to the company; and
- the company has the ability to influence scope 3 emissions.

Our ability to achieve the net zero commitment is dependent on policymakers and portfolio companies making and delivering on their own net zero commitments. Given the scale of political, economic and societal change required, and given the inherent challenges associated with long-term forecasts, there is some unavoidable uncertainty as to whether the commitments of policymakers and portfolio companies will be met in a timely manner.

Monitoring our progress to net zero 2050

We monitor progress towards our net zero commitment through our internal carbon tracking activities. Our analysis as at 30 June 2022 measures the current and estimated 2050 emissions (scope 1 and scope 2) of approximately 65% of our investment portfolio, including investments in the Australian shares, international shares, unlisted and listed property, and unlisted and listed infrastructure asset classes based on their current commitments¹⁸. This analysis seeks to identify the largest contributors to emissions in these asset classes and informs our stewardship approach.

As an example, we have included insights from this analysis for our internally managed fundamental portfolios in the Australian shares asset class below. (These portfolios represented around 80% of the Australian shares asset class, with that asset class representing 23% of the total portfolio as at 30 June 2022.)

The analysis¹⁹ found that:

- Investee companies responsible for almost 88% of emissions in these portfolios have made net zero by 2050 commitments.
- Emissions are concentrated in a small number of companies. Five companies in these portfolios are responsible for 85% of current emissions in those portfolios.
- The carbon intensity of these portfolios is estimated to reduce from their current 84.8 tonnes of CO₂e emissions per million AUD invested to 10.1 tonnes of CO₂e emissions per million AUD invested in 2050 based on the emissions reduction commitments made by investee companies.

Our fundamental portfolios are actively managed by our in-house investment team. Our team uses research and insights, and applies their expertise and judgment to assess the quality and value of individual companies on a range of factors. These can include company financial information, management quality, market and industry outlooks and ESG considerations.

In addition to our internal carbon tracking analysis, we use external carbon footprinting to measure and report our historical emissions.

¹⁶ IPCC, 2018: Summary for Policymakers. In: Global Warming of 1.5°C, an IPCC special report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty. [ipcc.ch/sr15](https://www.ipcc.ch/sr15)

¹⁷ Network for Greening Financial System: NGFS Scenarios for central banks and supervisors, September 2022. Scenarios show the transition and physical risk impacts on GDP deviation at 2050 and 2100. [ngfs.net/en/ngfs-climate-scenarios-central-banks-and-supervisors-september-2022](https://www.ngfs.net/en/ngfs-climate-scenarios-central-banks-and-supervisors-september-2022)

¹⁸ Asset classes AustralianSuper has measured as at 30 June 2022. Coverage rates for each asset class vary subject to data availability. Excludes transition accounts, equitised cash accounts, unlisted infrastructure accounts being divested or wound down, and overlays. Unlisted property excludes non-operational assets. Asset classes we have not measured at this date include private equity, credit, fixed interest and cash.

¹⁹ This data is based on holdings as at 30 June 2022. AustralianSuper has calculated the portfolio emissions based on the proportion that we own of the market capitalisation of each company and their reported or estimated scope 1 and 2 emissions, as sourced from our research provider. Emissions data covers approximately 97% of the value of our internally managed fundamental portfolios in the Australian shares asset class. The projected future carbon intensity of the portfolio represents our best estimate of 2050 portfolio emissions based on publicly available information on company commitments. By its nature the underlying data is uncertain and may be subject to revision.



Pathways to a net zero portfolio

AustralianSuper's approach to managing climate change risks and opportunities and the net zero transition in the portfolio is conducted across four core pillars.

Integration, stewardship, advocacy and measurement and disclosure

The application of our approach to managing climate change risks and opportunities varies by asset class and the characteristics of our investment, including whether we're investing directly or through external managers

or whether our investment is actively or passively held. For example, our approach is more developed in the Australian and international shares, unlisted infrastructure and unlisted property asset classes.

For more information on how we apply these pillars to the various asset classes, please see pages 17 to 23.



Integration

Considering transition and physical risks when deciding which assets and companies to invest in and assessing their investment value.



Stewardship

Engaging with investee companies to provide shareholder perspectives on energy and business transition and share voting.



Advocacy

Participating in collaborative investor networks and engaging in policy consultations to amplify our voice.



Measurement & disclosure

Seeking consistent and comparable data to inform our investment decisions and stewardship activities and help us to understand and report our progress.



Part 1: Climate risk governance

Our Investment Governance Framework defines the Fund's greatest risk as the failure to meet its long-term investment return objectives.

Our overarching investment objective for our Balanced investment option, which most of our members invest in, is to beat the Consumer Price Index by more than 4.0% per annum over the medium to long term.

As climate change has the potential to impact long-term asset valuations and investment performance, we manage climate change risk as an investment risk, alongside more traditional market factors such as economic growth, interest rates and inflation.

Risk governance framework

The Board is ultimately responsible for the Fund's Enterprise Risk Management Framework (ERmf). The ERmf is the totality of systems, structures, policies, processes and people within the business operations that seek to identify, assess, manage, mitigate and monitor all internal and external sources of inherent risk that could have a material impact on AustralianSuper's business operations or purpose. It encompasses the linkage between AustralianSuper's strategy and business planning.

AustralianSuper groups risks into three tiers: enterprise risks, material risks and business risks. Investment objective risk, which is associated with ensuring investment performance meets AustralianSuper's investment objectives, is one of the nine identified enterprise risks²⁰. The Fund's Investment Governance Framework is the governing framework for the Fund's investment activities and associated risks, including the management of ESG and climate change risks. Our ESG and stewardship approach is documented in our ESG and Stewardship Policy, which is available at australiansuper.com/ESGPolicy

AustralianSuper has made a Board-approved commitment to achieve net zero emissions by 2050 in its investment portfolio (based on scope 1 and scope 2 emissions of portfolio investments). The Fund is taking actions to manage climate change risks and opportunities in the portfolio including implementation of net zero transition actions in our integration, stewardship, advocacy and measurement and disclosure activities as described in this report.





Part 1: Climate risk governance cont.

Decision-making hierarchy

Our Investment Governance Framework defines the roles and responsibilities of AustralianSuper's Board, Investment Committee and Investments Domain. The Board has approved an investment delegation framework that promotes timely decision-making, transparency and accountability.

As with any other material investment issue, responsibility for the management of climate change risks in the portfolio falls within the delegation framework described below.

Board

AustralianSuper's Board has identified climate change as a material issue for the investment portfolio.

The Board has approved AustralianSuper's ESG and Stewardship Policy, which is reviewed and incorporated into the Investment Governance Framework every two years in line with the Framework review. It reiterates the Fund's belief that ESG factors and our stewardship actions can affect the value of investments, particularly over the long-term investment horizon which applies to the Fund's objectives. The objective of our ESG and Stewardship Policy is to seek that ESG investment risks and opportunities are

integrated into our investment processes, and to guide the Fund's stewardship activities to promote long-term value for members. The ESG and Stewardship Policy outlines at a high level the Fund's ESG and stewardship program and its focus on integration and stewardship activities.

The ESG and Stewardship team reports to the Board on the key activities of the ESG and stewardship program, which can include climate change and progress on our net zero 2050 portfolio transition. The Board currently meets six times a year.

Investment Committee

The management of climate change within the investment portfolio is specifically identified in the Investment Committee's terms of reference.

The Investment Committee, in consultation with the Board and ESG and Stewardship team, formulates AustralianSuper's policies on ESG and stewardship matters. As in other matters, the Board may instruct the Investment Committee to develop an ESG and stewardship strategy in certain areas.

The ESG and Stewardship team reports to every Investment Committee meeting on the key activities of the ESG and stewardship program, which can include climate change and progress on our net zero 2050 portfolio transition. The Investment Committee meets six times a year.

Chief Investment Officer

The Investments Domain is headed by the Chief Investment Officer (CIO), who is responsible, via delegation from the Investment Committee, for the design of AustralianSuper's investment strategy and the execution and implementation of its investment program.

The CIO oversees that climate change is appropriately incorporated within the investment strategy.

ESG and Stewardship and Asset Class teams

The ESG and Stewardship team is responsible for implementing AustralianSuper's ESG and Stewardship Policy and for contributing to the management of climate change within the portfolio as overseen by the CIO.

Asset Class teams are responsible for including ESG considerations, such as climate change risks and opportunities, when making investment decisions. The ESG and Stewardship team works closely with the Asset Class teams to integrate ESG considerations in the integration and ongoing stewardship processes. Together, the teams draw on research, data and insights from ESG data service providers, membership of investor organisations that have climate change expertise and collaborative networks.

The ESG and Stewardship team also performs a range of climate-related advocacy, engagement, collaboration and reporting responsibilities. For details of the team's integration and stewardship activities, see pages 17 to 23.

Supporting and oversight functions

Additional investment support and oversight is provided by Fund Services and Group Risk:

- Fund Services is responsible for providing operations, legal, tax, performance, mandate and regulatory compliance activities and operational risk support to Investments.
- Group Risk is a risk advisory and oversight function that establishes frameworks, policies and processes for the governance, management, monitoring and reporting of risks, controls, and obligations.

Direct acquisition governance approach

When a potential investment opportunity reaches the screen phase, AustralianSuper sets up a multi-functional Transaction team to conduct an initial analysis and assessment to decide if the potential acquisition should proceed to the due diligence phase. Potential investments that pass the screen phase undergo full due diligence prior to seeking final approval for investment.

The ESG and Stewardship team has a representative on the Transaction team whose role is to undertake the ESG due diligence of assets. Further information on our approach is detailed on page 19. AustralianSuper has a range of governance forums to assist the delegated authority in this process, which is tailored to the size and complexity of the transaction.



Part 2: Strategy

Investment decision-making at AustralianSuper is premised on the belief that incorporating ESG considerations into investment decision-making and being an informed and active owner supports long-term value creation.

The Fund identifies and considers climate change risks and opportunities at various stages of the investment process.

The transition and physical risks of climate change

- **Transition risks:** the risks and opportunities created as the world transitions to a low-carbon economy. This is influenced by factors such as technological disruption, public policy, changes in consumer preferences and stranded asset risk (for example, the risk that fossil fuel reserves will suffer a significant loss in value if no longer required).
- **Physical risks:** the physical risks to assets from changing weather patterns, which can be acute or chronic, such as severe weather events, longer-term shifts in climate and rising sea levels.





Part 2: Strategy cont.

Transition risks

More than 80% of Australia’s total greenhouse gas (GHG) emissions can be attributed to electricity generation and industry and household activities (primarily energy use), with the remainder coming from the agriculture and waste sectors²¹.

Australian emissions

The Australian Department of Climate Change, Energy, the Environment and Water’s National Greenhouse Gas Inventory²² reports the key sources of emissions in the Australian economy.

The ‘Share of total emissions by sector’ chart shows the annual share of GHG emissions for each inventory sector. Decarbonisation of the economy will require emission reductions in each sector. Energy transition requires a shift away from fossil fuel-related generation to renewable sources in the energy grid. It also requires changes in how businesses operate and household behaviours, including energy efficiency, fossil fuel usage, transport, fugitive emissions, industrial processes and product use. Growth in carbon sequestration activities, such as tree planting and carbon removal technologies, also contribute to a lower carbon economy.

These sectors can be classified into four categories:

Electricity generation

- Electricity: use of coal and other fossil fuels in energy production.

Industry and household activities

- Stationary energy: direct combustion of fuels from manufacturing, mining, residential and commercial sectors.
- Transport: direct combustion of fuels in transportation by road, rail, domestic aviation and domestic shipping.
- Fugitive emissions: from production, processing, transport, storage, transmission and distribution of fossil fuels.

- Industrial process and product use: from by-products of materials and reactions used in production processes.

Other sectors

- Agriculture: methane, nitrous oxide and carbon dioxide, including livestock methane emissions.
- Waste: landfills, wastewater treatment, waste incineration and biological waste treatment.

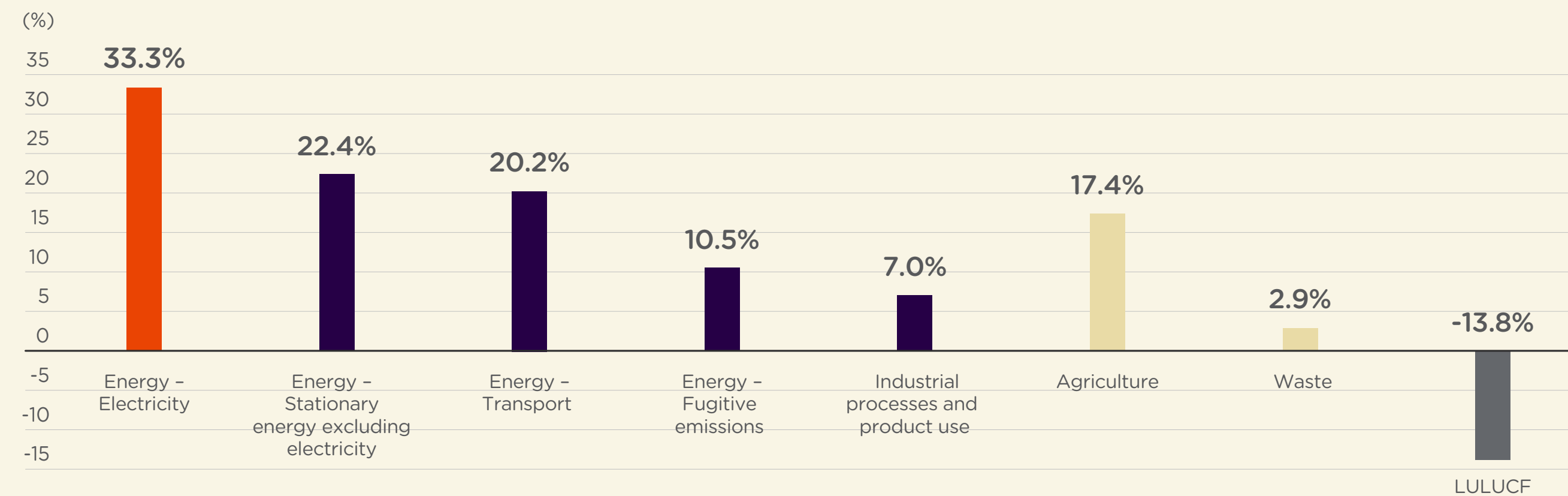
Sequestration

- Land use, land-use change and forestry (LULUCF): from forests, agricultural lands, and changes in land use, including carbon sequestration from tree planting.

Global emissions

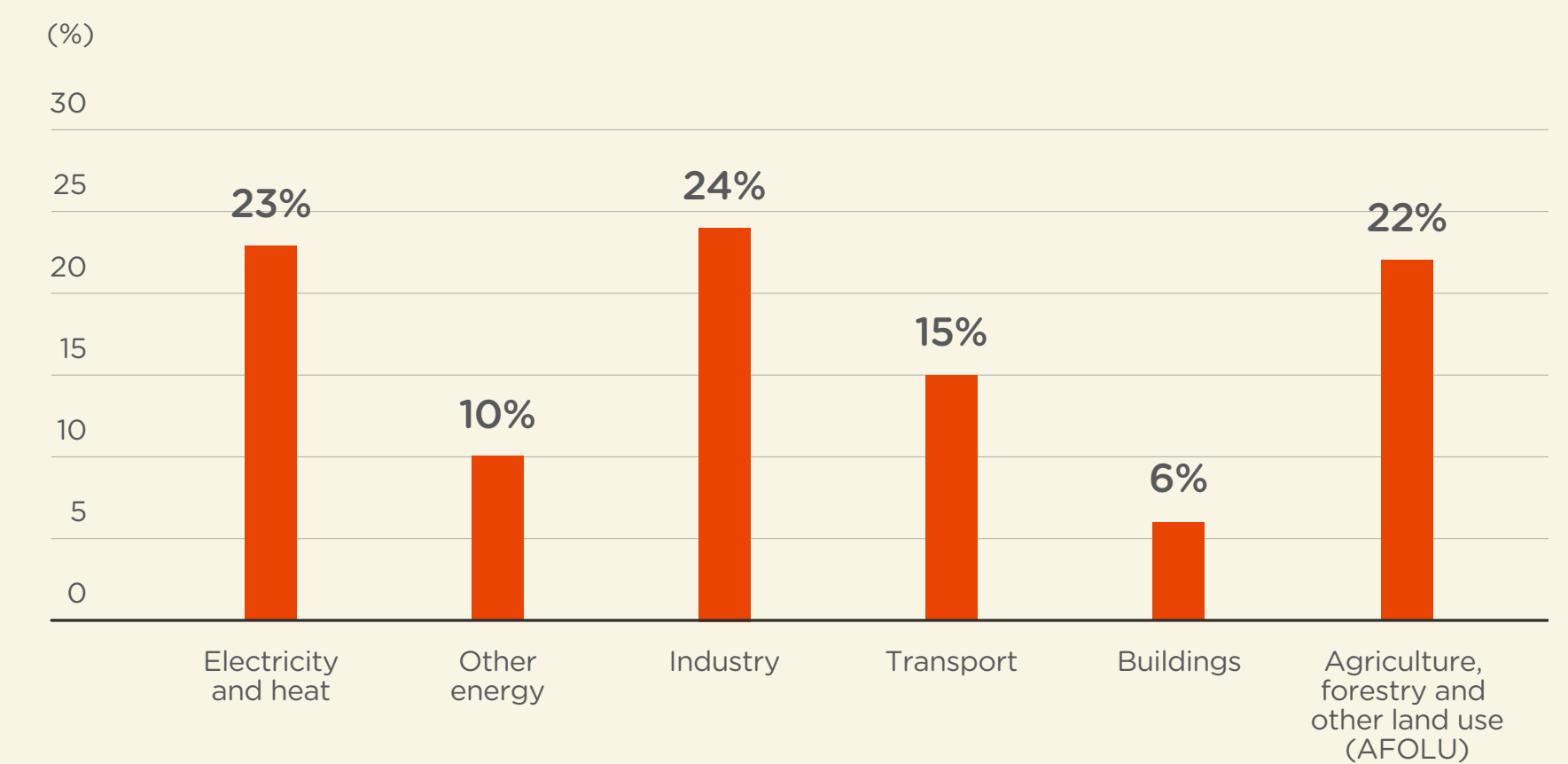
The ‘Global GHG emissions by sector’ chart shows global GHG emissions by economic sector. Energy generation electricity and heat production accounts for around one-third of global GHG emissions. Direct emissions from industry contribute about one-quarter of total global emissions. Other major contributing sectors are agriculture (including emissions from livestock and fertiliser use), forestry and land use change (AFOLU), transport and buildings.

Share of total emissions by sector
year to December 2022 – Australia



Source: Department of Climate Change, Energy, the Environment and Water. Quarterly Update of Australia’s National Greenhouse Gas Inventory: December 2022 [dcceew.gov.au/climate-change/publications/national-greenhouse-gas-inventory-quarterly-update-december-2022](https://www.dcceew.gov.au/climate-change/publications/national-greenhouse-gas-inventory-quarterly-update-december-2022)

Global GHG emissions by sector
for the year 2019



Source: IPCC: Climate Change 2022, Mitigation of Climate Change, Technical Summary.

²¹ Total GHG emissions excluding LULUCF. Calculated based on data from the Department of Climate Change, Energy, the Environment and Water. Quarterly Update of Australia’s National Greenhouse Gas Inventory: December 2022 [dcceew.gov.au/sites/default/files/documents/nggi-quarterly-update-dec-2022.pdf](https://www.dcceew.gov.au/sites/default/files/documents/nggi-quarterly-update-dec-2022.pdf)

²² Department of Climate Change, Energy, the Environment and Water. Quarterly Update of Australia’s National Greenhouse Gas Inventory: December 2022 [dcceew.gov.au/sites/default/files/documents/nggi-quarterly-update-dec-2022.pdf](https://www.dcceew.gov.au/sites/default/files/documents/nggi-quarterly-update-dec-2022.pdf)



Part 2: Strategy cont.

Managing energy and business transition in the portfolio

The net zero economic transition will require the management of energy and business transition in companies.

Energy transition

The energy sector plays a critical role in the low-carbon transition and achieving a net zero economy by 2050. Emissions from electricity generation currently account for around 30% of Australia's total emissions²³.

We recognise that as the global economy transitions to net zero, the composition of the world energy mix will change. While fossil fuels will continue to play a role in the energy mix early in the transition, this will diminish over time as renewable energy sources become a larger proportion of the mix and other climate change solutions are developed.

The International Energy Agency (IEA) has noted that while Russia's invasion of Ukraine in 2022 increased uncertainty in the energy system, contributing to higher energy prices and supply shortages, it has also highlighted the need to accelerate investment in renewable sources²⁴.

Some key findings in the IEA's *World Energy Outlook 2022*²⁵ include:

- The current energy crisis has highlighted the fragility of the current energy system and could lead to policymaker actions that slow down or accelerate the clean energy transition. The IEA states that “a huge increase in energy investment is essential to reduce the risks of future price spikes and volatility, and to get on track for net zero emissions by 2050.”
- New policies in major energy markets will help to accelerate annual clean energy investment to more than USD 2 trillion by 2030 based on the Stated Policies Scenario (STEPS)²⁶, which is a rise of more than 50% from today.
- “The increase in renewable electricity generation is sufficiently fast to outpace growth in total electricity generation, driving down the contribution of fossil fuels for power. The [energy] crisis briefly pushes up utilisation rates for existing coal-fired assets,” but is not expected to result in higher investment in new assets.
- “Russia's invasion of Ukraine is prompting a wholesale reorientation of global energy trade.”
- Based on current policy settings, global demand for fossil fuels is expected to peak or plateau. “In the STEPS, coal use falls back within the next few years, natural gas demand reaches a plateau by the end of the decade” and “oil demand levels off in the mid-2030s.”
- Even with the full achievement of current pledges from world policy-makers, “there is still a large gap between today's ambitions and a 1.5 degrees Celsius stabilisation.”
- “Today's high energy prices underscore the benefits of greater energy efficiency and are prompting behavioural and technology changes in some countries to reduce energy use.”
- Energy security is a key theme. The IEA suggests: “a new energy security paradigm is needed to maintain reliability and affordability while reducing emissions.” The World Energy Outlook includes ten principles to help guide policymakers “through the period when declining fossil fuel and expanding clean energy systems co-exist.”

The global energy transition will create investment opportunities across a range of technologies, including renewable energy and climate change solutions with new technologies developed as the world decarbonises. AustralianSuper currently invests in a range of energy solutions across markets and technologies, as detailed on page 14.

Business transition

Industry and household activities currently account for around 53% of Australia's total emissions²⁵. Business transition will require companies to transform their operations to net zero emissions by 2050 by making changes to businesses' processes, such as energy efficiency, fossil fuel usage, transport, fugitive emissions management, industrial processes and product use.

We're seeing governments, investors and companies around the world working towards a net zero economic transition by 2050. More than 130 countries, including Australia, have now committed or proposed to achieve net zero emissions by 2050²⁷. The Climate Action 100+ Net Zero Company Benchmark found that 75% of the original focus companies have

committed to net zero emissions by 2050 or sooner, including some of the world's top emitters and companies in hard-to-decarbonise sectors²⁸. Five years ago, when Climate Action 100+ was formed, only five focus companies had set net zero commitments²⁸.

Our carbon tracking analysis for our internally managed fundamental portfolios in the Australian shares asset class showed investee companies responsible for almost 88% of emissions in these portfolios have made net zero by 2050 commitments²⁹.

We advocate for energy and business transition in the assets we invest in through our direct and collaborative stewardship activities.

²³ Total GHG emissions excluding LULUCF. Calculated based on data from the Department of Climate Change, Energy, the Environment and Water. Quarterly Update of Australia's National Greenhouse Gas Inventory: December 2022. dceew.gov.au/sites/default/files/documents/nggi-quarterly-update-dec-2022.pdf

²⁴ International Energy Agency, World Energy Outlook 2022, [iea.org/reports/world-energy-outlook-2022](https://www.iea.org/reports/world-energy-outlook-2022)

²⁵ International Energy Agency, World Energy Outlook 2022, [iea.org/reports/world-energy-outlook-2022](https://www.iea.org/reports/world-energy-outlook-2022)

²⁶ The IEA's Stated Policies Scenario (STEPS) does not assume that all governments will reach their stated goals, rather it applies a sector-by-sector approach to activities in place to reach energy-related objectives. [iea.org/reports/global-energy-and-climate-model/stated-policies-scenario-steps](https://www.iea.org/reports/global-energy-and-climate-model/stated-policies-scenario-steps)

²⁷ Net Zero Tracker, zerotracker.net (sourced 15 September 2023).

