



LGPS Central Limited

PREPARED BY LGPS CENTRAL

Worcestershire Pension Fund 2022 Public Climate Risk Report

JANUARY 2023

FOR PROFESSIONAL CLIENTS ONLY

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LGPS Central Limited

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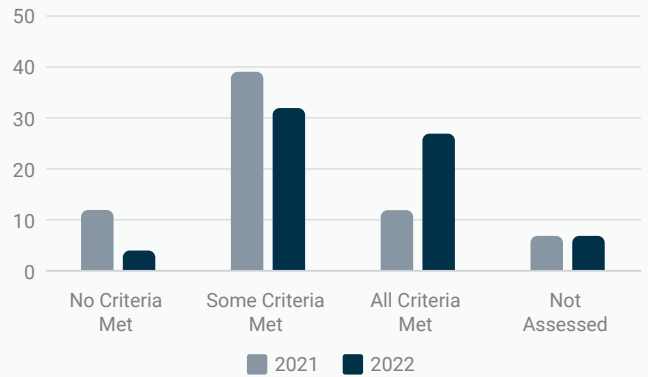
1.0 Executive Summary

Key Highlights from 2022:

AS OF MARCH 2022
the carbon footprint
of total equities has decreased by
▼ 13.63%
FROM MAY 2020
The carbon footprint of the benchmark decreased by 5.79% over the same period.

The carbon footprint
of the Total Equities portfolio was
▼ 30.10%
LOWER THAN THAT OF THE BENCHMARK
and 13.63% lower than in 2020.

Total CA100+ NZB Indicators Met by CSP Companies

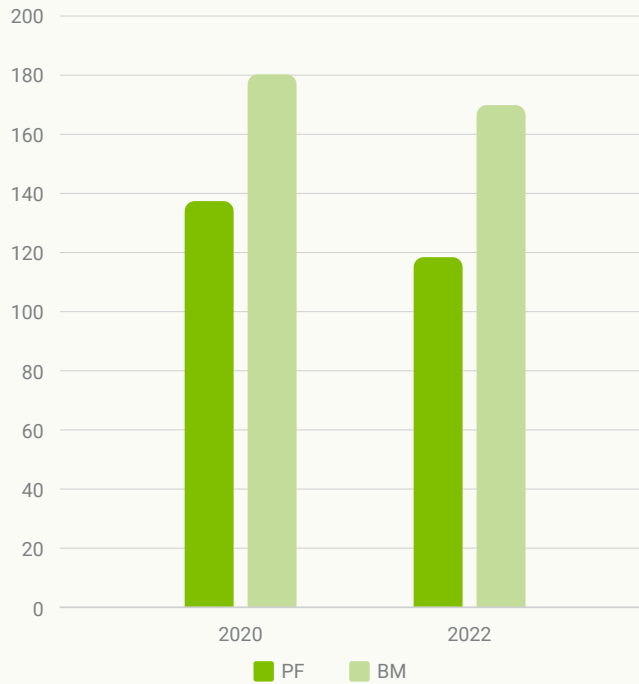


In turn, the decrease in the carbon footprint

OF THE TOTAL PASSIVE EQUITIES
can be associated with
the portfolio changes made between 2020 and 2022

THE OBSERVED DECREASE IN THE
carbon footprint of total equities
is driven by a **▼ 24.44%** decrease in the
carbon footprint¹ of the Total Passive Equities

Total Equities Carbon Footprint



7 out of 8

of Climate Stewardship Plan companies
HAVE BEEN AWARDED A
Management Quality of 4 or 4* by the Transition Pathway Initiative³

This implies 7 of the 8 companies in the Climate Stewardship Plan exhibit strong governance of greenhouse gasses.

The financed emissions² of the Total Equities

INCREASED BY
▲ 5.51%

driven by an increase in the
financed emissions of Total Active Equities

THE ONE COMPANY WHICH DID NOT RECEIVE A 4 or 4* TPI Management Quality score

FALLS OUTSIDE OF THE SECTORS WHICH TPI EXAMINES and was therefore not scored.

¹ Carbon footprint is calculated as the carbon intensity (Scope 1+2 Emissions / \$M sales) for each portfolio company attributed by portfolio weight.

² Financed emissions is calculated by the total emissions of the company apportioned by WPF's financing of the company (both debt and equities exposure) divided by the EVIC.

³ The Transition Pathway Initiative (TPI) framework evaluates companies based on their climate risk management quality and their carbon performance. A Management Quality rating of 4 means the company has performed a strategic assessment of climate change, while 4* means the company has been awarded the highest possible TPI management quality score and satisfies all relevant management quality criteria.



This Report is Worcestershire Pension Fund's (WPF) Third Climate Risk Report. During September 2020 and January 2022 WPF received its first and second Climate Risk Reports respectively. Through a combination of bottom-up and top-down analysis, the report was designed to allow WPF to view the climate risk held throughout the equities and fixed income portfolios, accompanied by recommendations WPF may choose to adopt to manage and reduce climate risks.