²⁸ climateaction100.org/news/climate-action-100-net-zero-company-benchmark-shows-continued-progress-on-net-zero-commitments-is-not-matched-by-development-and-implementation-of-credible-decarbonisation-strategies

²⁹ These portfolios represented around 80% of the Australian shares asset class, with that asset class representing 23% of the total portfolio as at 30 June 2022.



Part 2: Strategy cont.

Investments in energy solutions

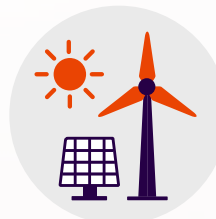
AustralianSuper invests over \$2.5 billion in energy solutions, which includes \$1.4 billion in renewable energy as at 30 June 2022.

Energy solutions contribute to the low-carbon energy transition in a number of ways. These include the generation of renewable energy, production of alternative fuels, improvements in energy efficiency and local electricity storage.

AustralianSuper uses the publicly available external taxonomy developed by the Sustainable Development Investments Asset Owner Platform (SDI AOP) to define, identify and measure its investments in energy solutions³⁰. We have categorised our investments according to the products and services the SDI AOP taxonomy defines in SDG7: Affordable and clean energy (sub-goals 7.2: Increase share of renewable energy, and 7.3: Double the

global rate of improvement in energy efficiency) and SDG 9: Industry, Innovation and Infrastructure (sub-goal 9.1: Sustainable and resilient infrastructure (energy infrastructure only)).

AustralianSuper invests over \$2.5 billion in energy solutions in the Australian shares, international shares, fixed interest and unlisted infrastructure asset classes as at 30 June 2022. Our investments in energy solutions are divided into three categories based on the three SDG sub-goals previously listed – renewable energy, energy efficiency and supporting infrastructure. A breakdown of our assets under management and examples of the types of business activities included in each category are shown below.



Renewable energy: \$1.4 billion

Includes generation of renewable energy such as wind and solar, production of alternative fuels such as hydrogen and advanced biofuels, and provision of supporting products and services such as solar panels, wind turbines, and critical minerals.



Energy efficiency: \$1 billion

Includes products and services such as smart meters, insulation, efficient lighting and manufacture of electric vehicles.



Supporting infrastructure: \$0.2 billion

Includes equipment and services for energy infrastructure such as smart grids, local electricity storage and electrical transportation (e.g. EV charging stations).

For further information on our energy solutions methodology, please see page 47.



³⁰ For further information on the SDI AOP taxonomy visit sdi-aop.org/sdi-classification



Part 2: Strategy cont.

Investing in the energy transition

The following investments are held in AustralianSuper's unlisted infrastructure and unlisted property asset classes in our PreMixed investment options (with the exception of the Indexed Diversified option).

Generate Capital

AustralianSuper has been investing in Generate Capital since December 2019. Generate Capital is a diversified infrastructure company specialising in distributed energy and sustainable infrastructure through its infrastructure-as-a-service model.

Generate Capital, a Public Benefit Corporation, builds, owns, operates, and finances solutions for energy, transportation, water, waste, agriculture, and digital infrastructure. The company owns and operates more than 2,000 assets globally.

Generate's innovative business model leverages growing global demand for distributed energy and sustainable infrastructure solutions. Generate is one of the largest owners and operators of behind-the-meter battery storage, community and rooftop solar, energy efficiency retrofits, biogas facilities, electric buses and hydrogen-electric vehicle fleets in North America.

Generate converted into a Public Benefit Corporation in November 2021.

Quinbrook Infrastructure Partners

Quinbrook Infrastructure Partners is one of AustralianSuper's external unlisted infrastructure managers. AustralianSuper is invested in a low-carbon power fund managed by Quinbrook and is also co-invested directly with Quinbrook on infrastructure projects.

Quinbrook is an infrastructure manager focused on investment in assets and businesses that support the energy transition, including low carbon and renewable energy supply, storage, grid stability and related assets and businesses in the US, UK and Australia. Quinbrook was awarded Investment Fund of the Year, Best ESG Investment Fund: Infrastructure and Best ESG Investment Fund: Energy Transition in the ESG Investing Awards 2021.

The company funds the construction and ongoing operations of lower carbon and renewable energy supply infrastructure, such as onshore wind, solar photovoltaic (PV) power, battery storage and grid stability assets, including synchronous condensers and efficient peaking gas assets, with the aim of helping households, businesses and governments transition to a lower carbon economy.

Quinbrook is a signatory of the Principles for Responsible Investment and the Net Zero Asset Managers Initiative and is a supporter of TCFD.

National Infrastructure Investment Fund (NIIF)

AustralianSuper is an investor in NIIF. NIIF was set up by the Indian government in 2015 to attract foreign investors to finance its domestic infrastructure, and is now 51% owned by private investors with assets totalling US\$4.9 billion.

NIIF's key focus is on investing across infrastructure, growth equity and private markets. NIIF's Master Fund invests in core infrastructure sub-sectors – power, roads, airports, digital infrastructure, and logistics.

India's Nationally Determined Contribution (NDC) proposes 50% cumulative electric power installed capacity from non-fossil fuel-based energy sources by 2030 to reduce emissions intensity of its GDP by 45 per cent by 2030, from 2005 levels³¹. To capture this growth in renewables, NIIF is a 51% owner in a renewables platform, Ayana Renewable Power Private Limited, which currently has ~3.9 Gigawatts of solar projects (operational and under-development assets) across India (as of 31 March 2023)³².

Business transition

Ausgrid

AustralianSuper and IFM Investors purchased a stake in Ausgrid in December 2016. Ausgrid is Australia's largest distributor of electricity on the east coast, providing power to 1.8 million households and businesses. Its network spans 22,275 square kilometres throughout Sydney, the Central Coast and the Hunter Valley.

Traditionally, Ausgrid's focus has been on providing the poles, wires and supporting infrastructure required to transmit electricity from the grid into households.

Ausgrid is now shifting to become an electricity services platform providing customers access to affordable and accessible low-carbon choices, to power their homes, businesses, and modes of transportation. The electrification across the economy places Ausgrid in a position to participate in this transition as it adapts to meet customers' ambitions for a net zero future.

By the end of FY23, Ausgrid had installed three community batteries in Sydney and Lake Macquarie as part of a trial to encourage households in those areas to harness and store solar power. More will be installed in FY24. Community batteries provide a large storage resource that can be accessed by multiple households, reduce costs for residents and increase the amount of clean energy in the grid. Twenty-seven public EV chargers have also been installed on Ausgrid's assets, with two of these being Australia's first pole-mounted EV chargers.

Ausgrid is a member of the International Community for Local Smart Grids, an international collaboration of electricity networks and community energy groups who are working together to support the transition to a decarbonised future.

Ausgrid has committed, as part of the Business Ambition for 1.5C and Science Based Targets initiative, to achieve emissions reductions (including line losses) of 50% by 2030 (scope 1 and 2) and net zero by 2045 (scope 1, 2 and 3)³³.

Moorebank Intermodal Precinct

AustralianSuper acquired a 40% interest in Australia's largest intermodal logistics facilities in July 2021 as part of a LOGOS-led investment consortium. Located in Moorebank in south-western Sydney, Moorebank Intermodal Precinct is a 243-hectare industrial property adjacent to two state-of-the-art technology-enabled intermodal facilities. One connecting directly to Port Botany supporting import and export freight and the other servicing the interstate rail network. The site has the capacity to develop up to 850,000 square metres of warehouse space.

LOGOS has partnered with renewable energy fund Solar Bay to install Australia's largest rooftop solar system on the warehouse facilities. The embedded network includes installation of at least 60 MW (with a potential for up to 130 MW) of rooftop solar across the estate and the future installation of 150 MWh of battery energy storage. The combined power of the rooftop solar and battery energy will generate clean power equivalent to 40,000 homes avoiding an estimated 67.2 kilotonnes of CO₂ emissions per year³⁴.

All new buildings in the precinct will be built to achieve a minimum Design and Build Green Star 5 Star certification while the estate is targeting both Green Star Communities and ISCA Design and As Built ratings.

³¹ economictimes.indiatimes.com/epaper/delhicapital/2022/aug/05/et-front/india-keeps-renewables-target-flexible/articleshow/93357151.cms

³² ayanapower.com/offering

³³ Scope 1 and 2 emissions are baselined to FY20 and scope 3 emissions are baselined to FY21.

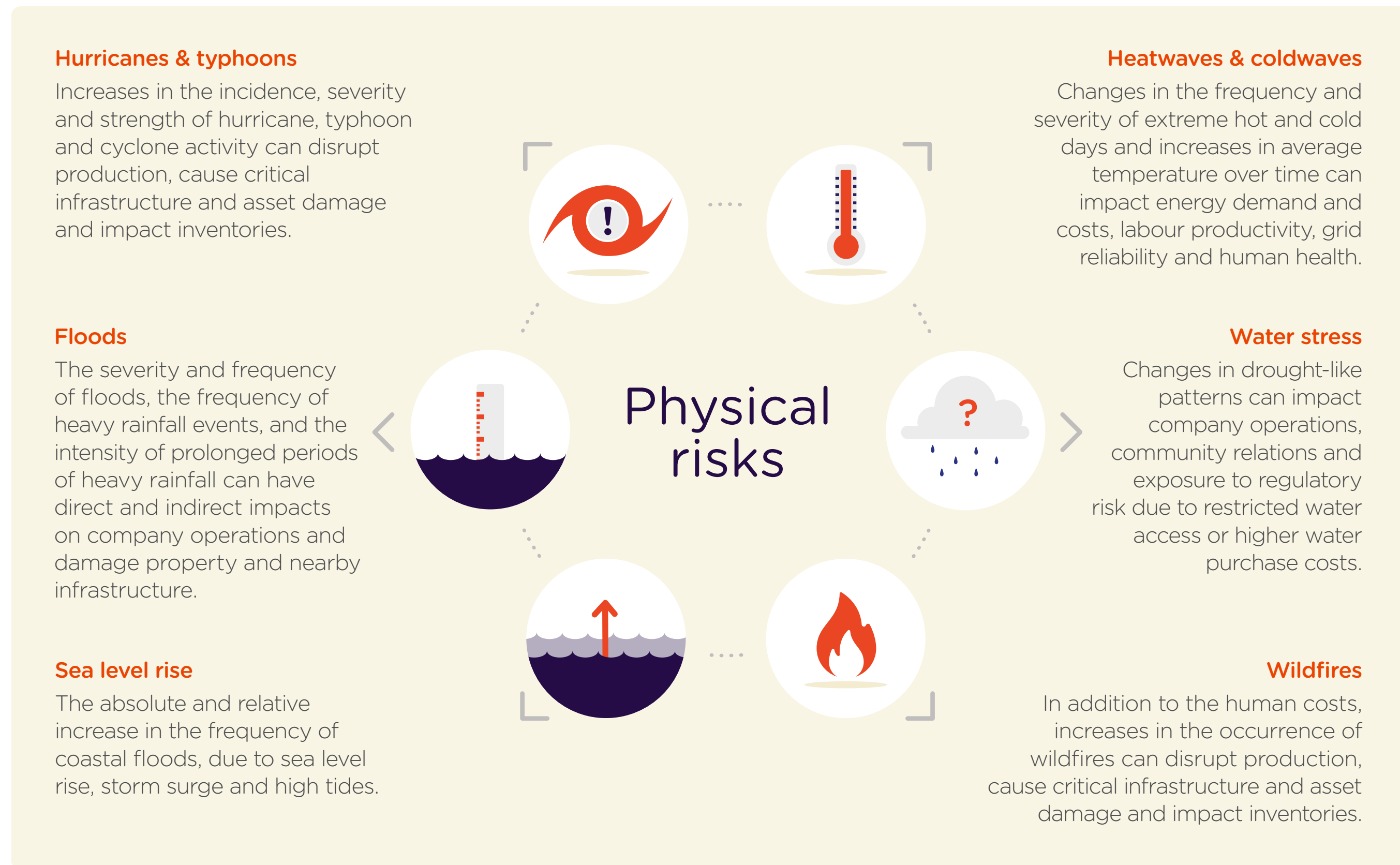
³⁴ solarbay.com.au/media-mention/australias-largest-rooftop-build-for-mlp *measured against 2021-2022 NSW electricity emission factor.



Part 2: Strategy cont.

Physical risks

Physical climate hazards pose material financial risk to companies through asset-level impacts on corporate facilities, as well as through supply chain and market impacts upstream and downstream of a company’s direct operations³⁵.



Climate change resilience of our investment portfolio

We are establishing a carbon-pricing approach to assess potential carbon price impacts on the value of our investments to assist in our management and measurement of climate change risks.

AustralianSuper conducts annual scenario testing in the strategic asset allocation process to test the potential performance impacts on our investment strategy.

Individual assets in AustralianSuper’s investment portfolio may be vulnerable to physical risks from climate change. Acute and chronic physical risks are expected to increase in severity and/or frequency in higher emissions scenarios and may have financial implications for assets in our portfolio, including damage to capital assets, increased insurance costs or insurability risks, and disruption to operations and supply chains.

AustralianSuper has conducted physical risk assessments of its Australian shares, international shares, unlisted property and unlisted infrastructure portfolios. Our latest assessments indicate that AustralianSuper’s physical risk exposure within the Australian and international shares asset classes is low to medium, with elevated risks in some unlisted infrastructure and unlisted property assets.

The Fund expects to adapt and evolve its investment risk management processes in response to the insights of future physical risk assessments. This is expected to include engagement with assets identified as higher risk, or in high-risk sectors or geographical locations to gain a better understanding of how they are managing and mitigating these risks.

For further information on the physical risk exposure in these asset classes, see page 37.

³⁵ Upstream activities are performed closer to the source such as exploration, extraction and production of raw materials. Downstream activities occur closer to the end user of the product such as refiners, distributors and retail outlets.



Part 3: Risk management

Integration and stewardship

Our approach to managing climate change risks and opportunities includes the way we invest (integration) and our actions as owners (stewardship) described below.

- **Integration:** refers to the way we integrate ESG considerations in deciding which assets and companies to invest in, and in assessing their investment value.
- **Stewardship:** exercising our rights and responsibilities as an asset owner to seek positive management of ESG issues that we believe can impact members' investment returns.

Our integration and stewardship activities vary by asset class and the characteristics of our investment, including whether we're investing directly or through external managers, or whether our investment is actively or passively held.

We undertake more in-depth integration activities in the companies and assets we invest in directly. Direct ownership can help with the oversight of our assets, including on ESG issues. AustralianSuper often has large ownership stakes in companies and assets, which affords

us governance rights, including the appointment of AustralianSuper-nominated board directors on certain unlisted assets, and opportunities to engage with the board and other key decision-makers in listed ASX companies.

Investment portfolio

On members' behalf, we're a large investor in Australian and international markets with investments that touch many areas of the global economy. We're an active investor and have a broad investment mandate, investing across multiple asset classes, geographic markets and at different points in the capital structure.

AustralianSuper currently invests around half of its investment portfolio in Australia and half in international assets. The proportion of the portfolio currently managed by our in-house investment team is around 58%.

Investment portfolio composition as at 30 June 2023³⁶



- Australian shares 22.1%
- International shares 28%
- Private equity 4.9%
- Unlisted infrastructure 13.3%
- Listed infrastructure 0.3%
- Unlisted property 4.3%
- Listed property 0.4%
- Credit 3.0%
- Fixed interest 15.9%
- Cash 7.4%
- Other assets 0.3%

³⁶ The asset allocation and other investment information are current as at 30 June 2023, unless otherwise stated. AustralianSuper may change asset allocations and investments from time to time in response to market conditions.



Part 3: Risk management cont.

Integration activities

Examples of our integration activities within various asset classes and investment strategies are provided below.

Australian and international shares asset classes

AustralianSuper invested around \$153 billion in companies listed on Australian and international stock exchanges as at 30 June 2023.

Internally managed fundamental portfolios³⁷

Approximately 94% of the Australian shares asset class and 43% of the international shares asset class are managed by our in-house management team³⁸.

Prior to investing in companies in the internally managed fundamental portfolios in the Australian shares asset class, we conduct due diligence to seek to identify ESG issues that can impact the value of the company. This includes preparing red flag reports to identify ESG issues and integrating the findings into the Australian Equities team's Key Value Driver assessments which inform our investment valuations and, ultimately, our decision to invest. Our assessment includes consideration of which sectors are susceptible to valuation impacts due to climate change risks and an evaluation

of the company's mitigation strategies to manage these risks and evidence of their net zero aligned emissions reduction efforts. Ownership plans are then developed if we decide to invest in a company. We have developed ownership plans for companies in these portfolios in the Australian shares asset class, which incorporate our assessment of how companies are managing these issues, their disclosure and stakeholder management approach. We also identify the stewardship actions we intend to undertake.

Factors considered as part of our approach may include:

- setting and appropriateness of emissions reduction targets
- level of emissions and management practices in place to reduce emissions
- risk management approach to assess physical and transition risk including risk related to critical upstream and downstream partners
- TCFD alignment reporting
- dependence of emissions reduction strategy on carbon offsets
- climate change governance and Board and Executive oversight responsibilities.

Prior to investing in companies in the fundamental portfolios in the international shares asset class, we conduct an ESG due diligence assessment to seek to identify material ESG issues and integrate the findings into the overall assessments, which inform our investment valuations and decision to invest.

Externally managed portfolios

AustralianSuper does not conduct its own assessments of assets and companies in which it invests via an external investment managers. ESG integration in these cases is performed by the investment manager with AustralianSuper undertaking an assessment of the manager's approach as described below.

In the appointment and annual operational due diligence processes, we ask external investment managers about their approach to ESG considerations, including climate change.

In addition, AustralianSuper conducts ESG reviews on its external investment managers in the international shares asset class via annual questionnaires. As part of

these reviews, we seek to understand how the manager considers ESG issues in the investment process. For example, we ask managers to articulate their approach to managing climate change risks within their respective portfolios, and how they consider transition and physical impact risks in the companies in their portfolios. Over the last two years (FY22 and FY23), we have also asked our contracted listed shares fund managers about their alignment and transition to net zero 2050. In FY23, we introduced a net zero assessment rating based on these reviews.

What are fundamental portfolios?

Our fundamental portfolios are actively managed by our in-house investment team. Our team uses research and insights, and applies their expertise and judgment to assess the quality and value of individual companies on a range of factors. These can include company financial information, management quality, market and industry outlooks and ESG considerations.

What are ownership plans?

AustralianSuper develops ownership plans for certain assets. The plans seek to identify material issues that may impact valuation, including key ESG themes such as climate change; assess company disclosure and management of material issues; identify key stakeholders; and identify stewardship actions to be undertaken by AustralianSuper. The plans incorporate our internal assessment of company management of, and disclosure related to, material ESG issues.

³⁷ We do not integrate ESG considerations in our internally managed quantitative portfolio, which uses a model-driven systematic approach (where investment decisions are based predominantly on historical relationships between stock characteristics and their ability to predict future returns).

³⁸ As at 30 June 2022.



Part 3: Risk management cont.

Index and quantitative investment strategies

As part of the Fund's overall investment strategy, we include index and quantitative portfolios to deliver the investment risk and return characteristics needed to deliver the Fund's overall investment objective.

Our indexed investment mandates are all managed by external investment managers. The purpose of these investment mandates is to efficiently gain exposure to the share market by replicating a particular market index. For these portfolios, investments will typically be made for each company in the index in proportion to their weight in the relevant index. By doing this, we can achieve share market exposure consistent with an index return.

AustralianSuper also has internally managed, quantitative portfolios in the Australian and international shares asset classes. These portfolios predominantly use a model-based, systematic approach to selecting companies based on historical relationships between stock characteristics and their ability to predict future returns.

We do not undertake an assessment of qualitative investment characteristics (including ESG and non-ESG issues) for our index and quantitative portfolios as an input, given the passive or quantitative nature of the investment approach.

Unlisted property and unlisted infrastructure asset classes

Internally managed unlisted property and unlisted infrastructure portfolios

AustralianSuper invested around \$40 billion in the unlisted infrastructure asset class, with about 55% managed by our in-house team as at 30 June 2023. The unlisted property asset class currently totals \$13 billion, with about 48% managed internally³⁹.

For property and infrastructure assets we invest in directly, we conduct an initial ESG assessment which considers a range of ESG issues and identifies material risks and opportunities that may require further diligence. For assets where climate change risks are elevated, we evaluate these risks and potential mitigants by assessing any relevant transaction documents, including climate change reports, policy and procedure documents, and emissions data (where available).

For direct infrastructure and property transactions over a certain size, prior to acquisition, the ESG and stewardship representative on the transaction team undertakes the ESG due diligence assessment of the asset. As part of due diligence and ongoing ownership planning, AustralianSuper applies its internally developed climate change framework to seek to identify physical and transition climate risks and mitigation measures associated with assets in its portfolio throughout their lifecycle from acquisition through to ownership and exit. Where capital and/or operational expenditure is required to manage the climate change risk and is ascertainable, this is factored into the asset's valuation.

This framework is tailored to industry sub-sectors/asset types, draws on portfolio case studies and incorporates aspects of globally recognised frameworks such as the TCFD and the Climate Action 100+ Net Zero Company Benchmark.

Factors considered as part of our approach may include:

- identifying climate hazards and areas of vulnerability;
- assessing asset condition, capital expenditure and maintenance plans in place;

- understanding climate change governance and mitigation strategies, including who has oversight and how this is monitored and resourced;
- assessing emergency preparedness and the degree to which the asset coordinates with emergency services, local councils and other key stakeholders, including nearby assets and communities;
- undertaking insurance due diligence;
- how the asset/business is positioned for a rapidly accelerating net zero GHG emissions by 2050 global transition;
- understanding how a net zero economy-wide transition can impact its revenues, operations and business strategy, including indirect carbon pricing effects on customers or end users;
- application of factors from the Climate Action 100+ Net Zero Company Benchmark framework, such as understanding their ambition to achieving net zero GHG emissions by 2050 or sooner; and
- sustainability or climate change-related disclosures and reporting mechanisms in place.

Externally managed unlisted property and unlisted infrastructure portfolios

We also monitor how climate risk factors are assessed in the investment processes of our core external infrastructure and property managers. To assist our monitoring of core property managers, we conduct a face-to-face review in addition to using the annual Global Real Estate Sustainability Benchmark (GRESB). Each year, our core external property managers, ISPT and QIC, undertake the GRESB assessment, which measures their performance against a wide range of environmental and social criteria and metrics for the portfolios in which we're invested. We review these results and compare them across managers and broader peer groups.

Oversight of asset-specific adaptation and mitigation work of our property assets is primarily undertaken by our external investment managers.



Case study

King's Cross Estate

AustralianSuper members own 71.5% of King's Cross Central Limited Partnership. Now in its final phase of development, King's Cross Estate is one of Europe's largest urban regeneration projects.

The Estate's design is based on sustainable principles, which aim to minimise environmental impact, and encourage cultural and social diversity and community connections.

We work with our investment and development partners to seek better ESG outcomes and deliver long-term value to members. The King's Cross Estate has committed to become net zero by 2035 and became carbon neutral in 2021. The renewable green gas 'biomethane' provides all the heating and hot water for the Estate's 1,750 homes and 5 million sq ft of office, retail and dining spaces. It also supplies electricity to offices on the Estate and powers the Estate's cooling pod.

The Estate's office buildings have been designed to achieve energy performance of at least 40% better than required in building regulations – ten office buildings have achieved the highest level of international green building certification, BREEAM Outstanding, representing

the largest collection of BREEAM Outstanding rated office buildings in the UK.

Sustainability credentials

- Carbon neutral estate.
- Signatory to World Green Building Council's Net Zero Carbon Buildings commitment.
- 37 varied green roof spaces delivered so far.
- 40% of development is public parks and open space.
- Over 400 new trees planted.
- 100% zero carbon heating and hot water supply.
- Over 210 kW installed capacity of solar PV panels.
- Zero waste to landfill.
- Largest collection of BREEAM Outstanding buildings in the UK (home to 20% of UK's BREEAM office buildings).





Case study

Canada Water Masterplan

In March 2022, AustralianSuper purchased a 50% stake in the Canada Water Masterplan, forming a joint venture with British Land to deliver this significant urban regeneration project over the next decade.

Canada Water is a 53-acre, major urban regeneration project in central London. It's the first new town centre in central London for 50 years and will provide around 3,000 net zero homes, sustainable workspaces for approximately 20,000 workers and one million square feet of retail, leisure, entertainment and community space. It will also create extensive open spaces protecting historical wetlands and woodlands, all within easy access to the other amenities central London has to offer.

ESG commitments are a component of the Canada Water Business Plan and our investment criteria. Canada Water is regarded as one of the most sustainable large-scale regeneration projects in the UK, and is structured to be delivered as a net zero development by 2030. This involves ambitious targets to reduce embodied carbon in construction, with residual carbon being offset via an accredited offsetting strategy. Operational energy is being reduced through efficient design and an all-electric energy strategy, which allows

for the use of renewable energy and takes advantage of the decarbonisation of the electricity grid. We'll continue to work with British Land, our investment and development partner, to seek better ESG outcomes for the Canada Water Masterplan and deliver long-term value to members.

Sustainability credentials

- Canada Water is structured to be delivered as a net zero development by 2030.
- British Land has a net zero by 2030 commitment.
- Around 3,000 net zero homes, 35% of which will be affordable with the majority of those available at social housing rent prices.
- Twelve acres of new public space, including parks, revitalised wetlands and a new town square.
- The development aims to commit to high levels of industry standards, including BREEAM, HQM and NABERS and WELL certifications.



Case study

Assemble Communities

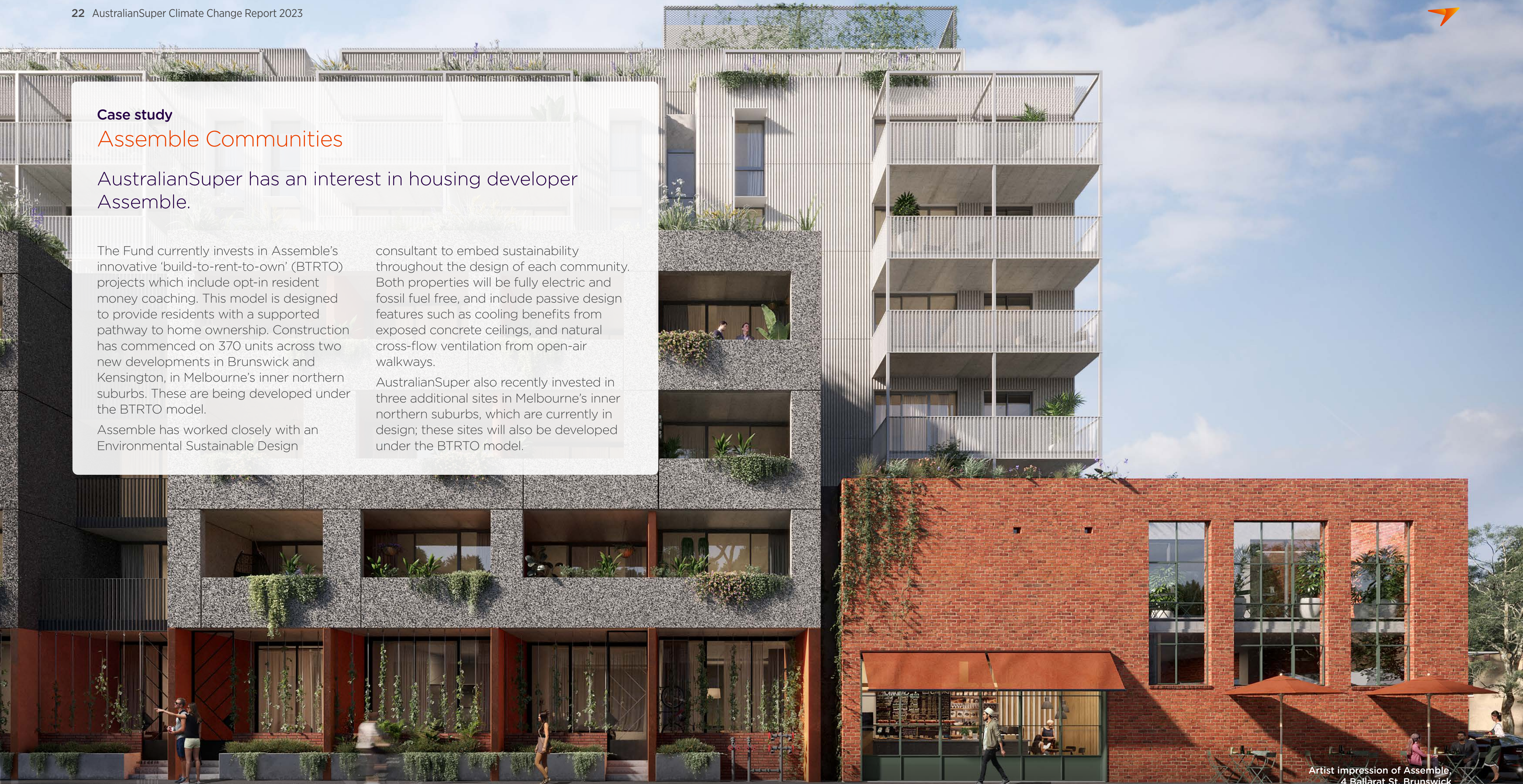
AustralianSuper has an interest in housing developer Assemble.

The Fund currently invests in Assemble's innovative 'build-to-rent-to-own' (BTRTO) projects which include opt-in resident money coaching. This model is designed to provide residents with a supported pathway to home ownership. Construction has commenced on 370 units across two new developments in Brunswick and Kensington, in Melbourne's inner northern suburbs. These are being developed under the BTRTO model.

Assemble has worked closely with an Environmental Sustainable Design

consultant to embed sustainability throughout the design of each community. Both properties will be fully electric and fossil fuel free, and include passive design features such as cooling benefits from exposed concrete ceilings, and natural cross-flow ventilation from open-air walkways.

AustralianSuper also recently invested in three additional sites in Melbourne's inner northern suburbs, which are currently in design; these sites will also be developed under the BTRTO model.



Artist impression of Assemble,
4 Ballarat St, Brunswick



Part 3: Risk management cont.

Stewardship activities

AustralianSuper exercises its rights and responsibilities as an asset owner to seek positive management of ESG issues that we believe can impact members' returns, including climate change.

Our stewardship activities may include engaging with investee companies (individually or via collaborative networks with other investors) and voting on company and shareholder resolutions.

We seek to communicate our investment interests to companies in a way that is consistent with maximising long-term value for members. We also seek to understand how companies are managing material ESG issues, such as climate change.

Examples of the stewardship activities we undertake within various asset classes and investment strategies are provided below.

Australian shares asset class

The ESG and Stewardship and Australian Equities teams have developed ownership plans for companies in the internally managed fundamental portfolios⁴⁰ in the Australian shares asset class. The ownership plans are designed to capture the primary ownership considerations for companies, including performance on key ESG factors and stakeholder considerations, such as climate change risk where relevant, which includes transition and physical risk. The plans include engagement strategies, which enable us to conduct focused engagements with companies on issues that can impact long-term value.

The ESG and Stewardship and Australian Equities teams engage with company directors and senior management of companies in these portfolio holdings to seek:

- confidence that companies are well positioned for a net zero economy including company net zero commitments and alignment of business strategies to this goal
- identification and articulation of transition pathways to net zero that maximise value, including publication of climate transition action plans
- effective governance of the management of climate change risks and opportunities
- forward-looking emissions reduction trajectories to enable assessment of the validity of company targets and commitments
- consistent and transparent disclosure of climate change information aligned with the TCFD framework
- a smooth transition to a net zero economy, including appropriate support for a just transition.

For Australian listed companies not held in our internally managed fundamental portfolios, we conduct our engagements through the Australian Council of Superannuation Investors (ACSI).

International shares asset class

AustralianSuper is evolving its ESG assessment approach for companies in its internally managed fundamental portfolios in the international shares asset class as the investment process for these portfolios develops. Our subscription to Equity Ownership Services (EOS) at Federated Hermes grants us access to insights and opportunities regarding engagements with a subset of companies in our international shares asset class annually. Hermes EOS provides engagement services for AustralianSuper, and its other clients, for international companies.

AustralianSuper votes on company and shareholder resolutions for Australian and international listed companies. We vote on resolutions on issues such as director elections, remuneration plans, climate change and mergers and acquisitions.

Unlisted infrastructure and unlisted property asset classes

AustralianSuper engages with the boards and management of direct property and infrastructure assets. We're currently building out ownership plans for our directly held infrastructure and property assets. These ownership plans inform our stewardship program and are initially based on our due diligence findings. The ownership plans mature and continue to be revised to incorporate updated views of the risks and opportunities ascertained from our ownership of the assets.

We provide a training program, which includes ESG and climate change, for AustralianSuper-appointed non-executive directors on the boards of portfolio companies where we have the right to nominate one or more directors.

The ESG and Stewardship team meets with representatives from our core external infrastructure and property managers. The purpose of these meetings is to update our understanding of the progress of each manager's sustainability initiatives and to address challenges and gaps.

Share voting

AustralianSuper votes on company and shareholder resolutions for Australian and international listed companies in the Australian shares, international shares, listed property and listed infrastructure asset classes.

The Fund supports resolutions that we believe will support long-term value, appropriate disclosure, effective board composition and operation, and/or encourage appropriate pay-for-performance remuneration outcomes.

AustralianSuper retains voting rights for shares held by the Fund, including shares held by external managers on behalf of the Fund. Stocks within the voting coverage universe will be voted by the ESG and Stewardship team and may be voted directly or according to the voting approach for different holding types as noted in our published share voting approach document. Where direct voting is undertaken, input may be sought from internal analysts, proxy advisors, and external managers, where appropriate.

For more information on our approach to voting or to view our quarterly voting records, visit australiansuper.com/ResponsibleInvestment

⁴⁰ These portfolios represented around 80% of the Australian shares asset class, with that asset class representing 23% of the total portfolio as at 30 June 2022.

Part 3: Risk management cont.

Collaboration and advocacy

We believe investors have an important role to play in supporting the low-carbon transition across the global economy.

One of the ways we're supporting the transition is via engagement with our investments and collaboration with other investors.

AustralianSuper holds strategic leadership positions on collaborative investor initiatives to amplify its voice on climate change issues.

Climate Action 100+

AustralianSuper is a founding member of Climate Action 100+. Our Head of ESG and Stewardship is a global steering committee member and rotating global Chair of the initiative. Climate Action 100+ has more than 700 investor signatories globally, representing US\$68 trillion in assets under management. The initiative is promoting change in 166 of the world's largest carbon emitters, who are collectively responsible for up to 80% of global industrial GHG emissions.

The initiative released its second round of company assessments based on its Net Zero Company Benchmark in October 2022, which found 91% of companies had aligned with TCFD recommendations⁴¹. In its 2021 progress report, Climate Action 100+ highlighted the results of BloombergNEF analysis from September 2021⁴², which found that 111 focus

companies had set net zero targets for 2050 or earlier, compared to just five when the initiative launched in 2018. It's estimated that these net zero targets – which Climate Action 100+ investors have played a significant role in securing – will reduce GHG emissions by 9.8 billion metric tonnes annually by 2050⁴².

The Climate Action 100+ Net Zero Company Benchmark released in early 2021 marked an important step forward for climate measurement and management in the world's largest carbon emitters. By defining a consistent framework and data to measure alignment with a net zero emissions future, it provides much-needed clarity for investors and companies in climate change engagement. It enables better management of the investment risks and opportunities from climate change.

The Net Zero Company Benchmark company assessments published in October 2022 show that while progress has been made, it needs to accelerate with companies requiring credible strategies and capital expenditure plans to deliver on their net zero targets⁴¹.

Key results⁴¹ include:

- 75% of Climate Action 100+ original focus companies have committed to net zero emissions by 2050 or sooner.

- 92% of focus companies have some form of board oversight of climate change.
- 91% of focus companies have aligned with TCFD recommendations either by supporting the TCFD principles or by employing climate scenario planning.
- 82% of focus companies have set medium-term targets, however only 20% have targets that cover all material scopes and are aligned with a 1.5 degree pathway.
- 53% of companies have a decarbonisation strategy in place to reduce GHG emissions, although only 19% quantify key elements with respect to the major sources of their emissions.
- Only 10% of companies have committed to fully align their capital expenditure strategies with their GHG targets or the Paris Agreement.

Further information on the Climate Action 100+ Net Zero Company Benchmark methodology is available at climateaction100.org/net-zero-company-benchmark/methodology

AustralianSuper leads the engagement activities with BHP and Qantas through the Climate Action 100+ initiative.



⁴¹ climateaction100.org/news/climate-action-100-net-zero-company-benchmark-shows-continued-progress-on-net-zero-commitments-is-not-matched-by-development-and-implementation-of-credible-decarbonisation-strategies

⁴² climateaction100.org/wp-content/uploads/2022/03/Climate-Action-100-2021-Progress-Update-Final.pdf



Part 3: Risk management cont.

Australian Industry Energy Transitions Initiative

Net zero transition in hard-to-abate sectors

Finding technological solutions for hard-to-abate sectors is an important part of transitioning our portfolio to net zero emissions by 2050.

AustralianSuper completed its three-year founding partnership with the Australian Industry Energy Transitions Initiative (Australian Industry ETI) in November 2022. This initiative drew together 18 industry participants that represent approximately 22 per cent of Australia's industrial emissions and approximately 32 per cent of the market value of the ASX 100. The Australian Industry ETI's focus was to accelerate action towards achieving net zero emissions in supply chains by 2050 in five critical sectors known as 'hard-to-abate', given their high emissions and relatively higher abatement costs.

Through this initiative, we have engaged with industry on the development of pathways for emissions reductions across five supply chains: iron and steel, aluminum, liquified natural gas, other metals (including copper, nickel and

lithium) and chemicals (such as fertilisers and explosives). Collectively, these sectors contribute more than a quarter of Australia's GHG emissions and generate exports worth around \$160 billion.

The Australian Industry ETI published its final report, *Pathways to industrial decarbonisation: Positioning Australian industry to prosper in a net zero global economy*, in February 2023. This report outlines possible decarbonisation pathways consistent with global efforts to limit warming to 1.5°C for five of the heaviest industry sectors in Australia.

The report⁴³ found that:

- Industry emissions in Australia could be reduced by up to 92 per cent by 2050, based on 2020 levels, with strong ambition, coordinated action and government support.
- Transitioning Australia's heavy industries will require a transformational shift in the nation's energy system. This includes doubling total current electricity generation and rapidly scaling up renewable energy, a critical enabler of industrial decarbonisation.

- Over 1.3 million jobs could be created between 2025 and 2050 in the ambitious 1.5°C scenario. Investment by government, industry and investors could support up to 64,000 construction jobs per year from 2025 to 2050, plus an additional 129,000 roles in operations and maintenance between 2025 and 2050.
- An average investment of around \$21 billion a year over 30 years would be required to modernise Australia's industrial regions and energy system to keep Australia on track to limiting warming to 1.5°C.

You can read the final Australian Industry ETI report at energytransitionsinitiative.org/wp-content/uploads/2023/08/Pathways-to-Industrial-Decarbonisation-report-Updated-August-2023-Australian-Industry-ETI.pdf



⁴³ energytransitionsinitiative.org/wp-content/uploads/2023/02/Media-release-Heavy-industry-could-decarbonise-help-limit-warming-to-1.5-degrees-and-create-up-to-1.35-million-jobs-new-report-outlines-pathways.pdf



Part 3: Risk management cont.

AustralianSuper participates in industry networks and other collaborative initiatives to advocate for improved climate risk management and transparency.

Australian Council for Superannuation Investors (ACSI)

AustralianSuper, with other major Australian super funds, is a member of ACSI. ACSI engages with companies and policymakers with the aim of progressing material ESG issues on behalf of its members. AustralianSuper participates in a range of ACSI working groups and may also consider ACSI's proxy voting advice.



Investor Group on Climate Change (IGCC)

IGCC is a network for Australian and New Zealand investors to help in the management of investment risks and opportunities related to climate change. Members have more than \$30 trillion in global AUM, and \$3 trillion in local AUM and include superannuation funds, specialist investors and advisory groups. AustralianSuper has been a member of IGCC since 2008 and is currently on the IGCC Board.



The Institutional Investors Group on Climate Change (IIGCC)

IIGCC is the European membership body for investor collaboration on climate change. Its membership includes asset owners and managers, including many of the largest global and European institutional investors. IIGCC works with its members to provide guidance on investment practices concerning climate-related risks and opportunities. AustralianSuper joined IIGCC in 2018, became a board member in FY22 and co-authored the *Building Resilience to a Changing Climate: Investor Expectations of Companies on Physical Climate Risks and Opportunities* report released in September 2021.



IFRS Sustainability Alliance

AustralianSuper is a member of the IFRS Sustainability Alliance – a global membership program for sustainability standards and integrated reporting. The Alliance was set up following the Value Reporting Foundation's consolidation into the IFRS Foundation, which has assumed responsibility for the SASB Standards via the International Sustainability Standards Board.



Responsible Investment Association Australasia (RIAA)

The RIAA is a network with over 500 members across Australia and New Zealand who manage more than US\$29 trillion in assets globally. RIAA's stated mission is "to promote, advocate for, and support approaches to responsible investment that align capital with achieving a healthy and sustainable society, environment and economy."⁴⁴



UN Principles for Responsible Investment (PRI)

The PRI works to understand the investment implications of environmental, social and governance factors and to support its international network of investor signatories in incorporating these factors into their investment and ownership decisions. AustralianSuper has been a signatory to PRI since 2007 and joined the PRI advisory committee on TCFD-aligned climate disclosure in 2017.

Signatory of:



Sustainable Development Investments – Asset Owner Platform (SDI AOP)

AustralianSuper is a founding member of the SDI AOP together with APG, British Columbia Investment Management Corporation and PGGM, and is also a board member. The SDI AOP was established in 2020 as an asset owner-led platform with a goal of establishing a global standard for investing into and measuring contributions to the UN SDGs. We're using the SDI AOP to track our portfolio's contributions to the UN SDGs and measure our investments in clean energy solutions as outlined on page 14. To encourage greater standardisation, the SDI AOP's taxonomy is publicly available on the SDI AOP website at sdi-aop.org





Part 3: Risk management cont.

Measurement and disclosure

AustralianSuper advocates for improved climate change reporting in the companies and assets we invest in.

AustralianSuper utilises external responsible investment surveys to help us assess the effectiveness of our climate change approach.

We also participate in external verification of our climate change approach through portfolio carbon footprinting and portfolio physical impact assessments of certain portfolios, as outlined in the Metrics section in part 4 of this report.

We will continue to disclose updates on our portfolio emissions and transition towards net zero 2050 in our climate change report, annual reports and on our website.

Our ratings

We report to the UN's PRI and the RIAA each year. AustralianSuper advocates for improved climate change reporting as part of our membership of these organisations.

Responsible Investment Leader 2022

AustralianSuper was recognised as a Responsible Investment Leader 2022 by RIAA. Responsible Investment Leaders refers to investment managers and asset owners that achieve a score of 15 out of 20 or above on RIAA's Responsible Investment Scorecard.

For more information, see responsibleinvestment.org/responsible-investment-leaders



PRI 2021 Assessment

AustralianSuper achieved median ratings or above for 14 out of the 15 assessment modules in PRI's 2021 pilot assessment report. This includes five stars (the highest possible rating) for our ESG and Stewardship Policy (categorised as an Investment and Stewardship Policy under PRI's assessment), direct listed equity integration approach and direct property and private debt approach⁴⁵.

AustralianSuper's full PRI results are available in our PRI Assessment and Transparency reports published on our website. These reports include our top indicator scores achieved for all climate change modules, stewardship and sustainability outcomes.

Find out more at australiansuper.com/ResponsibleInvestment

⁴⁵ PRI 2021 Pilot Assessment report. PRI introduced a revised pilot Reporting Framework in its 2021 assessments with a different module grading system which shifted from alphabetical (A+ to E) in previous years to numerical (1 to 5 stars) ratings. The PRI Assessment report presents information reported directly by signatories in the 2021 reporting cycle. This information has not been audited by the PRI or any other party acting on its behalf.



Part 4: Metrics

Our portfolio carbon footprinting and physical risk analysis provides insights on the two climate change investment themes: transition risk (carbon footprinting) and physical impact risk (physical impact assessment).

Carbon footprint metrics

We have conducted biennial portfolio carbon footprinting of the Australian shares and international shares asset classes since 2013, and the fixed interest asset class since 2017⁴⁶. The value of holdings analysed in the 30 September 2021 carbon footprinting update was \$134 billion, which represented around 55% of the Fund's total assets as at this date. This carbon exposure assessment is performed by external carbon consultancy S&P Global SustainableI. The aim of this analysis is to understand and report the carbon risk exposure of these asset classes and to monitor trends over time.

AustralianSuper also conducts internal carbon tracking, which measures the current and estimated 2050 emissions of certain investments in our portfolio based on their current commitments and targets.

This analysis has been conducted annually since June 2021. It currently measures the scope 1 and scope 2 emissions of approximately 65% of our investment portfolio, including investments in the Australian shares, international shares, unlisted and listed property, and unlisted and listed infrastructure asset classes⁴⁷. This analysis seeks to identify the largest contributors to portfolio emissions in these asset classes and helps to inform our integration and stewardship activities described in part 3 of this report.

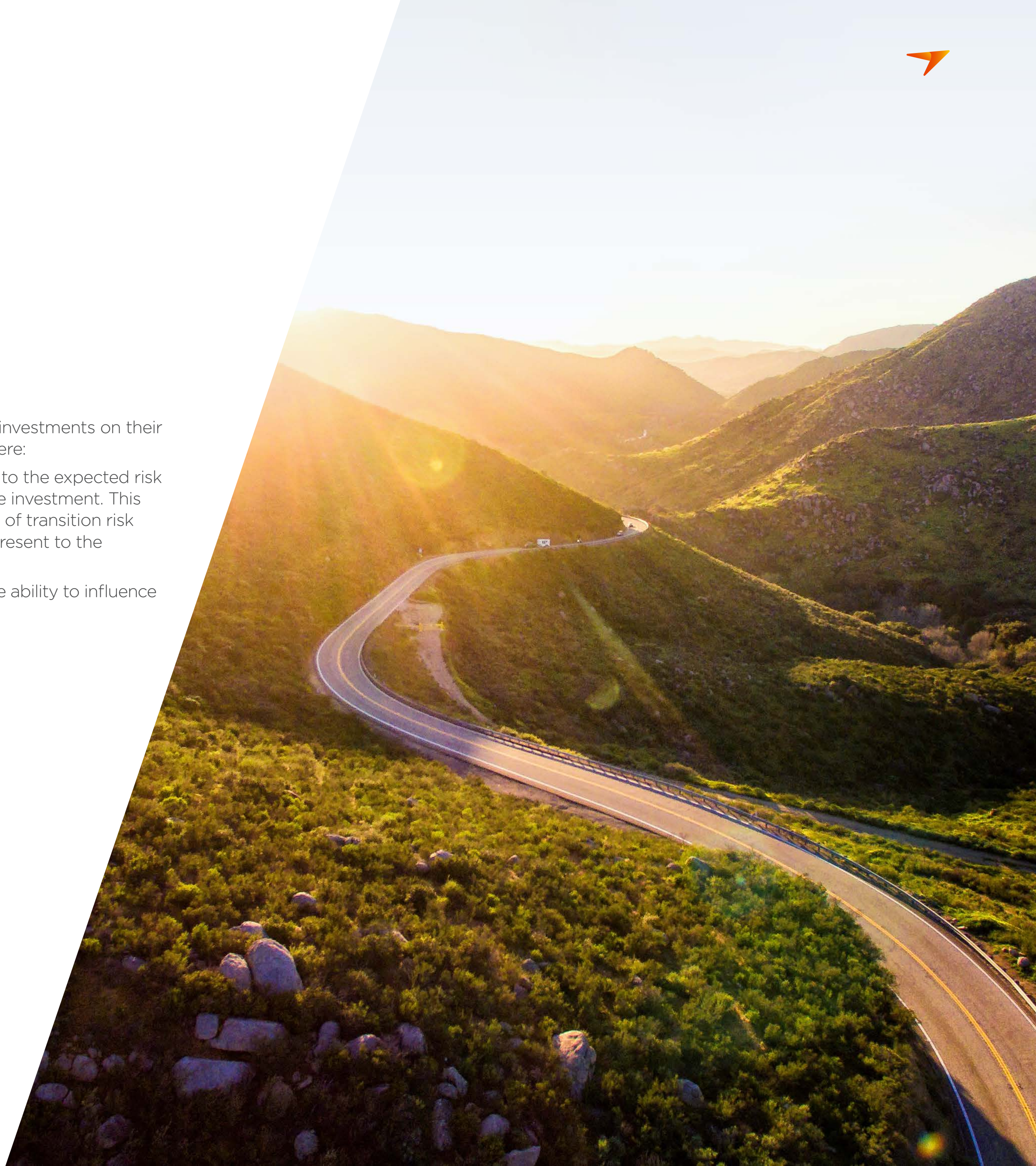
Our commitment is to achieve net zero carbon emissions by 2050 in the investment portfolio (based on scope 1 and scope 2 emissions of portfolio investments). The focus of our integration and stewardship activities is on the measurement and management of scope 1 and scope 2 emissions of the investments in the portfolio. From an economy-wide perspective, we expect that scope 3 emissions will reduce as scope 1 and scope 2 emissions are managed to net zero across the economy.