The purpose of this third report is to analyse progress against the baseline of data from the initial 2020 report. This will allow a reassessment of the Fund's exposure to climate-related risks and opportunities and identification of further means for the Fund to manage its material climate risks. The report is structured to align with the four pillars of the Taskforce on Climate-Related Financial Disclosures (TCFD) and facilitates public disclosure against this framework. We provide below a summary of the salient findings from each section in the report.

GOVERNANCE

The Fund has made progress in enhancing its responsible investment and climate change practice. Examples of these enhancements include: attaining signatory status to the 2020 UK Stewardship Code, integrating responsible investment, including climate change as a regular item within Pensions Committee meetings, holding climate-related workshops, and publishing key reports and documents such as the Climate-Related Disclosures Report. Finally, the consideration of explicit climate targets has also been put to the Committee.

STRATEGY

Section 4.2 provides a Climate Scenario Analysis (CSA), which estimates the effects on key financial parameters (such as risk and return) that could result from plausible climate scenarios. The findings from Mercer's climate scenario analysis highlights the possible impact from transition and physical risks of climate change. The Fund will likely perform better in an Orderly or Rapid transition scenario. In a Failed transition scenario, physical impact from climate change will likely affect longer-term investment return.

RISK MANAGEMENT

We have reviewed ongoing engagements with the eight companies in the Fund's Climate Stewardship Plan (CSP). Currently, none of these companies have attained all the indicators within the CA100+ benchmark assessment. However, most of the companies are making clear progress in their climate strategies, which is evidenced through several measures of success. In the meantime, the Fund has agreed to adding Reliance Industries to the CSP.

METRICS AND TARGETS

Carbon footprint of Total Equities has decreased by 13.63% from the May 2020 baseline level and is now 30.10% lower than the benchmark level. However, financed emissions have increased by 5.51% from the baseline.

2.0 Recommendations and Considerations

2.1 Governance

CATEGORY	PORTFOLIO	RECOMMENDED ACTION	REPORT REFERENCE
Governance	Total Fund	<ul style="list-style-type: none"> R: Continue to schedule time at Pension Fund Committee meetings for the discussion of climate-related risks and climate strategy. Schedule one training session on general RI matters, and one climate-specific training per year. R: Continue to include Quarterly Stewardship updates in Pension Committee meetings. C: WPF could consider a Net Zero Climate Strategy for the fund, as well as short term and long-term net zero targets. 	4.1

2.2 Strategy

CATEGORY	PORTFOLIO	RECOMMENDED ACTION	REPORT REFERENCE
Strategy	Total Fund	<ul style="list-style-type: none"> R: Continue to collaborate with its various partners including LGPS Central and other external managers to address key physical and transition risks in the portfolio. R: Keep exposure to growth assets which have greater long term physical risks from climate change and sustainable equities which help mitigate transition risks under review. C: Explore other low carbon asset classes such as sustainable private equity and sustainable private infrastructure. R: Continue working with appointed fund managers to understand how they are assessing, monitoring, and mitigating key transition and physical risks within sectors which carry the highest risks. R: Use the Climate Scenario Analysis to track and better understand the portfolio's capacity to transition into a low carbon economy. 	4.2

2.3 Risk Management

CATEGORY	PORTFOLIO	RECOMMENDED ACTION	REPORT REFERENCE
Company Stewardship	Total Equities	<ul style="list-style-type: none"> R: Continue to engage the companies highlighted in the Climate Stewardship plan through selected stewardship partners. R: Report progress in the next Climate Risk Report. 	4.3

2.4 Metrics & Targets

CATEGORY	PORTFOLIO	RECOMMENDED ACTION	REPORT REFERENCE
Metrics	Total Equities	<ul style="list-style-type: none"> R: Continue to monitor the carbon footprint and financed emissions of this portfolio. R: Continue to monitor engagement with BP, CRH, Shell, Rio Tinto, and Cemex. 	4.4.2

3.0 Introduction

3.1 Scope of the Report

The purpose of this report is to:



3.2 Climate Action to Date

To demonstrate the urgency surrounding climate change, and why it is necessary for Pension Funds to act now to mitigate climate risks, we provide below a summary of the key climate updates which have occurred since the start of 2021.

The evidence is clear that climate change could be the largest systemic risk, and largest example of market failure, faced by any human society. Whilst concern is being voiced, the action to date shows we are not yet doing enough, with the current trajectory of 3°C likely to place us beyond the realm of human experience sometime in the next 30 years. This is sub-optimal for pension funds, even accounting for their ability to diversify idiosyncratic risk. The climate scenario with the lowest estimated economic damages and the one most favourable to long-term investors is a scenario that aligns with the Paris Agreement. Since climate

risks could to one extent or another affect all asset classes, all sectors, all regions, it is unlikely that climate-risks can be mitigated completely through diversification alone.