We may engage with investments on their scope 3 emissions where:

- they have relevance to the expected risk and/or returns to the investment. This is based on the level of transition risk scope 3 emissions present to the company; and
- the company has the ability to influence scope 3 emissions.

⁴⁶ Coverage rates for each asset class vary subject to data availability. For further information see page 31. Analysis was also conducted in 2020 but has been omitted from this report due to the data discrepancy described on page 2.

⁴⁷ Asset classes AustralianSuper has measured as at 30 June 2022. Coverage rates for each asset class vary subject to data availability. Excludes transition accounts, equitised cash accounts, unlisted infrastructure accounts being divested or wound down, and overlays. Unlisted property excludes non-operational assets. Asset classes we have not measured at this date include private equity, credit, fixed interest and cash.





Part 4: Metrics cont.

About our carbon footprinting analysis in this report

The following analysis has been sourced from S&P Global Sustainable1 analysis unless otherwise specified. The analysis was conducted in October 2022 using 30 September 2021 portfolio holdings data provided by AustralianSuper.

The S&P Global Sustainable1 analysis quantifies the GHG emissions attributed or apportioned to a portfolio, presenting these as tonnes of carbon dioxide equivalents (CO₂e).

Comparing the total GHG emissions of each holding relative to either revenues generated or capital invested provides

a measure of carbon exposure that enables comparison between companies, irrespective of size or geography.

In this report, we have included our results for the three most common carbon intensity metrics in the spirit of transparency and comparability. The preferred carbon intensity metric we

use for our integration and stewardship activities is the 'carbon to value invested' method as it applies an equity ownership calculation (apportionment based on ownership).

The carbon footprinting in this report uses market capitalisation as the apportionment measure for our Australian shares and

international shares asset classes. For our fixed interest asset class, the larger of enterprise value and market capitalisation on the date of holding is used as the denominator. This approach is used to minimise the risk of apportioning 'spikes' when an enterprise value approaches zero (or is negative).

Coverage rates for each asset class

Asset class	Coverage*	Value of portfolio holdings (\$m)	Value of holdings analysed (\$m)
Australian shares	99.91%	\$54,805	\$54,757
International shares	99.95%	\$77,014	\$76,977
Fixed interest	12.78%	\$17,483	\$2,235

* The analysis excludes out-of-scope data such as non-corporate equity, debt or loans and securities not covered by the S&P Global Sustainable1 analysis. Equity instruments are mapped to the issuing entity. Debt instruments are mapped to the first publicly listed entity in the instrument's parent chain (starting with a bond's issuer, then its immediate parent and finally its ultimate parent). Bonds with no public parent are mapped to the issuer. Non-corporate equity, debt or loans are excluded from analysis.

Carbon footprint metrics comparison

	Carbon to value invested	Carbon to revenue intensity	Weighted average carbon intensity (WACI)
Measurement	Metric tonnes CO ₂ e/AUD million invested.	Metric tonnes CO ₂ e/AUD million revenues.	Metric tonnes CO ₂ e/AUD million revenues.
Description	The aggregation of apportioned carbon emissions of constituents per \$1 million invested.	The aggregation of apportioned carbon emissions of constituents per \$1 million generated in apportioned revenues.	The weighted average of individual company carbon intensities (emissions over revenues), weighted by the investment proportion of the constituents.
Ownership approach	Yes. It allocates the emissions investors are responsible for based on their level of ownership, enabling them to measure their contribution to climate change.	Yes. It allocates the emissions investors are responsible for based on their ownership of company revenues.	No. This method seeks to show an investor's exposure to carbon-intensive companies rather than apportioning the emissions the investor owns in the economy.

Source: S&P Global Sustainable1.



Part 4: Metrics cont.

Our carbon footprint

AustralianSuper’s latest carbon intensity and absolute emissions data for the Australian shares, international shares and fixed interest asset classes are shown below.

The scopes used in S&P Global SustainableI analysis are:

Direct emissions	First-tier indirect emissions
Direct emissions from owned or controlled sources (scope 1). Operational emissions from four additional GHGs: CCl ₄ (Carbon tetrachloride), C ₂ H ₃ Cl ₃ (Trichloroethane), CBrF ₃ (Halon 1301), and CO ₂ from biomass.	Indirect emissions from the generation of purchased electricity, heat or steam (scope 2). Non-electricity first-tier supply chain emissions: emissions generated by companies providing goods and services in the first tier of the supply chain (a subset of scope 3 emissions).

Summary by carbon intensity method

Carbon intensity method	Australian shares		International shares		Fixed interest	
	Portfolio	Benchmark	Portfolio	Benchmark	Portfolio	Benchmark
Carbon to value invested (t CO ₂ e/mAUD)	114.24	107.45	66.40	86.40	58.18	88.19
Carbon to revenue (t CO ₂ e/mAUD)	306.23	306.27	163.18	212.29	59.06	208.63
Weighted average carbon intensity (t CO ₂ e/mAUD)	161.22	195.58	104.21	159.32	78.10	157.37
Absolute CO ₂ e (tonnes)	6,255,510	5,883,396	5,111,144	6,650,822	130,022	197,083

Source: S&P Global SustainableI analysis – October 2022. Portfolio data at 30 September 2021. Benchmarks used are: Australian shares: S&P/ASX 200 (this has been updated from previous reports which used the S&P/ASX 300 to reflect our current asset class benchmark). International shares: MSCI ACWI ex Australia Index, Fixed interest: 50% S&P Australia Aggregate Bond Index + 50% S&P Global Developed Aggregate Ex-Collateralized Bond Index is used as a proxy for AustralianSuper’s Fixed Interest benchmark: 50% Bloomberg Global Aggregate Index (Hedged to AUD) + 50% Bloomberg AusBond Composite Index.

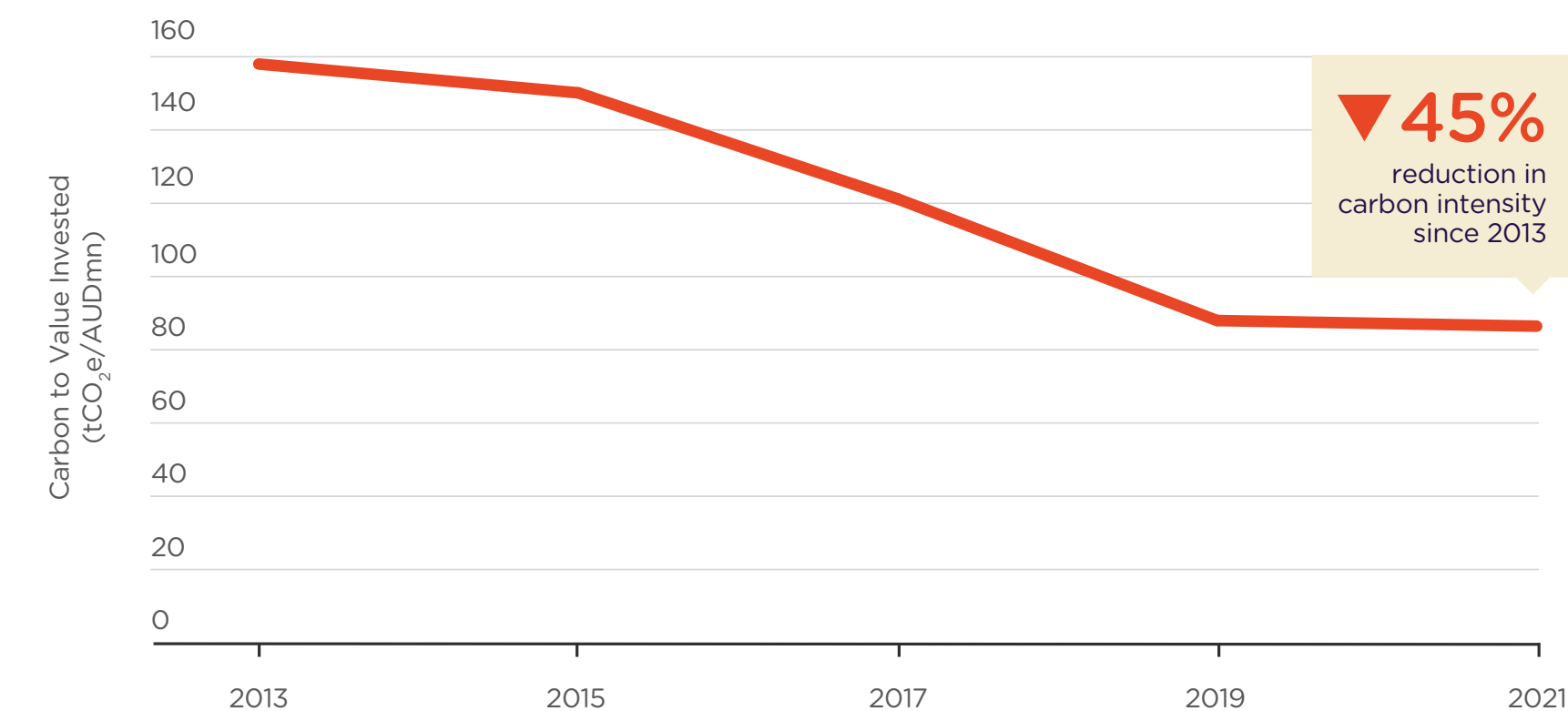
AustralianSuper’s carbon intensity over time

This graph tracks the GHG emissions in the Australian shares and international shares asset classes based on the value (AUD million) invested.

The carbon intensity of the investments in these asset classes has reduced by 45% between 2013 and 2021 using this method. The Australian and international shares asset classes represented around 55% of AustralianSuper’s total portfolio value as at 30 September 2021.

AustralianSuper portfolio carbon footprint

GHG emissions in the Australian and international shares asset classes



Source: S&P Global SustainableI analysis, Portfolio data for Australian shares and international shares asset classes at 30 June 2013, 30 September 2015, 2017, 2019 and 2021. Carbon to value invested: CO₂e emissions per AUD million invested. Includes scope 1, 2 and non-electricity first-tier supply chain emissions. Please note, due to a discrepancy resulting in a duplication of data in our carbon footprinting disclosure in our 2021 Climate Change Report, we have removed references to the 30 September 2020 results from this graph to maintain the integrity of our historical data.



Part 4: Metrics cont.

Carbon intensity relative to market index

The charts below compare the carbon intensity of AustralianSuper’s Australian shares, international shares and fixed interest asset classes relative to the market index using the carbon to revenue, carbon to value and weighted average carbon intensity methods over time.

We expect to see some fluctuations in portfolio emissions on their trajectory towards net zero 2050 as the Fund grows in size, new assets are acquired or

investment strategy changes are implemented in accordance with our Investment Strategy Policy. Each carbon intensity method has different sensitivities, which can lead to different results for each portfolio at different points in time.

AustralianSuper’s Australian shares asset class

AustralianSuper’s Australian shares asset class has been more carbon efficient than its benchmark across all methods since 2017, except for the carbon to value method

in 2021. Our carbon intensity relative to the market index is driven by differences in the weightings of companies in our internally managed portfolios in the Australian shares asset class and the market index, as well as the carbon intensities of those companies.

Since 2019, AustralianSuper has transitioned to a more concentrated actively managed portfolio, which means there can be larger variances in our company weightings in our portfolio relative to the company weightings in the

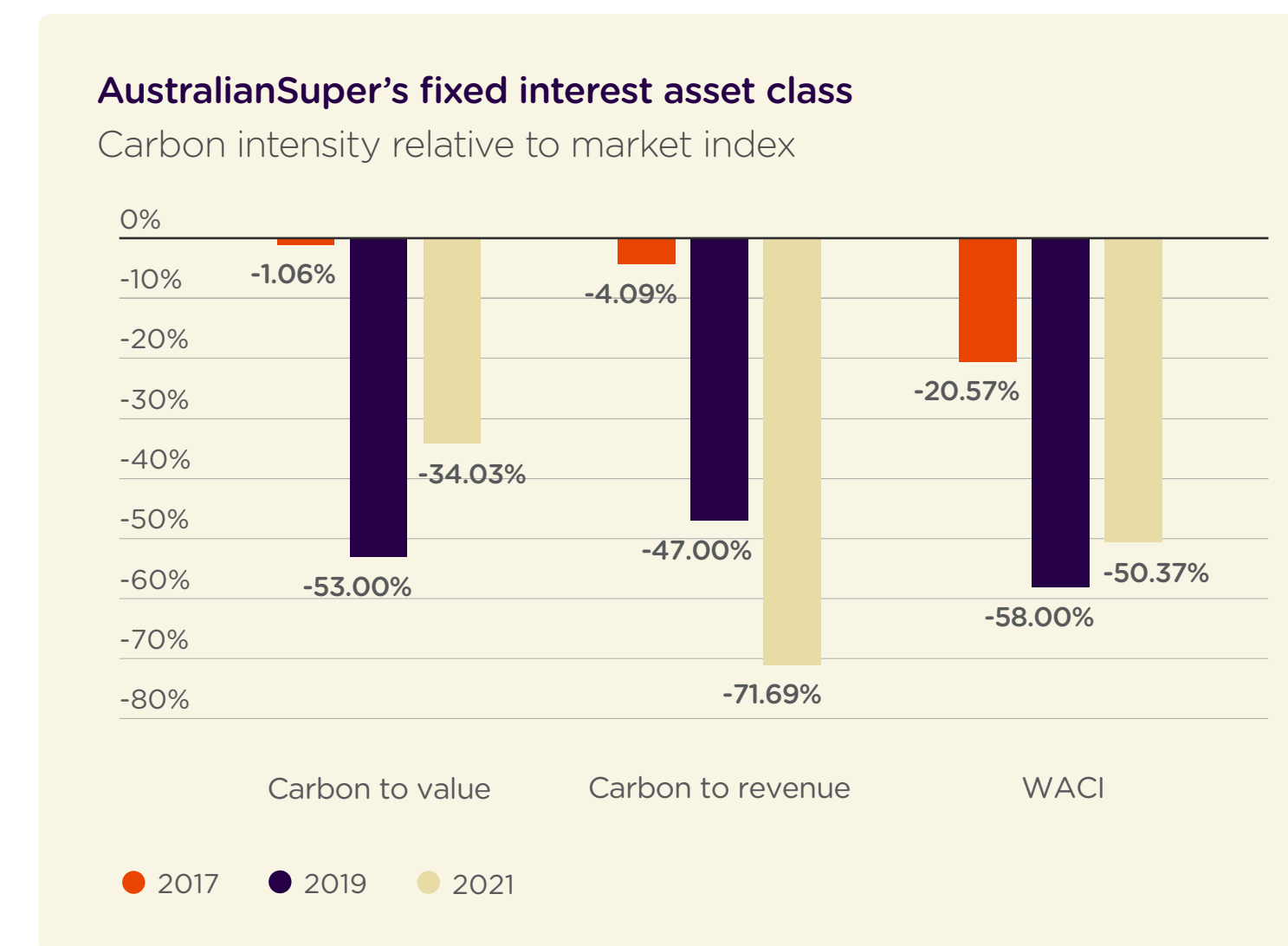
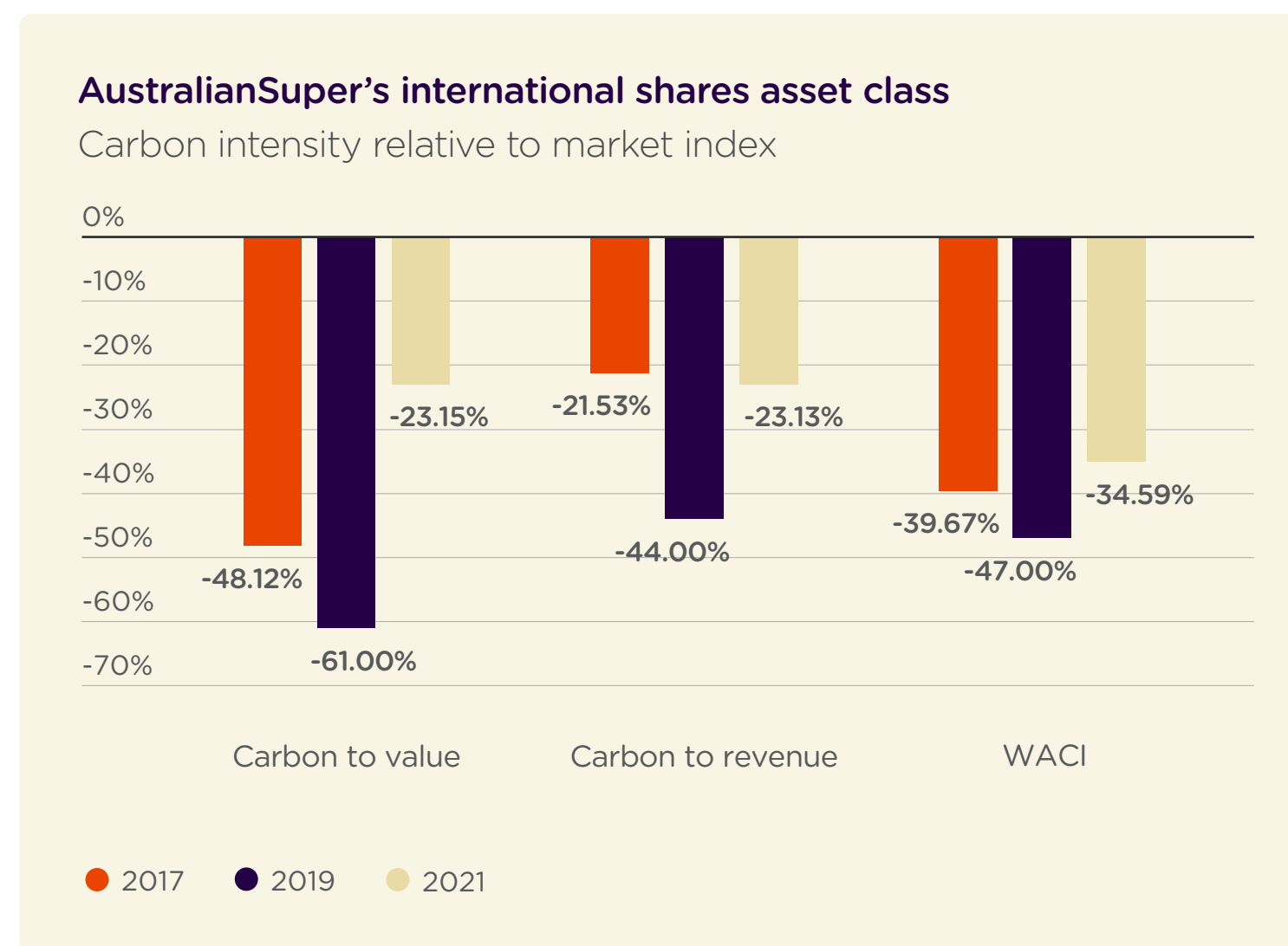
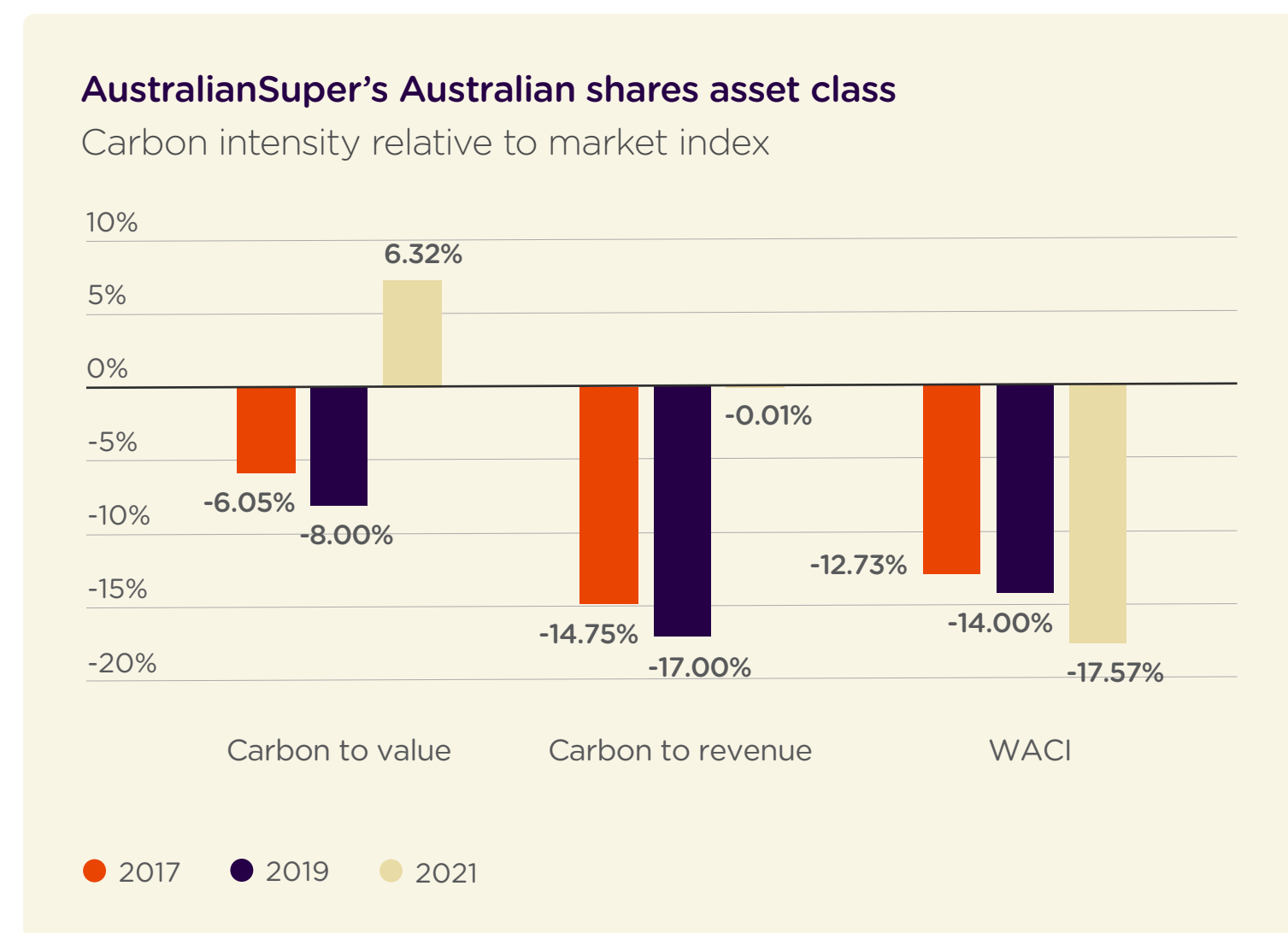
market index. As at 30 September 2021, the largest contributor to the higher carbon to value intensity of our portfolio was our company selection within the energy sector, where we have a larger weighting relative to the market index in Origin Energy which is the largest contributor to emissions in the Australian shares asset class. Origin Energy set a commitment to reach net zero scope 1, 2 and 3 emissions across its value chain by 2050 in August 2022.

AustralianSuper’s international shares asset class

AustralianSuper’s international shares asset class is more carbon efficient than the benchmark across all methods and periods shown below.

AustralianSuper’s fixed interest class

AustralianSuper’s fixed interest asset class is more carbon efficient than the market index across all methods and periods shown in the chart below.



Source: S&P Global Sustainable analysis. Portfolio data at 30 September 2017, 2019, 2021.
 Indices used: Australian shares: S&P/ASX 200 (this has been updated from previous reports which used the S&P/ASX 300 to reflect our current portfolio benchmark), International shares: MSCI ACWI ex Australia Index, Fixed Interest: 50% S&P Australia Aggregate Bond + 50% S&P Global Developed Aggregate Ex-Collateralized Bond Index is used as a proxy for AustralianSuper’s Fixed Interest benchmark: 50% Bloomberg Global Aggregate Index (Hedged to AUD) + 50% Bloomberg AusBond Composite Index.
 Please note, due to a data issue in our carbon footprinting disclosure in our 2021 Climate Change report, we have removed references to the 30 September 2020 results from the above charts to maintain the integrity of our historical data.



Part 4: Metrics cont.

Top 20 contributors to portfolio emissions

AustralianSuper's internal carbon foot-printing analysis helps us to understand the emissions profile in our portfolios in certain asset classes, and their expected trajectory to net zero 2050.

The table to the right shows the top 20 contributors to portfolio emissions in our Australian shares, international shares, unlisted property, and unlisted infrastructure asset classes, based on the portfolio emissions we have measured as at 30 June 2022. This data is based on portfolio values as at 30 June 2022 and scope 1 and scope 2 emissions data for each company or asset (subject to data availability)⁴⁸. For assets in the unlisted infrastructure and unlisted property asset classes which are managed by external managers, emissions data is provided for the underlying assets.

In the table to the right, 17 of the top 20 contributors to portfolio emissions as at 30 June 2022 have made net zero commitments. We're engaging with the larger contributors in our internally managed fundamental portfolios in the Australian shares asset class to assess their emissions targets and net zero commitments, and for hard-to-abate sectors, to gain an understanding of the likely technology pathways.

Please see page 23 for further details of our stewardship program.

Top 20 contributors to portfolio emissions

Company	Asset class	Net zero 2050 commitment
Origin Energy Ltd	Australian shares	Y
Holcim Ltd AG	International shares	Y
BHP Group Ltd	Australian shares	Y
BlueScope Steel Ltd	Australian shares	Y
LyondellBasell Industries NV	International shares	Y
Orica Ltd	Australian shares	Y
Coronado Global Resources Inc	Australian shares	N
Veolia Energia Polska - IFM Global Infrastructure Fund	Unlisted infrastructure	Y*
Naturgy - IFM Global Infrastructure Fund	Unlisted infrastructure	Y*
AES Corporation	International shares	Y
Heidelberg Materials AG	International shares	Y
China National Building Material Co Ltd	International shares	N
AGL Energy Ltd	Australian shares	Y
Ausgrid	Unlisted infrastructure	Y
Woodside Energy Group Ltd	Australian shares	Y
NTPC Ltd	International shares	N
Woolworths Group Ltd	Australian shares	Y
Ampol Ltd	Australian shares	Y
South32 Ltd	Australian shares	Y
Freeport LNG - IFM Global Infrastructure Fund	Unlisted infrastructure	Y*

* Relates to the net zero commitment made by external manager, IFM Investors.

⁴⁸ AustralianSuper internal analysis. Based on portfolio holdings as at 30 June 2022 and 2021 emissions data, including directly sourced data and reported and estimated emissions from our research provider. Net zero target refers to scope 1 and 2 emissions (and may have been made after 30 June 2022). Analysis of the unlisted property asset class excludes non-operational assets. External unlisted property and unlisted infrastructure manager assets are only included where emissions data for the underlying assets is available.



Part 4: Metrics cont.

Sector value and carbon share

The two main reasons the carbon exposure of a portfolio varies to its benchmark are sector and company allocation decisions. Divergences in allocations to sectors that are more or less carbon-intensive relative to the benchmark can cause variations in a portfolio’s relative carbon intensity. Allocations to more carbon-efficient companies within carbon intensive sectors can offset this impact and improve a portfolio’s carbon footprint relative to the benchmark.

In the tables to the right, a lower carbon intensity equates to a higher carbon efficiency, and vice versa.

Australian shares asset class

This table shows the carbon efficiency contributions from sector and company selection in the Australian shares asset class against the S&P/ASX 200. Sector allocation effects are determined using the 11 Global Industry Classification Standard (GICS) sector classifications and the analysis uses the carbon to value metric.

Overall, sector allocation is a positive contributor while company selection has a negative contribution to the carbon efficiency of the portfolio relative to the benchmark. The largest contributor to the carbon intensity of the Australian shares asset class is the energy sector, while the main contributor to carbon efficiency is the utilities sector.

International shares asset class

This table shows the carbon efficiency contributions from sector and company selection in the international shares asset class against the MSCI ACWI ex Australia Index. Sector allocation effects are determined using the 11 GICS sector classifications and the analysis uses the carbon to value metric.

The largest contributor to the carbon intensity of the international shares asset class is the materials sector, while the main contributors to carbon efficiency are the utilities and energy sectors. Overall, sector allocation is a positive contributor and company selection is a negative contributor to the carbon efficiency of the asset class relative to the benchmark.

Australian shares asset class – contribution to relative carbon efficiency

	Carbon to Value		Attribution effect		Total
	Portfolio	Bench	Sector	Company	
Communication Services	19	17	-2.55%	-0.03%	-2.58%
Consumer discretionary	20	24	3.03%	0.48%	3.51%
Consumer staples	106	96	0.08%	-0.58%	-0.50%
Energy	1,487	630	-1.54%	-29.26%	-30.81%
Financials	2	2	1.67%	0.01%	1.68%
Health care	5	8	-1.32%	0.25%	-1.08%
Industrials	26	114	-0.08%	6.09%	6.01%
Information technology	2	5	1.43%	0.13%	1.55%
Materials	223	261	-1.06%	6.60%	5.54%
Real estate	14	13	-4.62%	-0.02%	-4.64%
Utilities	2,427	3,164	13.49%	1.50%	14.99%
	114	107	8.53%	-14.85%	-6.32%

Source: S&P Global Sustainable¹ analysis – October 2022. AustralianSuper asset class data at 30 September 2021. Benchmark: S&P/ASX 200 (this has been updated from previous reports which used the S&P/ASX 300 to reflect our current asset class benchmark).



International shares asset class – contribution to relative carbon efficiency

	Carbon to Value		Attribution effect		Total
	Portfolio	Bench	Sector	Company	
Communication services	7	8	0.95%	0.22%	1.17%
Consumer discretionary	27	26	2.01%	-0.12%	1.90%
Consumer staples	98	93	-0.02%	-0.38%	-0.40%
Energy	580	469	10.89%	-1.37%	9.51%
Financials	6	7	-0.50%	0.24%	-0.25%
Health care	12	9	3.29%	-0.41%	2.88%
Industrials	57	75	0.13%	2.23%	2.37%
Information technology	8	11	-1.61%	0.80%	-0.82%
Materials	750	556	4.34%	-8.17%	-3.82%
Real estate	15	18	-0.86%	0.05%	-0.81%
Utilities	2,090	851	18.88%	-7.45%	11.43%
	66	86	37.51%	-14.36%	23.15%

Source: S&P Global Sustainable¹ analysis – October 2022. Asset class data at 30 September 2021. Benchmark: MSCI ACWI ex Australia Index.





Part 4: Metrics cont.

Carbon emissions by scope

The chart below shows the total carbon apportioned to AustralianSuper’s Australian shares and international shares asset classes, and their respective benchmarks, by scope. This illustrates scope 1, scope 2, other direct emissions, and non-electricity first-tier supply chain emissions from companies in these asset classes.

Financial exposure to fossil fuel activities

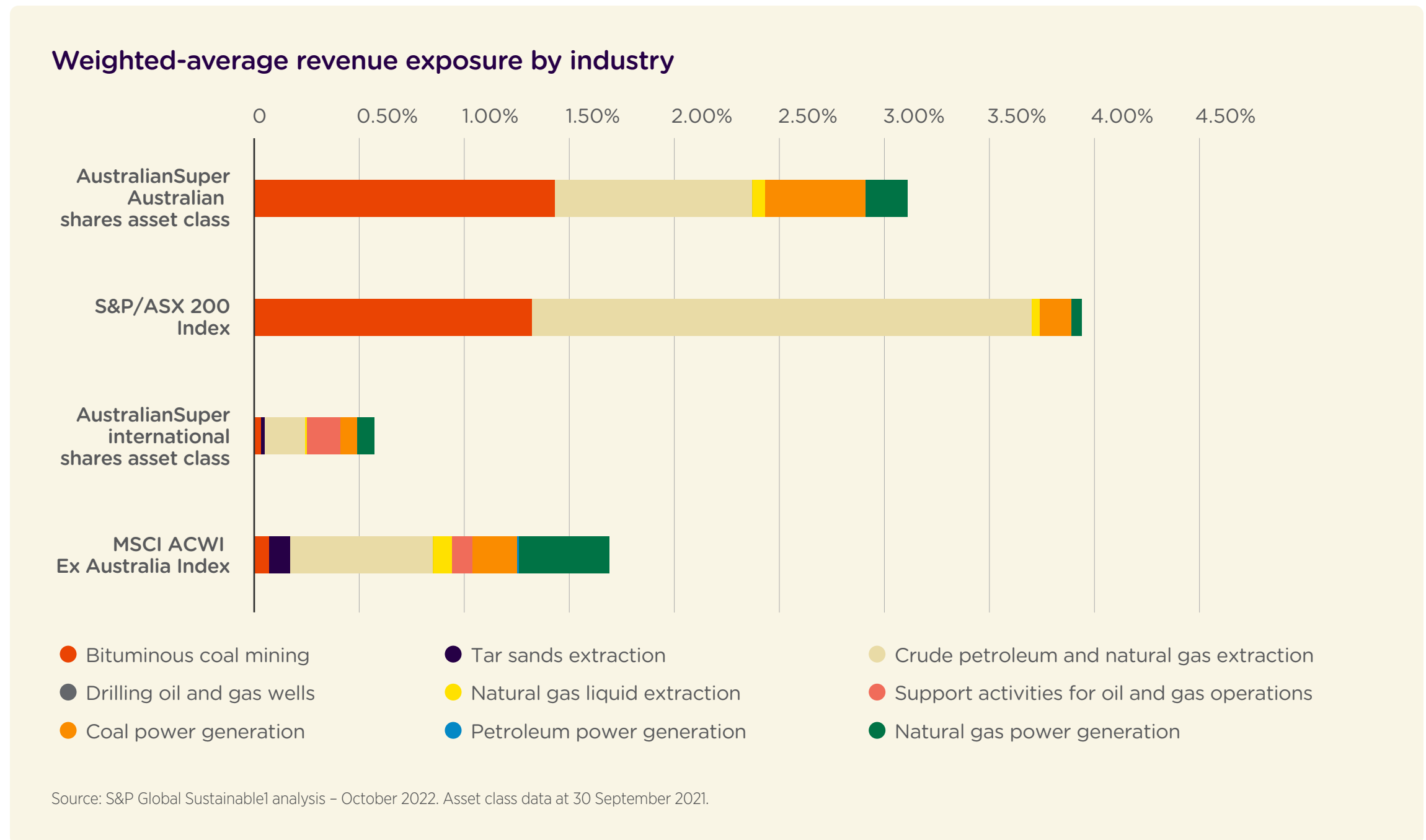
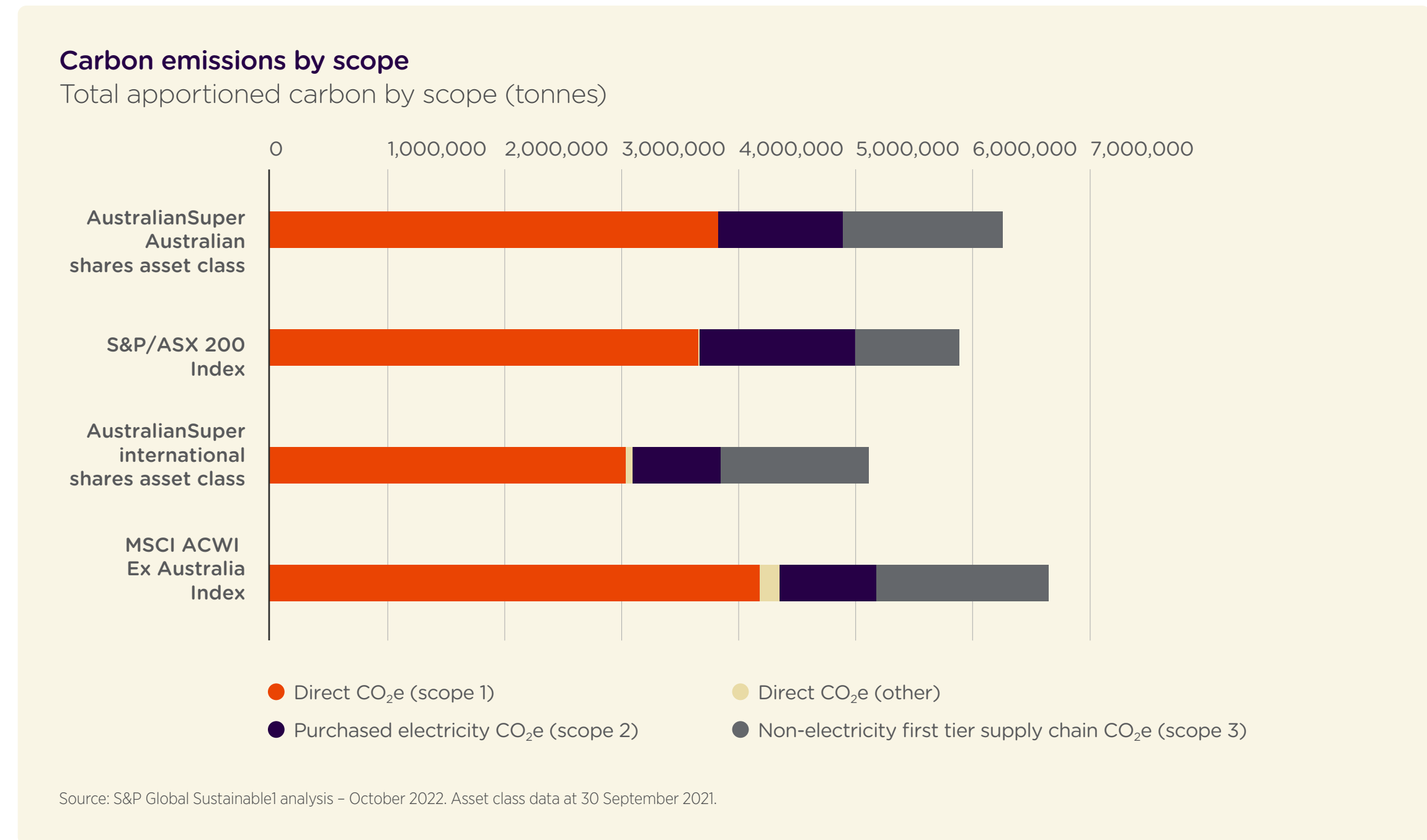
Assets that do not have adequate plans in place to transition to the low-carbon economy risk being unexpectedly or prematurely written down or devalued and becoming ‘stranded’.

This analysis seeks to identify assets that have a higher risk of becoming stranded as the world transitions to a low-carbon economy across the fossil fuel extraction and energy generation industries.

Extraction-related activities	Energy-related activities
• Crude petroleum and natural gas extraction	• Coal power generation
• Tar sands extraction	• Petroleum power generation
• Natural gas liquid extraction	• Natural gas power generation
• Bituminous coal mining	
• Drilling oil and gas wells	
• Support activities for oil and gas operations	

Fossil fuel activities revenue breakdown

The chart below compares the level of revenue exposure companies have in fossil fuel extraction and energy-related activities for AustralianSuper’s Australian shares and international shares asset classes and the index. AustralianSuper’s Australian and international shares asset classes both have a lower exposure to stranded asset risk than their respective benchmarks.





Part 4: Metrics cont.

Financial exposure to fossil fuel activities

The chart below compares AustralianSuper’s value of holdings (VOH) in the Australian shares and international shares asset classes invested in companies that derive revenue from fossil fuel activities. The blue and orange segments compare the weighted average exposure of these asset classes and the index to company revenues derived from fossil fuel activities. The total bar size represents the total revenues from these companies from all activities.

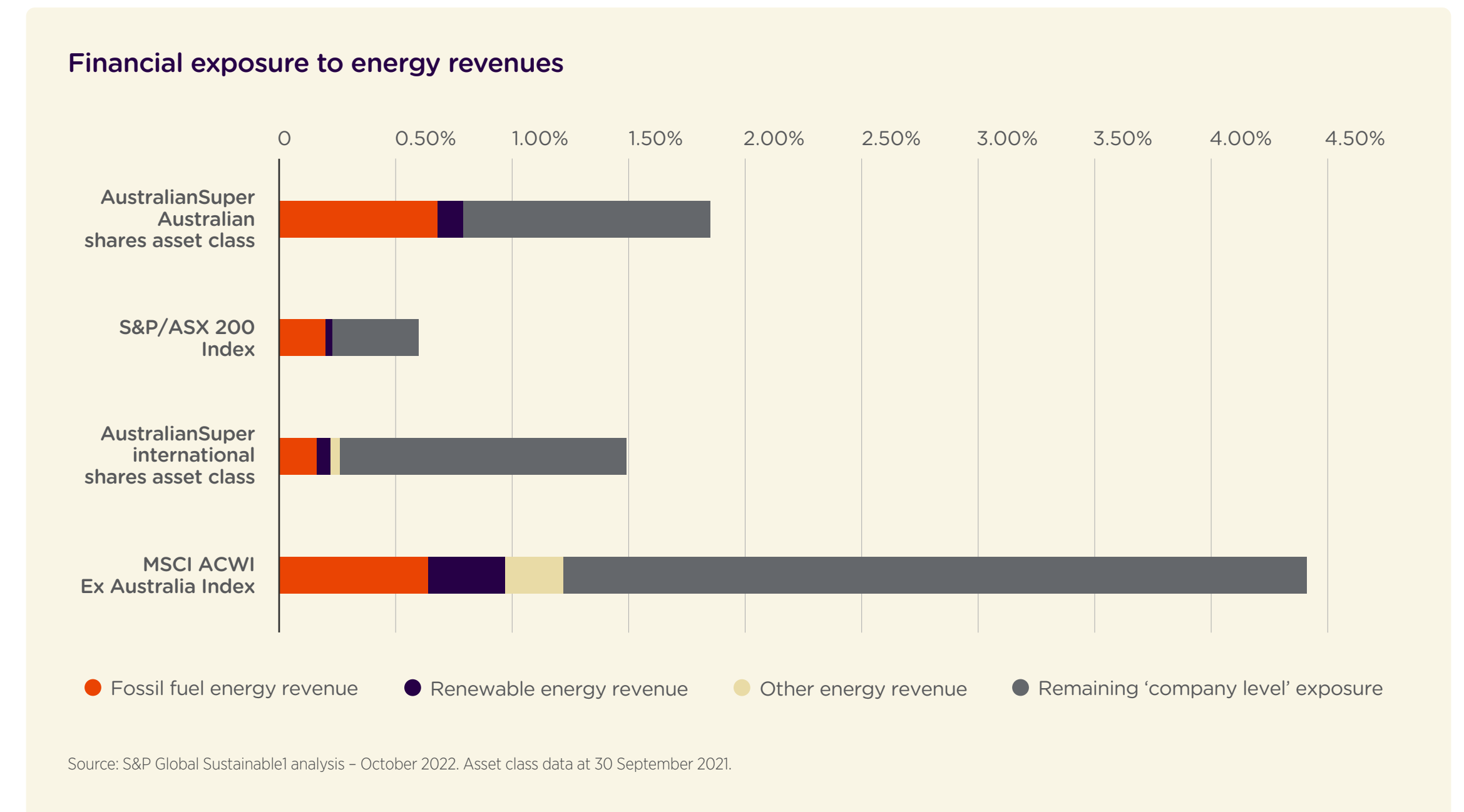
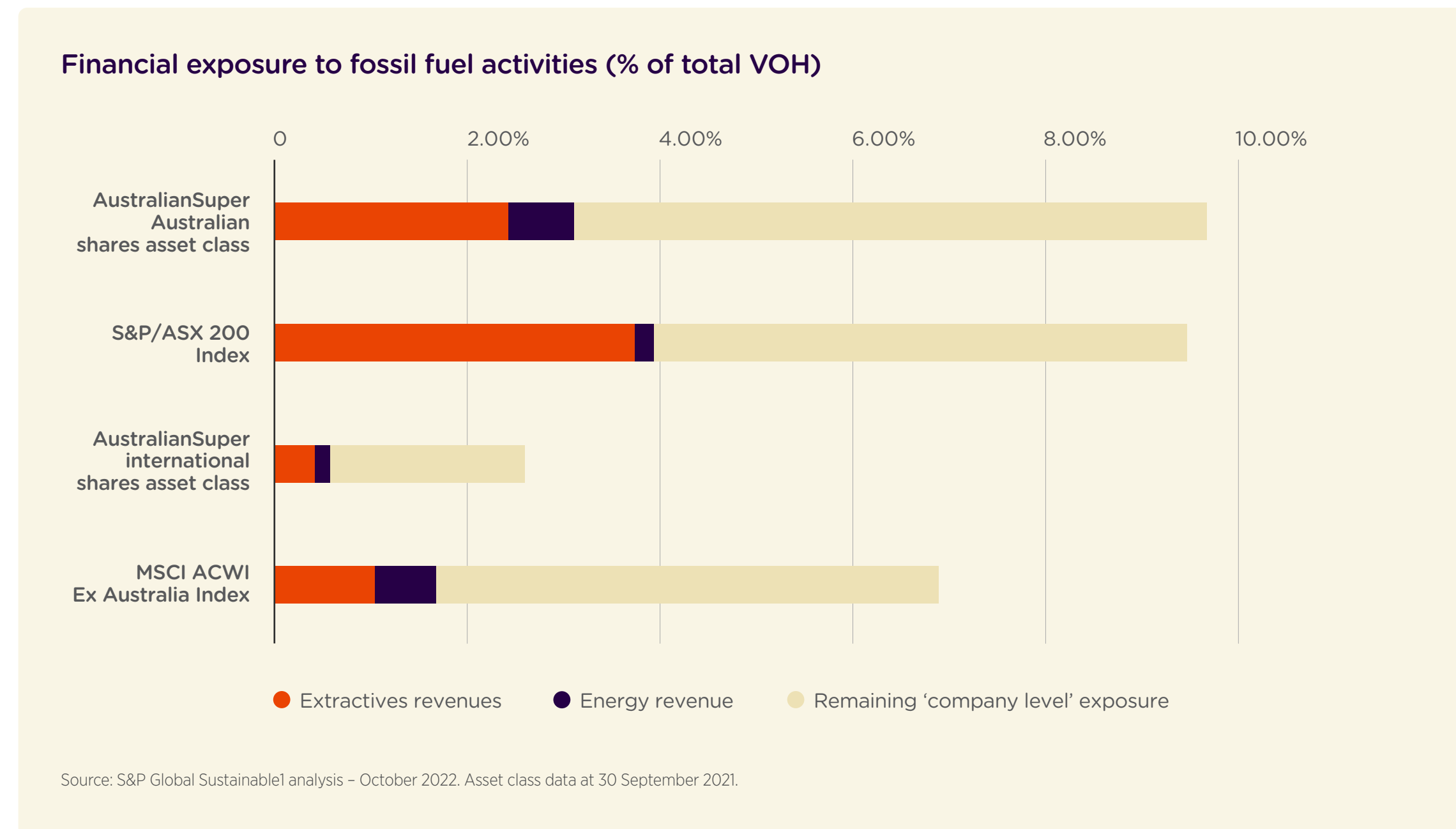
The chart shows that AustralianSuper’s Australian shares and international shares asset classes have a lower exposure to energy generating activities than the benchmark.

Financial exposure to energy revenues

Energy-generating companies can be classified into three types:

- fossil fuels: coal, petroleum, natural gas;
- renewables: solar, wind, wave and tidal, geothermal, hydroelectric, biomass; and
- other: nuclear, landfill gas, other unclassified power generation.

In the chart below, the total bar (comprising both the coloured and grey components) shows the total exposure to companies with any energy revenues, while the coloured segments represent the weighted average revenue exposure to fossil fuels, renewables and other energy revenues for the AustralianSuper Australian shares and international shares asset classes and their respective benchmarks.



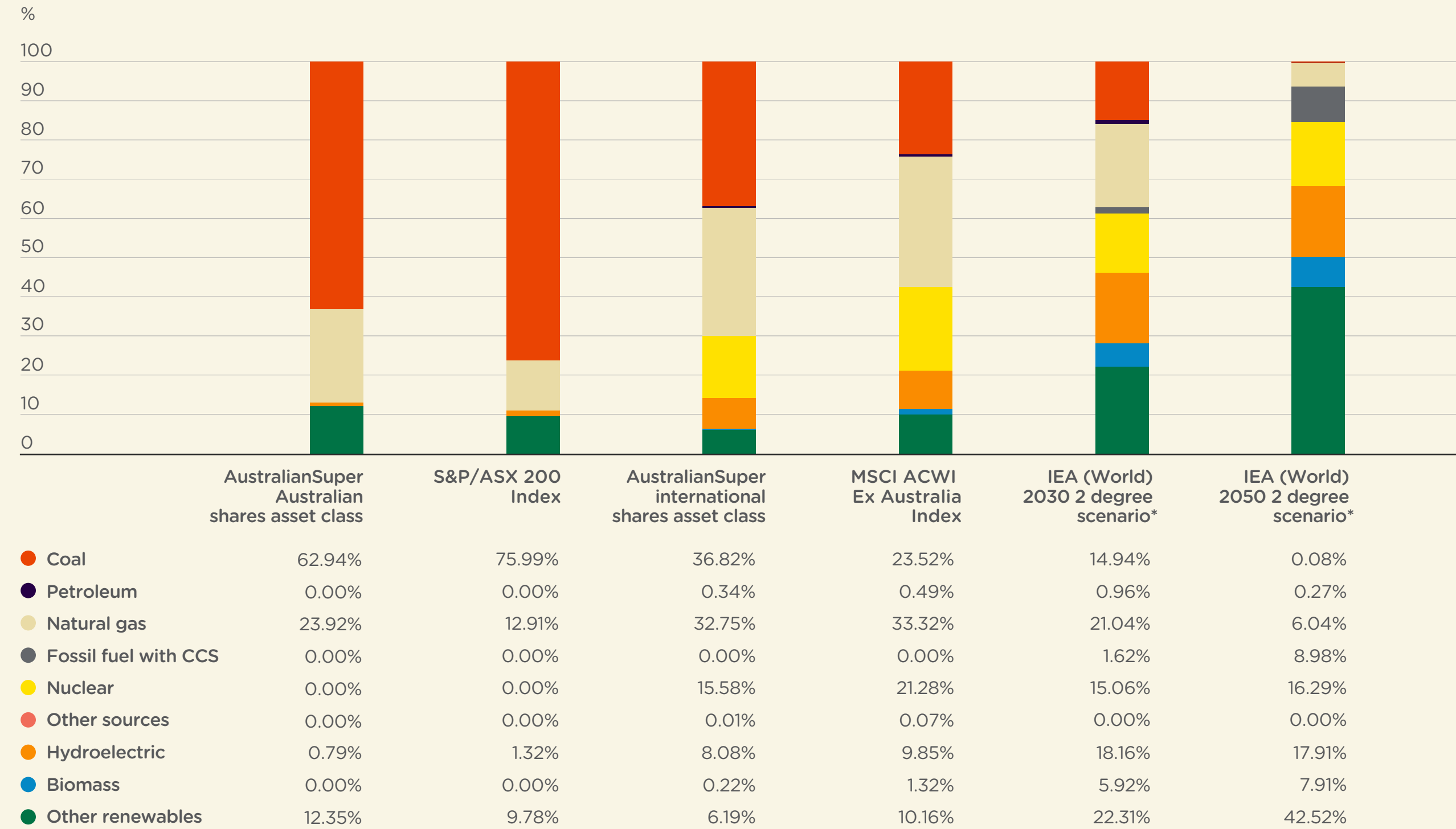


Part 4: Metrics cont.

Scenario analysis: energy generation mix

Scenario analysis provides a way for investors to understand the risks they could potentially face as a result of climate change. The S&P Global Sustainable¹ analysis shows the share, by energy type, of the total physical units of power (GWh) apportioned to AustralianSuper’s Australian shares and international shares asset classes and their respective benchmarks. This is compared to the energy mix required in 2030 and 2050 as suggested by the International Energy Agency’s (IEA) 2 degree scenario*. This is shown in the chart to the right.

Energy generation mix (% of total portfolio GWh)



* The content within the table above, was prepared by S&P Global Sustainable¹ analysis with data derived from the 2 Degree Scenarios developed by the International Energy Agency © OECD IEA 2017. The content within the table does not necessarily reflect the views of the International Energy Agency. It is important to highlight some of the limitations associated with the scenario analysis shown in the chart above. As it generates a limited 'point in time' estimate of the relative alignment of the Fund's Australian shares and international shares asset classes against these scenarios, the analysis doesn't account for future changes in the portfolio composition or the dynamic nature and variability of the economic and commercial variables over time. Given its forward-looking nature it is also subject to risks and uncertainties and doesn't consider all sectors or securities within an asset class.



Part 4: Metrics cont.

Portfolio physical risk assessment

AustralianSuper commenced a physical impact analysis of the Australian shares, international shares, unlisted property and unlisted infrastructure asset class portfolios in 2019. The Fund undertook further physical risk analysis of the Australian shares, international shares, and fixed interest asset classes in 2020 and the unlisted property and unlisted infrastructure asset classes in 2022.

Physical risks resulting from climate change can be acute (driven by an event such as a flood or storm) or chronic (arising from longer-term shifts in climate patterns) and may have financial implications for organisations, such as damage to assets, interruption of operations and disruption to supply chains.

Australian shares, international shares and fixed interest asset classes

AustralianSuper’s most recent physical risk assessment of its Australian shares, international shares and fixed interest asset classes was conducted by S&P Global Sustainable1 in 2020. This physical risk assessment covered the exposure and sensitivity to seven hazard types – water stress, wildfire, flood, heatwave, coldwave, hurricane and coastal flood. Assessments were made across three climate change scenarios (high, moderate and low) and three future reference years (2020, 2030 and 2050). The scenarios were based on IPC Representative Concentration Pathways (RCP) and informed by TCFD technical guidelines.

Climate change scenarios	Description
High (RCP 8.5)	Business as usual with emissions at current rates. Likely to result in warming >4 degrees Celsius by 2100.
Moderate (RCP 4.5)	Strong mitigation actions to reduce emissions to half of current levels by 2080. Likely to result in warming >2 degrees by 2100.
Low (RCP2.5)	Aggressive mitigation actions halve emissions by 2050. Likely to result in warming <2 degrees by 2100.

Companies were scored between 1 (lowest risk) and 100 (highest risk) for their exposure and sensitivity to each physical risk type. The scores for each risk type were then averaged to determine a company-level composite physical risk score.

The risk scores can be categorised into three risk levels:

Risk score	Risk level
1-33	Low
34-66	Moderate
67+	High

Asset level coverage

The following table shows the data coverage for each of AustralianSuper’s asset classes relative to the benchmark. Where asset data was not available, companies were analysed on their headquarters, location, geographic revenue share and average physical risk levels in each country.

	Total weight analysed	Share with asset data	Number of assets analysed
International shares asset class	95%	83%	74,840
MSCI ACWI Ex Australia	97%	88%	107,069
Australian shares asset class	98%	76%	1,597
S&P/ASX 300	97%	76%	2,996
Aggregate fixed interest asset class	65%	93%	32,277
Composite benchmark*	64%	94%	108,537

* Fixed Interest composite benchmark: 50% S&P Australia Aggregate Bond + 50% S&P Global Developed Aggregate Ex-Collateralised Bond Index is used as a proxy for AustralianSuper’s Fixed Interest benchmark: 50% Bloomberg Global Aggregate Index (Hedged to AUD) 50% Bloomberg AusBond Composite Index

Please note, due to a data duplication issue in our our 2021 Climate Change report, we have removed references to the number of instruments analysed as it is overstated.



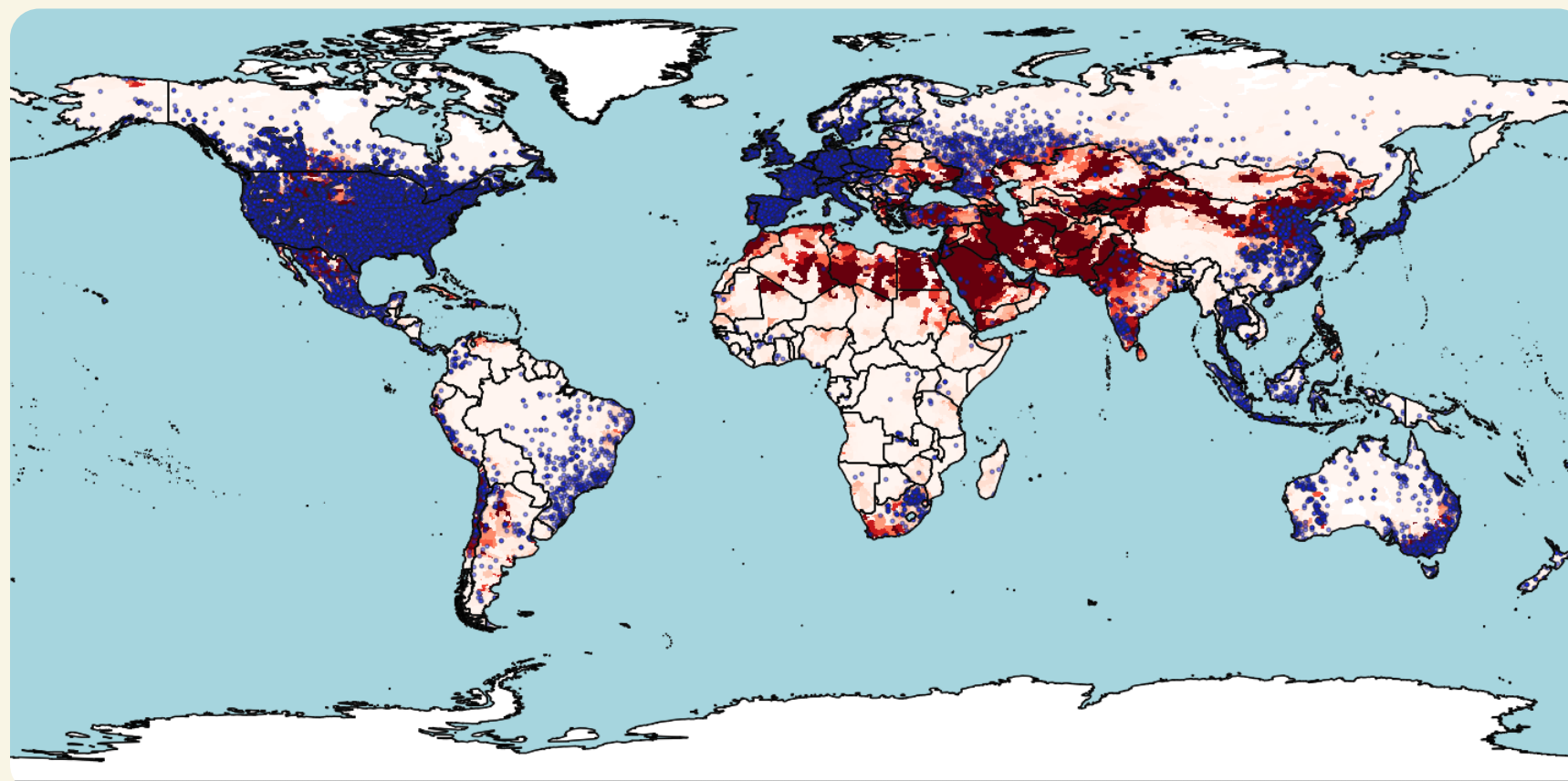
Part 4: Metrics cont.

Physical risk exposure

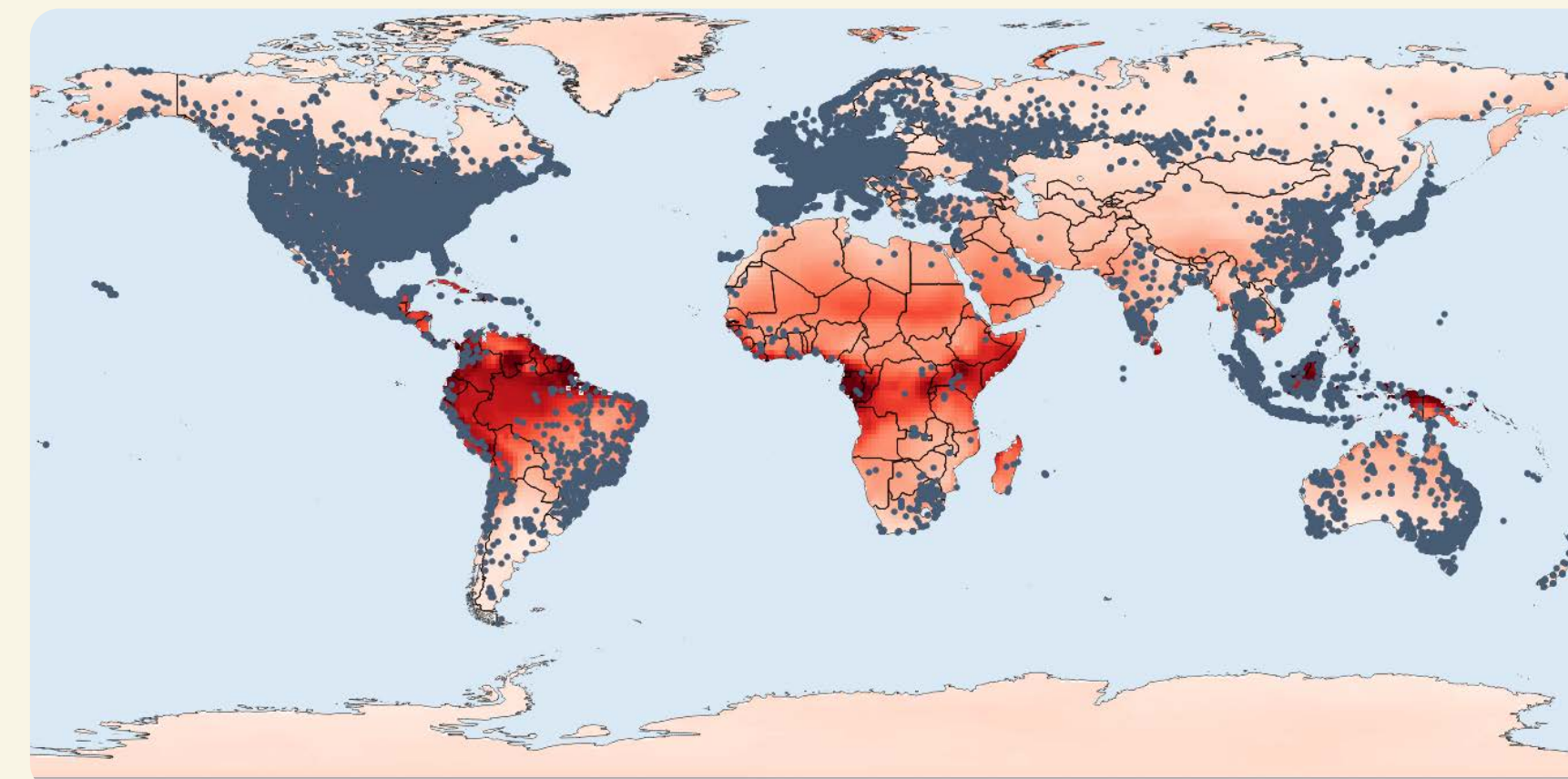
The top three physical risks to AustralianSuper's Australian shares and international shares asset class portfolios are water stress, wildfire and heatwave. Wildfire and heatwave are the two highest risks on a sensitivity-adjusted basis, while water stress is the highest risk on a raw score basis.

These charts show the exposure for each of these risks in AustralianSuper's aggregate Australian and international shares asset classes. The dark red dots represent the most highly exposed facilities.

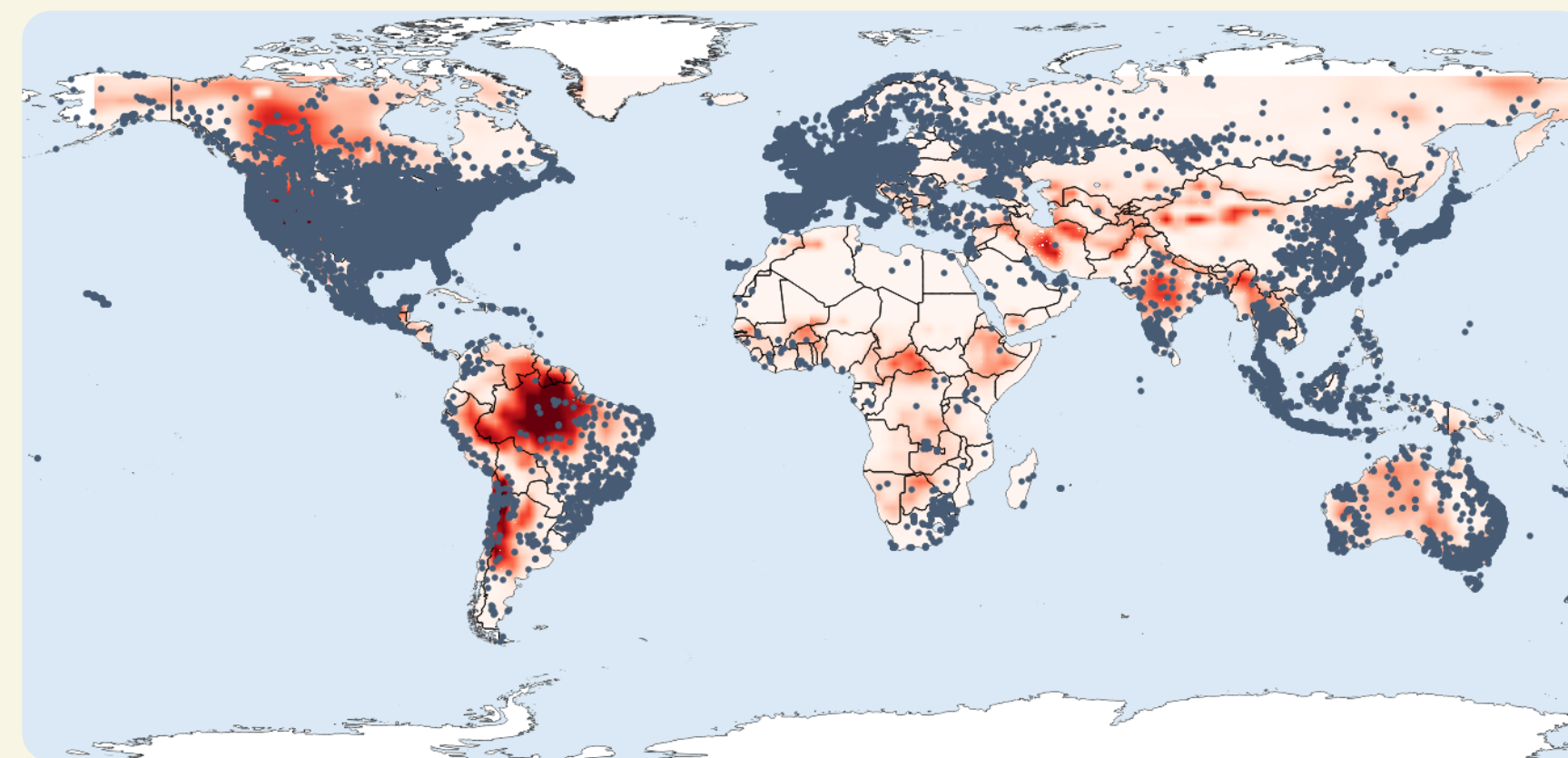
Water stress



Heatwave



Wildfire





Part 4: Metrics cont.

Headline risk scores

The charts below show AustralianSuper's Australian shares, international shares and fixed interest asset classes and benchmark-level physical risk scores for each risk type. The score is based on the high scenario with a reference year of 2050.

The S&P Global Sustainable1 analysis includes two composite summary metrics at the asset, company and asset class levels.

Composite raw risk score

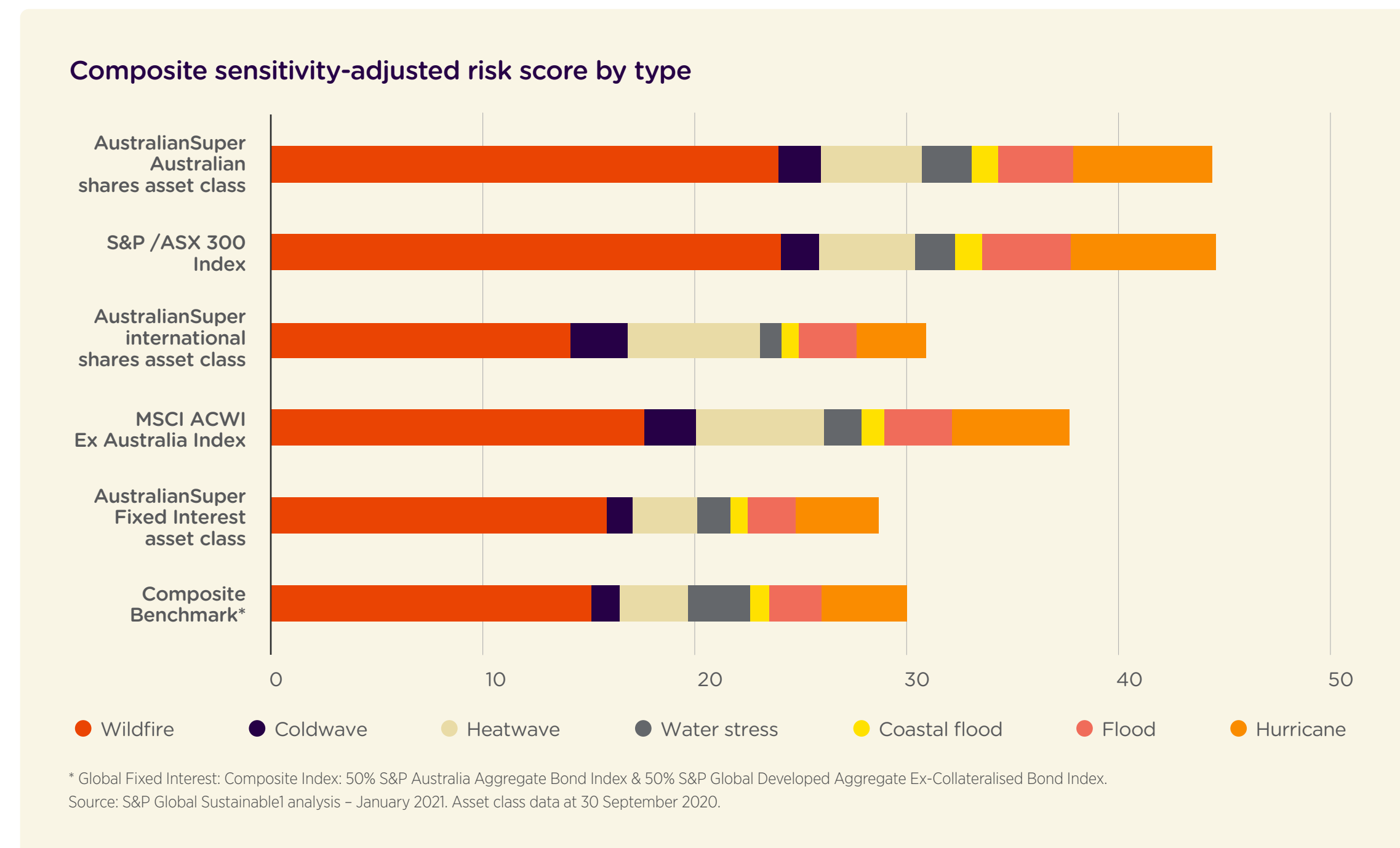
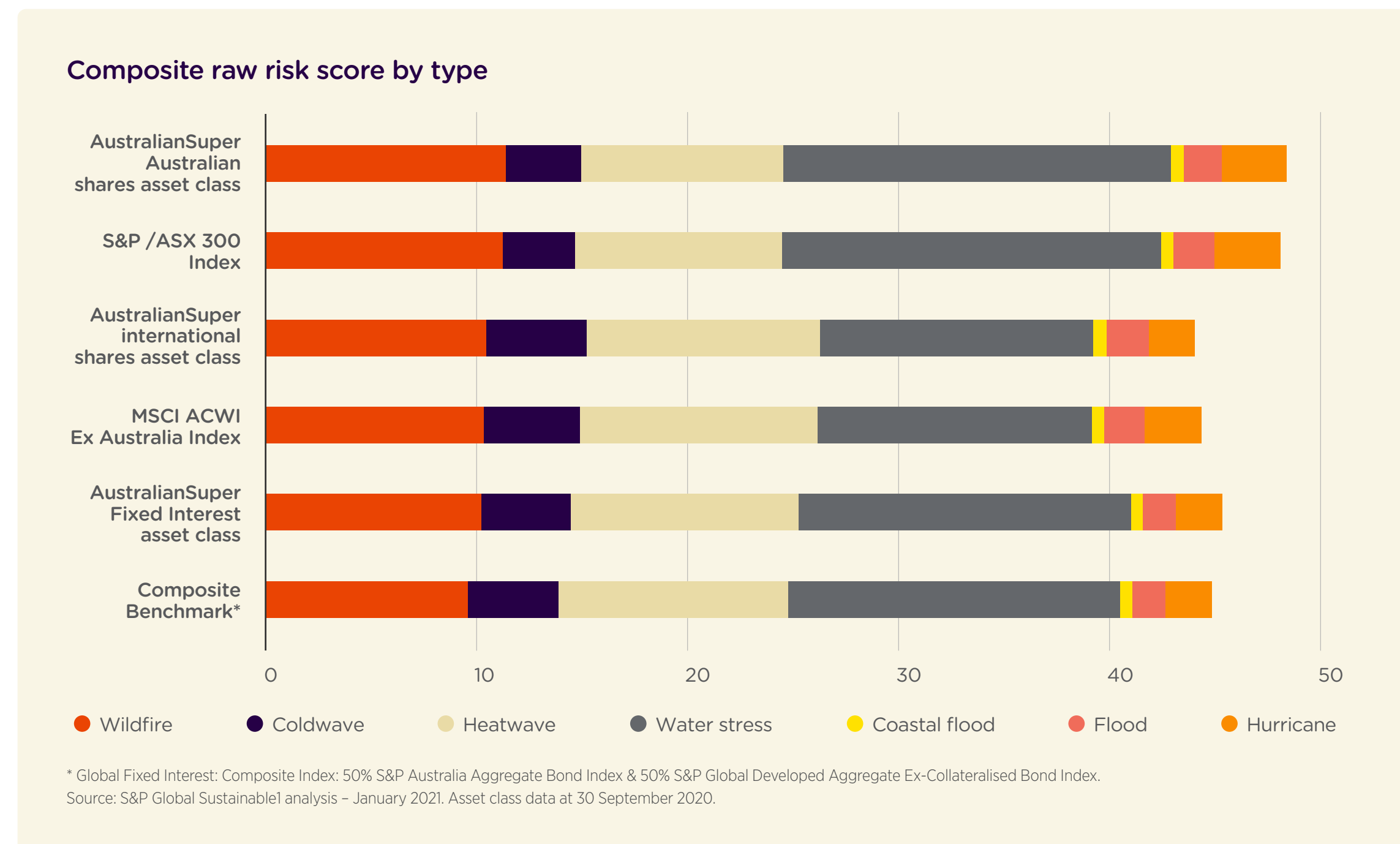
This graph (shown below) measures the combined exposure of each asset, company and asset class to the seven climate physical risk indicators. This metric reflects exposure to physical risks but does not take into account the sensitivity or materiality of the exposures to the company.

The risk scores for each AustralianSuper asset class fall into the low-risk category. Water stress was the highest raw score across each portfolio and benchmark, followed by heatwave and wildfire.

Composite sensitivity-adjusted risk score

This graph (shown below) shows the sensitivity-adjusted composite score, which considers both exposure and sensitivity to each form of climate physical risk. For example, companies with high water intensity/use are expected to be more sensitive to water stress, while capital-intensive companies are expected to be more sensitive to wildfire, flood, hurricane and sea level rise, which may damage the company's capital assets.

The sensitivity risk scores in this chart are lower than the raw scores, which indicates each physical risk has a lower level of financial materiality to the company and asset class. When the sensitivity adjustment is applied, wildfire has the highest risk score followed by heatwave and hurricanes.

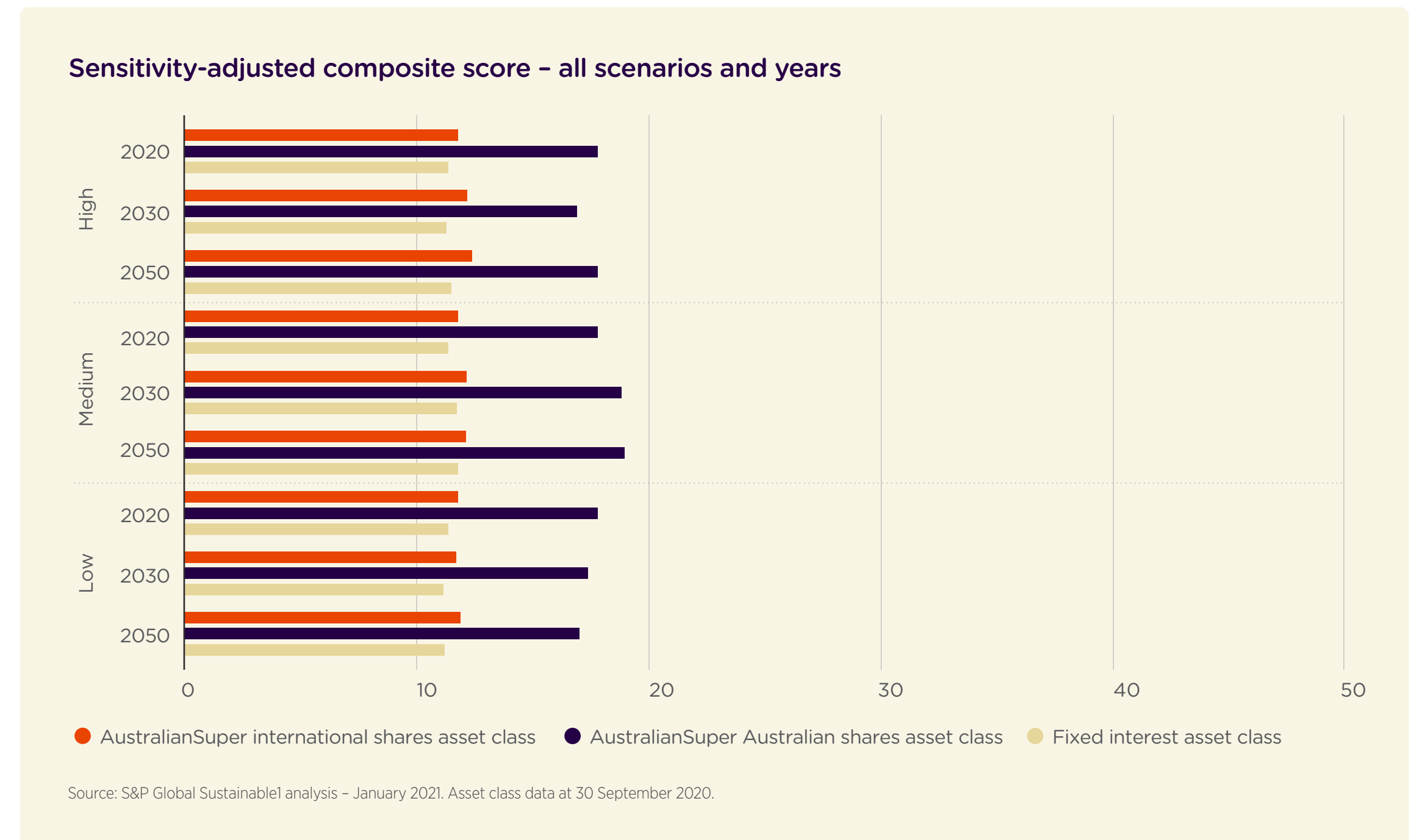
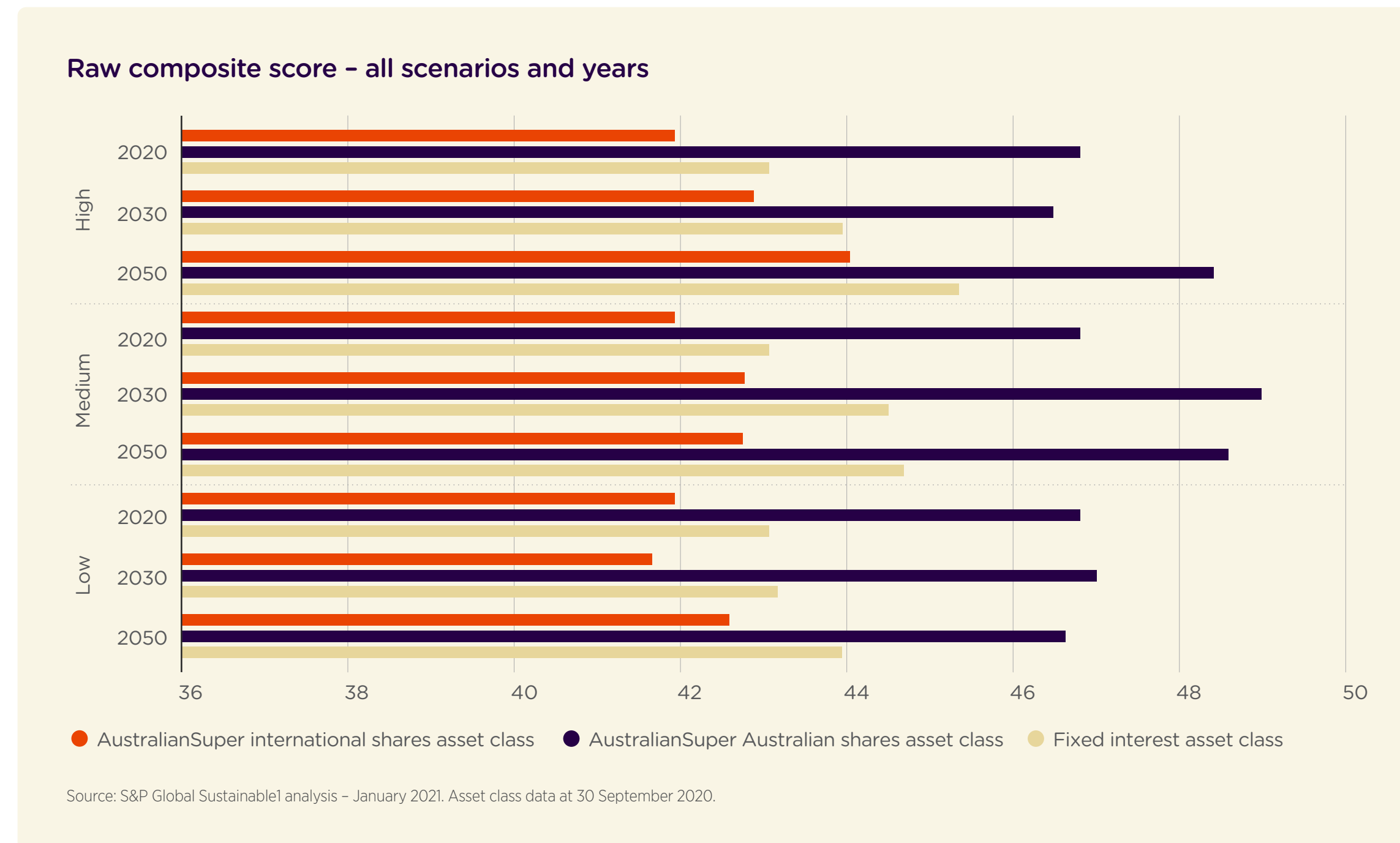




Part 4: Metrics cont.

Composite risk scores - all scenarios and years

The charts below show the changes in the Australian shares, international shares and fixed interest asset classes and benchmark physical risk exposure and sensitivity weighted exposure by scenario and year. The Australian shares asset class has the highest risk scores of all portfolios, however, is in the low-risk category when adjusted for sensitivity to physical risks.



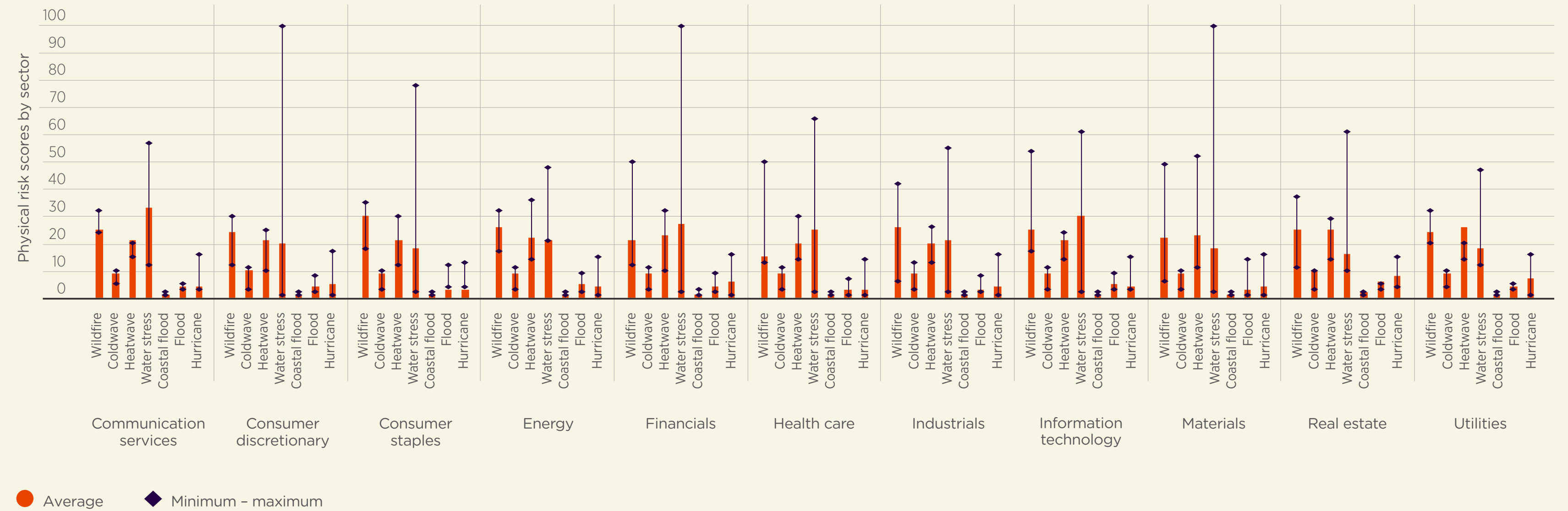


Part 4: Metrics cont.

Physical risk score by sector

The following charts show the raw maximum, minimum and average climate change physical risk scores for each asset class by GICs sector. These scores are based on the 2050 - High Scenario.

**Exposure to high risk companies and score range by raw risk type
Australian shares asset class**



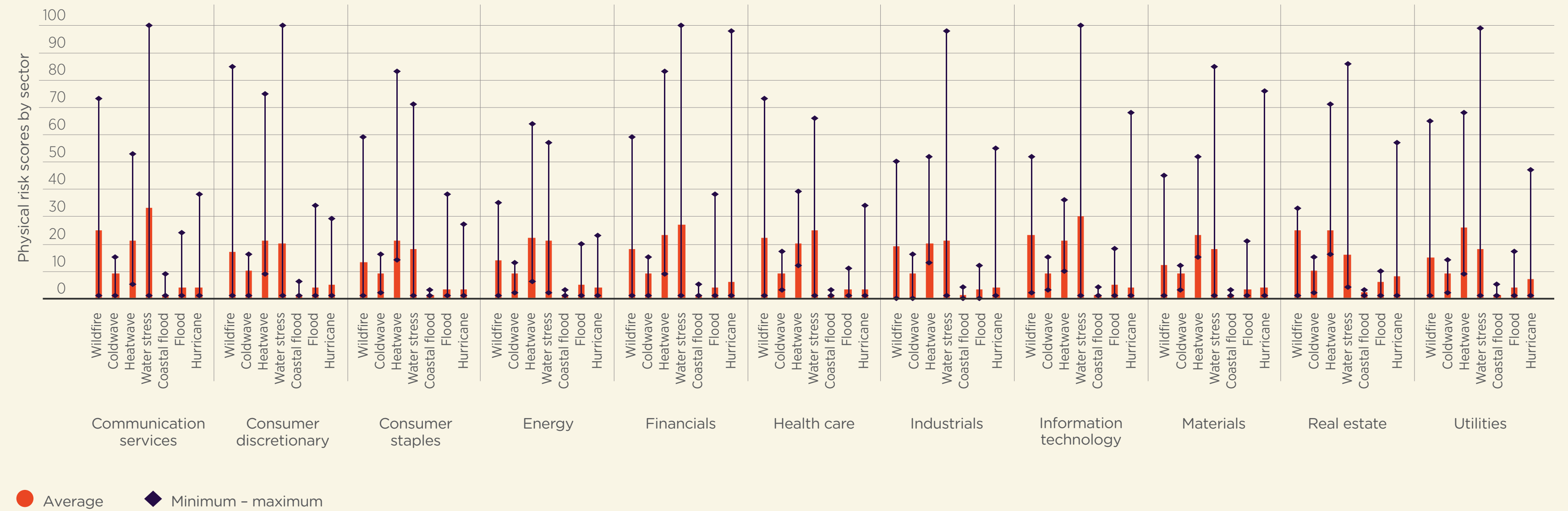
Source: S&P Global SustainableI analysis - January 2021. Asset class data at 30 September 2020.



Part 4: Metrics cont.

Physical risk score by sector cont.

Exposure to high risk companies and score range by raw risk type
International shares asset class



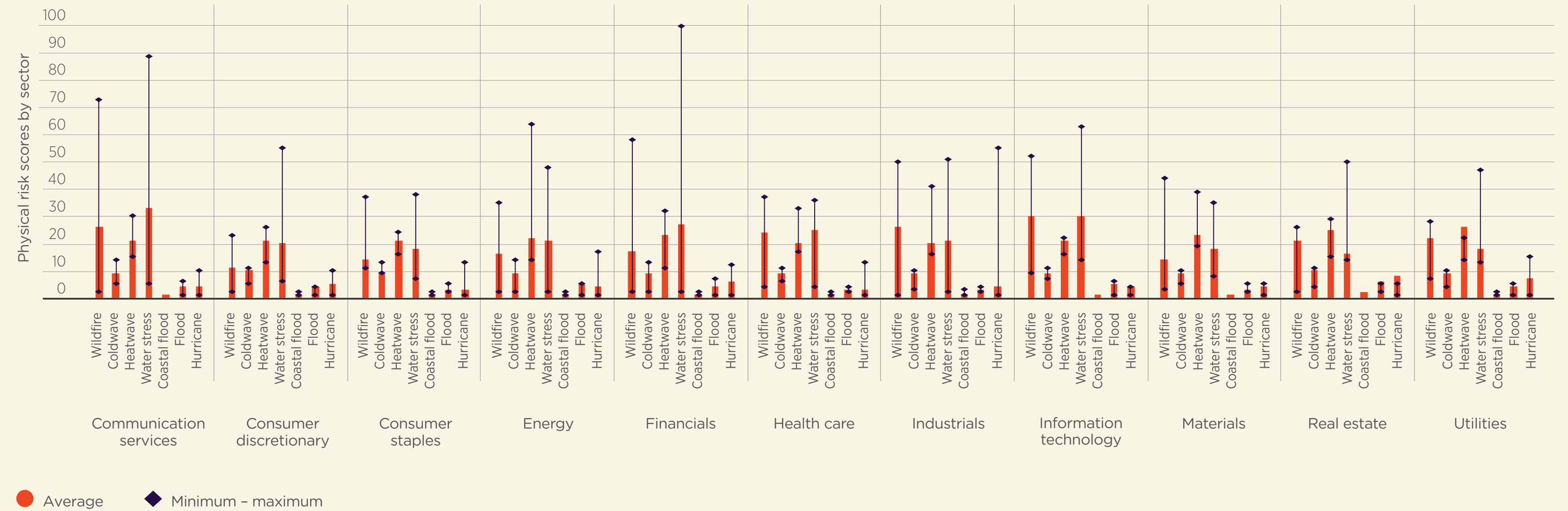
Source: S&P Global SustainableI analysis - January 2021. Asset class data at 30 September 2020.



Part 4: Metrics cont.

Physical risk score by sector cont.

Exposure to high risk companies and score range by raw risk type
Aggregate fixed interest asset class



Source: S&P Global SustainableI analysis - January 2021. Asset class data at 30 September 2020.

Part 4: Metrics cont.

Unlisted property and unlisted infrastructure asset classes

AustralianSuper commissioned external physical climate risk analytics by Moody's to understand our property and infrastructure assets' exposure to physical risks. The analysis was conducted for assets in our direct and externally managed portfolios in the unlisted infrastructure and unlisted property asset classes as at March 2022⁴⁹, with results provided to AustralianSuper in August 2022.

Results from Moody's physical climate risk analytics identified the hotspots or assets that face the most significant exposure to chronic and acute physical risks in these asset classes. The analysis takes into account climate projections and historical simulations to measure the absolute change, relative change, and current exposure, with hotspots identified based on relative exposure to six climate hazards – floods, heat stress, hurricanes and typhoons, sea level rise, water stress and wildfires.

The tables on the following pages outline the number of facilities with red flags and high risk scores (which are the two highest risk categories in Moody's physical risk analytics). While these risk levels indicate the potential for increasing future risk, it does not mean the exposures will result in significant impacts, as this is dependent on the type of asset and mode/extent of failures that may occur.

AustralianSuper is engaging with those assets identified as high risk to gain a better understanding of how they are managing these risks.

Unlisted infrastructure asset class

Moody's physical climate risk analytics was applied to 323 infrastructure facilities across 56 assets, including nine held in our internally managed portfolio and 47 held in external manager portfolios. Assets evaluated included those in the transport sector, such as toll roads, airports, ports, railroads, industrial compounds, and utilities such as energy, water and water assets.

Climate exposure for infrastructure facilities is aggregated at the asset level, as facilities distributed across areas have different sensitivities to specific hazards based on their location and functional type. An asset's individual score is a combination of its local exposure to climate hazards and the facility's own sensitivity to that hazard.

Water stress and floods pose a significant threat to AustralianSuper's internally and externally managed infrastructure portfolios. Results from Moody's physical climate risk analytics found:

- High and red flag water stress scores were concentrated in Australia (89 facilities) and India (12 facilities).
- Notable exposure to wildfire risk in Australian and Indian assets (20 facilities and 13 facilities respectively).

- Both portfolios face much lower exposure to hurricanes and typhoons, with 12 facilities, half of which are in the United States, subject to high and red flag risks globally.
- Energy and toll road infrastructure types have the most significant red flag and high risk exposure across both portfolios (with 49 toll road facilities and 62 energy facilities with high or red flag scores).
- For the external manager portfolios, the highest number of red flag risks were attributed to floods (21% of all facilities), with an additional 16% of facilities with high flood risk. Forty per cent of infrastructure facilities have red flag or high risk for water stress, and 10% of facilities are exposed to red flag level risk for sea level rise. In total, 195 of the 274 facilities (71%) are exposed to red flag or high risk from at least one of the six climate hazards.
- For the internally managed portfolio, the highest number of red flag risks were attributed to sea level rise (12% of facilities), while 96% of facilities had a high water stress score. Almost a quarter of facilities have high or red flag flood risk scores, and 35% are exposed to high wildfire risks. In total, 47 out of 49 (96%) of facilities face red flag or high-level risk exposure from at least one of the six hazards.



Moorebank Intermodal Precinct, NSW

49 Excluding Canada Water Masterplan.



Part 4: Metrics cont.

Red flag and high-level risks

A breakdown of AustralianSuper's red flag and high risks across the internal and external infrastructure portfolios is shown in the tables below.

Number of infrastructure facilities exposed to high and red flag risk scores by hazard type, by portfolio

		Floods	Heat stress	Hurricanes & typhoons	Sea level rise	Water stress	Wildfire
Externally managed portfolios (total = 274 facilities)	Number of facilities with red flag risk scores	58	6	3	26	14	0
	Percentage of facilities with red flag risk scores	21%	2%	1%	10%	5%	0%
	Number of facilities with high risk scores	44	48	9	0	96	54
	Percentage of facilities with high risk scores	16%	18%	3%	0%	35%	20%
Internally managed portfolio (total = 49 facilities)	Number of facilities with red flag risk scores	1	0	0	6	0	0
	Percentage of facilities with red flag risk scores	2%	0%	0%	12%	0%	0%
	Number of facilities with high risk scores	11	1	0	0	47	17
	Percentage of facilities with high risk scores	22%	2%	0%	0%	96%	35%

Source: Moody's Climate on Demand. AustralianSuper Real Estate and Infrastructure Physical Climate Risk Assessment, August 2022. Assets in portfolio as at March 2022.

Number of infrastructure facilities exposed to high and red flag risk scores by infrastructure type, by portfolio

Infrastructure type	Number of facilities with red flag risk scores		Number of facilities with high risk scores	
	Externally managed portfolios	Internally managed portfolio	Externally managed portfolios	Internally managed portfolio
Airport	4	1	16	3
Energy	23	0	47	59
Industrial	7	0	22	2
Office	5	0	26	0
Ports	16	2	26	3
Railroads	0	0	9	0
School	0	0	3	0
Social Housing	0	0	28	0
Telecommunications	0	1	1	1
Toll Road	38	3	58	8
Utility	14	0	15	0
Total	107	7	251	76

Source: Moody's Climate on Demand. AustralianSuper Real Estate and Infrastructure Physical Climate Risk Assessment, August 2022. Assets in portfolio as at March 2022.



Part 4: Metrics cont.

Risk assessment by climate hazard

The following charts show a hotspot analysis of AustralianSuper’s internal and externally managed infrastructure facilities for the two most significant risks to the portfolios: water stress and floods.

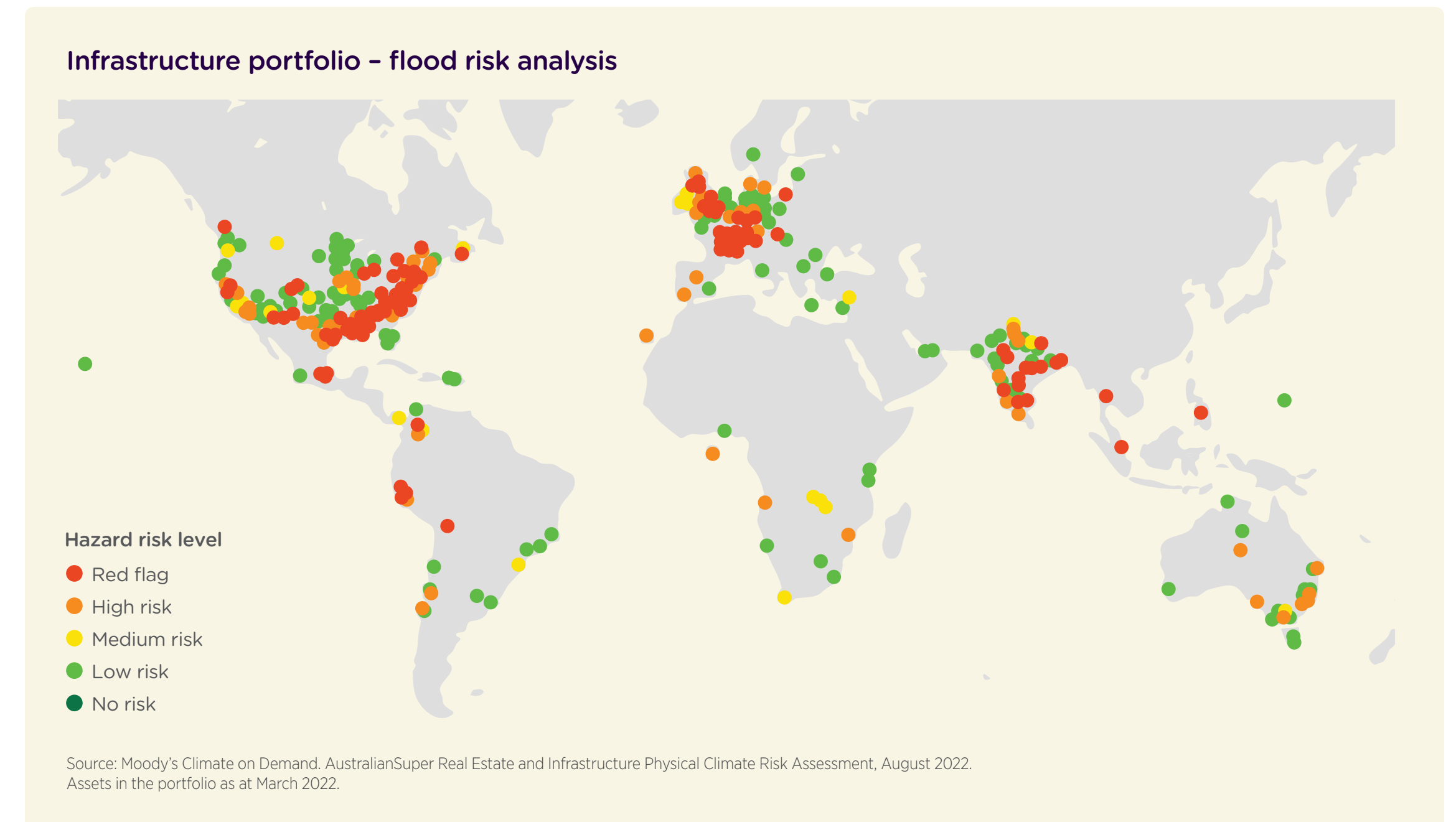
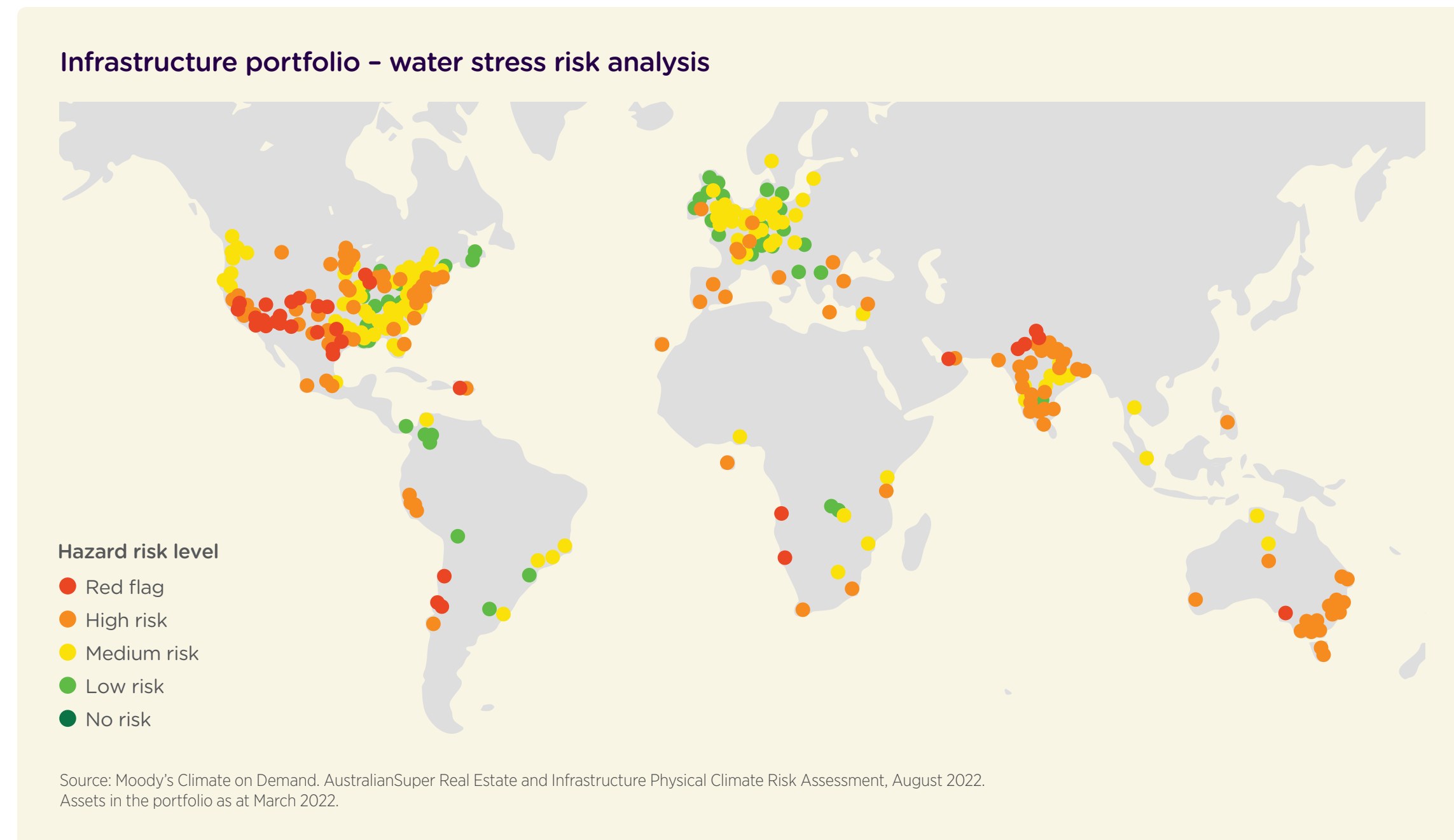
Water stress

Water stress measures projected changes in drought-like patterns over time. Water-intensive facilities, such as those involved in manufacturing or energy production, will be impacted by changes in water resources over time. Most of the red flag facilities identified may not be directly impacted by water stress but may be indirectly impacted. For example, terminals, ports and airports, and energy facilities require water for their day-to-day operations, with water shortages potentially causing inefficiencies and increased costs for asset operators.

Floods

Moody’s physical climate risk analytics considers the risk from pluvial (rainfall-induced) and fluvial (riverine-induced) flooding as well as the impact of climate change. Climate projections are paired with historical hydraulic simulations to determine if a site is susceptible to flooding, and how climate change may impact the frequency and severity of floods. Toll roads and highway networks are particularly susceptible to flood risk as they face significant disruption from

flooding, including transportation of resources and cargo, and traffic congestion and damage to equipment, goods and vehicles along their networks. Potential downstream impacts on facilities and surrounding communities are also an issue.





Part 4: Metrics cont.

Unlisted property asset class

Moody's physical climate risk analytics was applied to 123 property facilities including offices, retail, industrial and residential buildings. Climate exposure for property assets is evaluated as single points.

It was identified that water stress was the climate hazard with the highest number of facilities with high or red flag risk scores. The analysis also found that:

- While 106 of the 123 facilities analysed have at least one high or red flag risk score, only three had a red flag risk score.
- The largest number of assets with high-risk exposures were to water stress (95 facilities) followed by wildfire (20 facilities) and floods (12 facilities). The three red flag risk exposures were to floods, sea level rise and water stress.
- The highest-risk facilities in both portfolios were located in Australia and New Zealand.

Red flag and high-level risks

A breakdown of AustralianSuper's red flag and high risks across the internal and external property portfolios is shown in the table to the right.

Number of property facilities exposed by hazard type

		Floods	Heat stress	Hurricanes & typhoons	Sea level rise	Water stress	Wildfire
Property facilities (total = 123)	Number of facilities with red flag risk scores	1	0	0	1	1	0
	Percentage of facilities with red flag risk scores	1%	0%	0%	1%	1%	0%
	Number of facilities with high risk scores	12	0	1	0	95	20
	Percentage of facilities with high risk scores	10%	0%	1%	0%	77%	16%

Source: Moody's Climate on Demand. AustralianSuper Real Estate and Infrastructure Physical Climate Risk Assessment, August 2022. Assets in portfolio as at March 2022 excluding Canada Water Masterplan.



Part 4: Metrics cont.

Risk assessment by climate hazard

The following charts show a hotspot analysis of AustralianSuper’s internally and externally managed property facilities for the two most significant risks to the portfolios: water stress and wildfire.

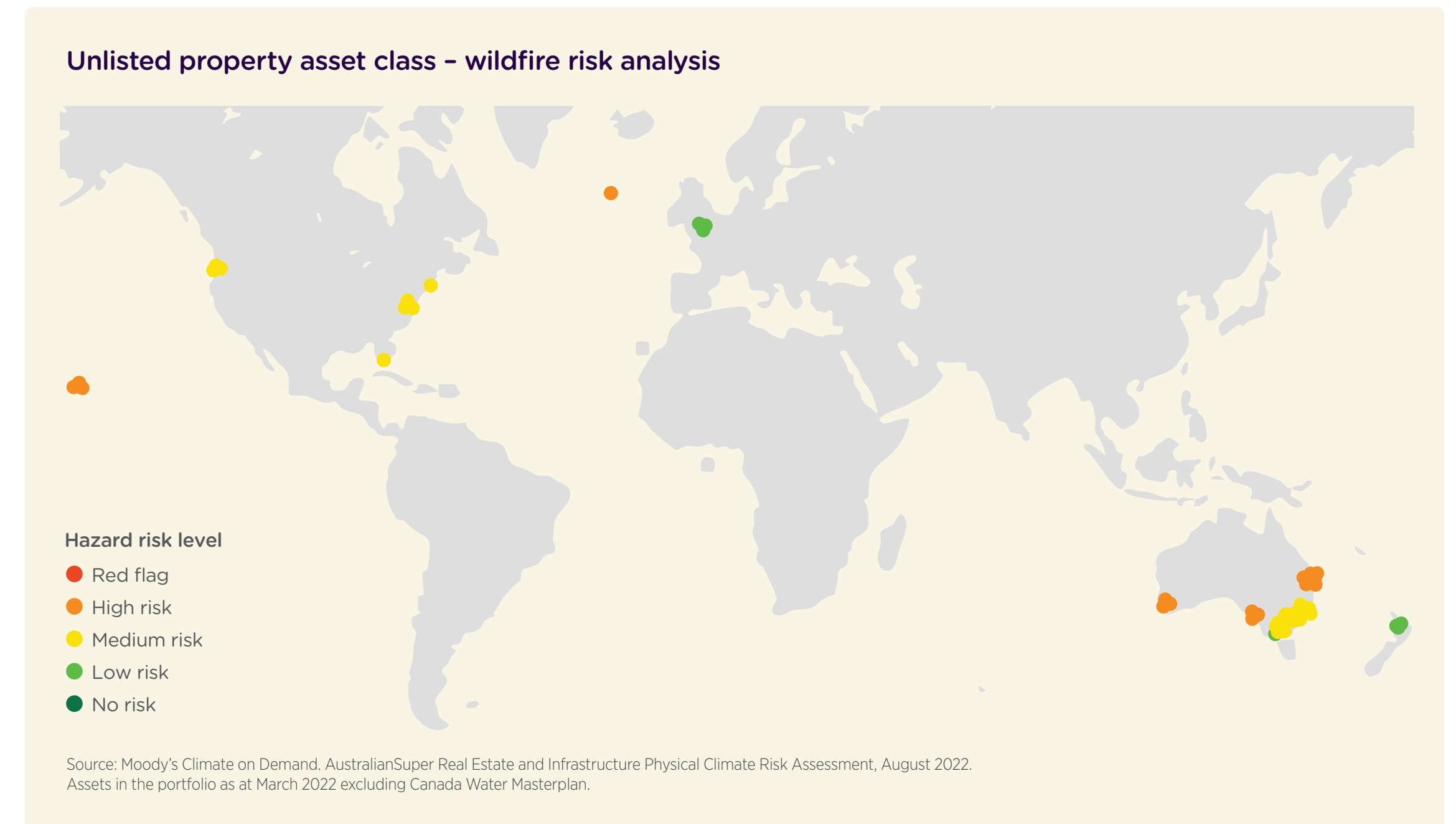
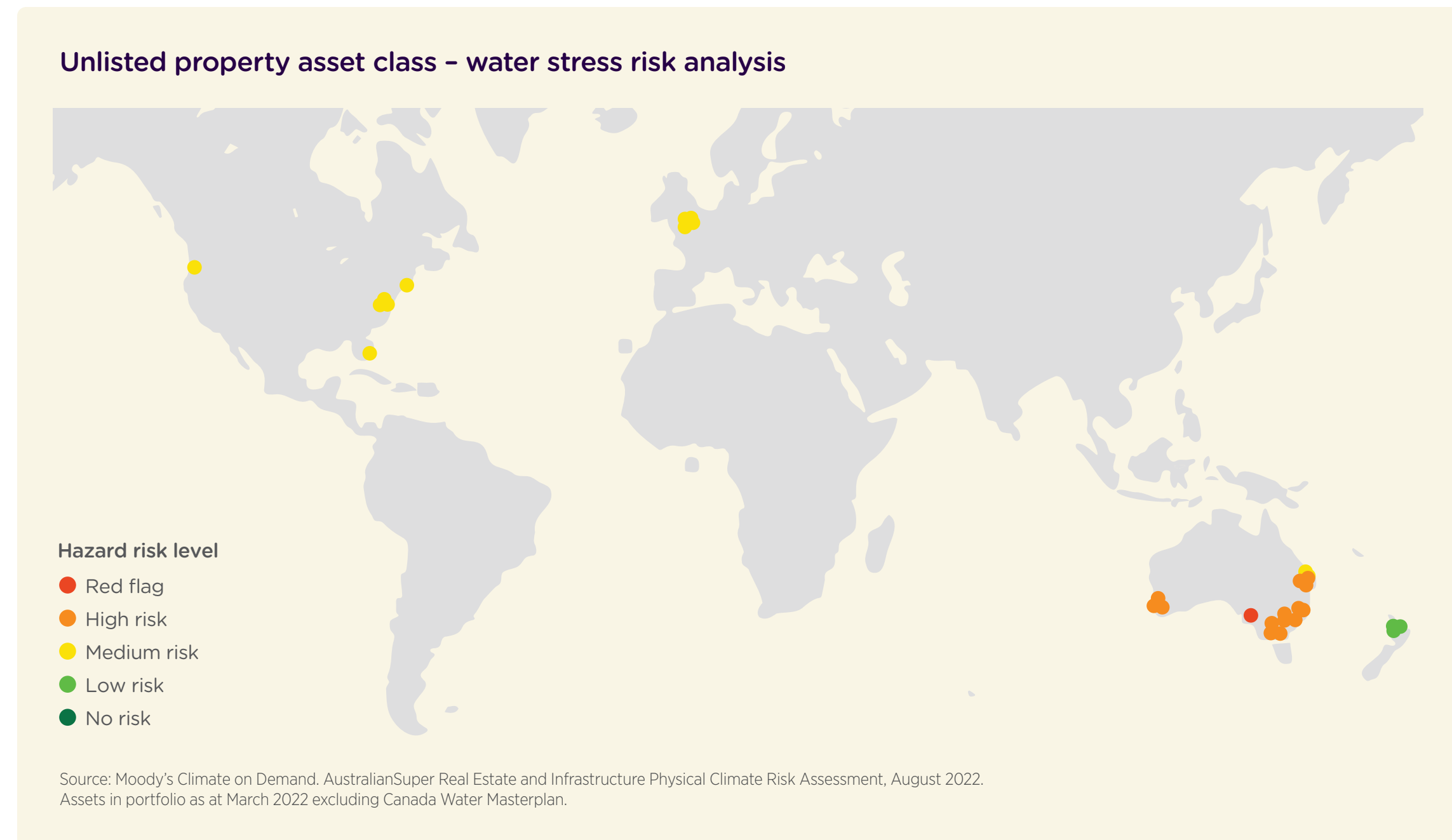
Water stress

Water stress within the property portfolio is concentrated in the south of Australia. Water-intensive activities in industrial sites, such as manufacturing processes involving water-based products or cold store operations, could be affected by this risk.

Wildfire

Of the 20 assets in AustralianSuper’s unlisted property asset class with high wildfire risk scores, 19 were located in Australia. Wildfires pose a great hazard to property assets due to their highly damaging nature, where intense heat could destroy building structures and contents, as well as onsite equipment and vehicles.

Further information on the Moody’s physical climate risk analytics methodology is provided on page 50.





About the data in this report

Energy solutions methodology

AustralianSuper applies the SDI AOP taxonomy to measure its exposure to energy solutions. Within the SDI AOP taxonomy, assets have been measured and categorised according to the following sub-goals of SDG 7: Affordable and clean energy and SDG 9: Industry, innovation and infrastructure:

- **SDG 7.2:** Increase substantially the share of renewable energy in the global energy mix
- **SDG 7.3:** Double the global rate of improvement in energy efficiency
- **SDG 9.1:** Sustainable and resilient infrastructure (energy infrastructure only).

Data is included for the Australian shares, international shares, and fixed interest asset classes, and relevant assets in the unlisted infrastructure asset class based on asset values as at 30 June 2022.

Australian shares, international shares and fixed interest asset classes

Data for the Australian shares, international shares and fixed interest asset classes is sourced from the SDI AOP. Contributions are based on the percentage of company revenue aligned to the SDG sub-goals listed previously, multiplied by the value of AustralianSuper's holding (AUD million invested). The SDI AOP ranks company contributions based on the Sustainable Development Investment (SDI) standard. Only companies with SDI status of Majority or Decisive with confidence levels of 3 or above (out of 5) have been included. Negative contributions are not considered.

Unlisted infrastructure asset class

Data for the unlisted infrastructure asset class has been collected directly from the underlying assets and managers (and is subject to data availability/limitations). Where possible we have applied a consistent approach to the SDI AOP methodology used for the Australian shares, international shares and fixed interest asset classes. As such, we have used revenue as the primary metric to measure asset contributions to the SDGs.

Where revenue data was not available, we used the data point which provided the lowest percentage value (e.g. fair value). For each asset and manager, the percentage derived from renewable energy, energy efficiency and supporting infrastructure was determined and multiplied by the value of AustralianSuper's holding (AUD million invested). The data collected has a range of different year-end dates, however, we have consistently applied the percentage contribution to AustralianSuper valuation data as at 30 June 2022.





About the data in this report cont.

Moody's Physical Climate Risk Assessment

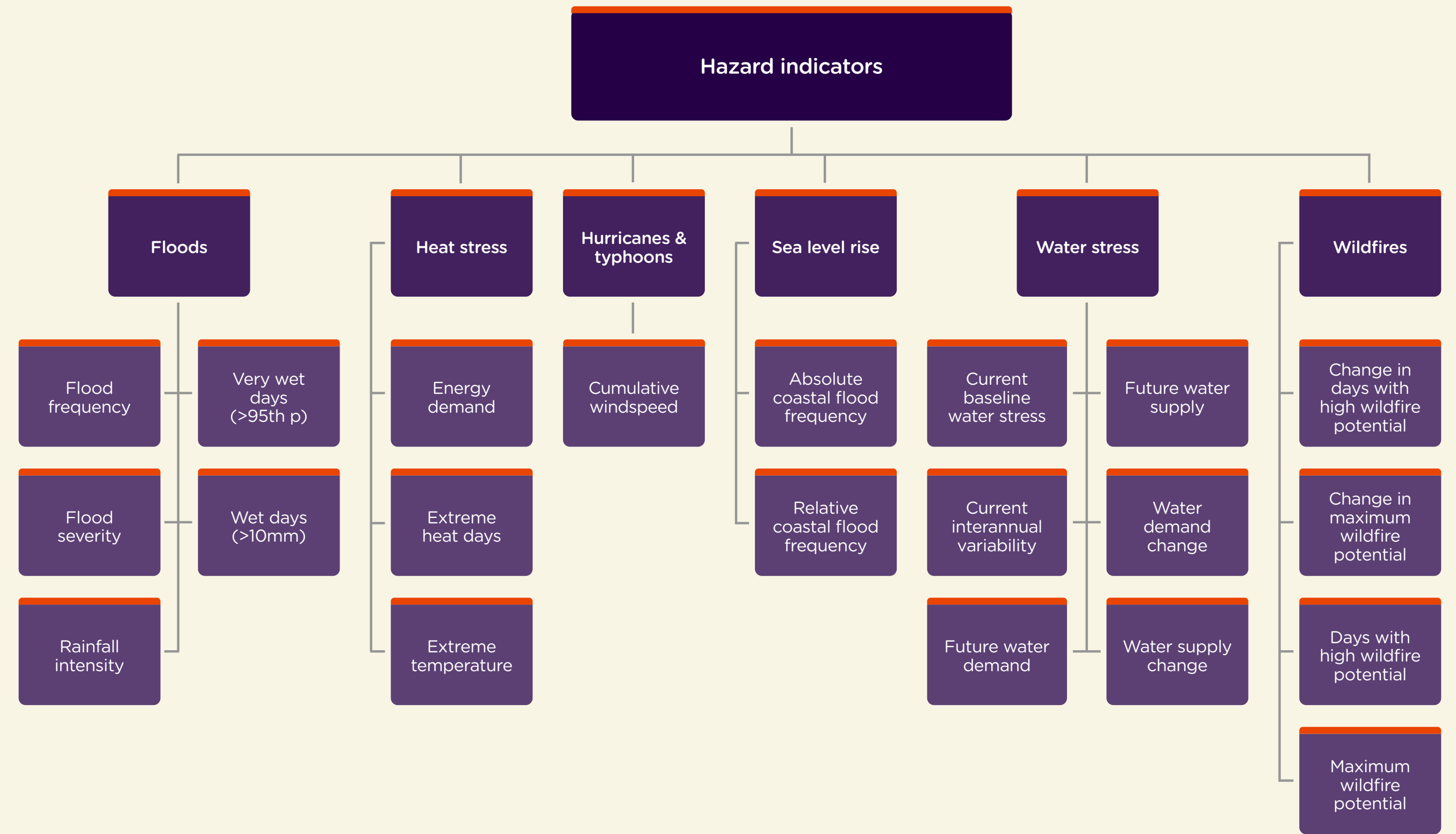
Moody's physical climate risk analytics incorporates a broad array of indicators to capture the nuance and diversity of climate risk drivers. The analysis uses public and private databases to generate more than 20 risk indicators, as shown in the diagram to the right.

The indicators are applied globally across sectors, industries and geographies, to calculate scores by aggregating and converting raw indicators into globally comparable standardised scores across climate hazards and locations. Risk levels are then assigned to each asset based on its score for each climate hazard. The five risk levels are shown in the table below:

Risk category	
No risk	Not exposed.
Low risk	Not significantly exposed to historical or projected risks.
Medium risk	Exposed to some historical and/or projected risks.
High risk	Exposed today and exposure level is increasing.
Red flag	Highly exposed to historical and/or projected risks indicating high potential for negative impacts.

The assessment uses forward-looking risk indicators output from climate models, including multiple temperature and precipitation indices. A historical benchmark for the period 1975–2005 is used with projected future states in 2030 to 2040. Exposure estimates are based on the highest emissions pathway, known as the Representative Concentration Pathway (RCP) 8.5.

It's important to note that there are limitations with this analysis. The use of total scores can dilute the importance of individual hazards. The analysis does not account for site-specific or building-level measures of local adaptive capacity, which is an important contributor to addressing risks. There are also four types of uncertainties associated with the global circulation climate models used for the analysis: boundary, condition, parameter, initialisation and structural. In addition, there is uncertainty associated with the scenarios used.





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For tailored and comprehensive advice*, an accredited adviser can help if you'd like a detailed financial plan and have a number of financial matters to think about. Call **1300 300 273** to make an appointment with an adviser.

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To attend a free retirement and financial planning seminar, visit **australiansuper.com/seminars**

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