For investors, climate change is a fiduciary issue. Local authority pension funds typically have multidecadal time horizons, with both their investment beliefs and liability profiles thoroughly long-term. Significant uncertainty remains, and no single tool can provide an accurate and complete observation on a pension fund's climate risk. For responsible investors looking to proactively manage climate risk, a combination of metrics and methodologies, paired with targeted engagement, represents the best possible information set currently available.

<p>MAY 2021</p> <p>IEA 1.5°C SCENARIO</p> <p>The International Energy Agency (IEA) publishes its 1.5°C 'Net Zero' Scenario. It argues the new scenario is the most technically feasible, cost-effective and socially acceptable way to stay below the 1.5°C limit. Stipulations of the scenario include: no new investments in fossil fuel supply as of 2021; a 75% decline in methane emissions; a radical shift towards renewable energy; an increase in Carbon Capture and Storage (CCS) capacity of 4000%; no sales of new combustion engines in cars by 2035; and net zero emissions from the power sector by 2040.</p>	<p>OCTOBER 2021</p> <p>WMO STATE OF GLOBAL CLIMATE REPORT</p> <p>The World Meteorological Organisation (WMO) releases its 2021 State of Global Climate Report which combines inputs from multiple UN agencies, national meteorological and hydrological services, and scientific experts. The report reveals that:</p> <ul style="list-style-type: none"> • 2021 was among the seven hottest years on record. Global average temperatures were 1.1°C–1.2°C above the preindustrial average. • Levels of atmospheric CO₂ reached 414ppm, their highest average in the modern record. This represents an increase of 50% compared to pre-industrial levels. • Sea level rise reached 1.4mm/yr between 2013 and 2021. Global mean sea level reached a record high in 2021. • Ocean heat content reached a new record high in 2020. 	<p>OCTOBER 2021</p> <p>UN EMISSIONS GAP REPORT 2021</p> <p>The UN released its Emissions Gap Report 2021. The report shows that countries' 2030 climate targets would lead to a global temperature rise of 2.7°C by the end of the century. This is above the goals of the Paris Agreement and would lead to catastrophic changes in the Earth's climate.</p>	<p>NOVEMBER 2021</p> <p>COP26</p> <p>COP 26 was the 26th edition of the United Nations Climate Change Conference, held in Glasgow in November 2021. The outcomes of COP26 included the following:</p> <ol style="list-style-type: none"> 1) 197 countries agreed to adopt the Glasgow Climate Pact. This commits countries to review and strengthen their NDCs at COP27, and to accelerate efforts towards the phase-down of unabated coal power. 2) 100 countries signed a pledge to cut methane emissions by 30% by 2030. The pledge includes six of the world's ten largest emitters. 3) Joint US-China climate declaration centred around principles for climate cooperation, ranging from methane reduction to protecting forests. 4) UK-led initiative of 190 countries and organisations agreeing to phase out the use of coal-fired power for major economies in the 2030s. 5) Article Six was finalised, ensuring rules for a global carbon offset market. 6) Agreement between 141 countries to end deforestation by 2030. 	<p>DECEMBER 2021</p> <p>IEA ANNUAL REPORTS</p> <p>The 2021 IEA Renewables Forecast revealed that a record amount of renewable energy was added to energy systems globally in 2021, but it remains half of what is needed annually to be on track to reach net zero emissions by 2050. Additionally, within their Coal Forecast, the IEA called for strong and immediate action from governments to tackle emissions from coal as it predicted the amount of electricity generated from burning the fuel would jump by 9%.</p>	<p>FEBRUARY 2022</p> <p>IPCC SIXTH ASSESSMENT PART TWO</p> <p>The IPCC releases Part Two "Impacts, Adaptation and Vulnerability" of its Sixth Assessment Report. The report warns that climate change risks are greater than previously thought. The world has a brief and rapidly closing window to adapt to climate change. Some losses are already irreversible, and ecosystems are reaching the limits of their ability to adapt to the changing climate. Hazards such as the rise in sea level were unavoidable and "any further delay" to mitigate and adapt to warning would miss the "window of opportunity to secure a liveable and sustainable future for all".</p>	<p>APRIL 2022</p> <p>IPCC SIXTH ASSESSMENT PART THREE</p> <p>The IPCC releases Part Three "Mitigation of Climate Change" of its Sixth Assessment Report. The Report covers efforts to mitigate the effects of climate change and finds that the world can still achieve 1.5°C if radical action is taken. Net carbon emissions must peak within the next three years and be eliminated by the early 2050s. On our current trajectory, we are heading for a temperature rise of 3°C. The main finding for investors is that financial flows are currently 3-6 times lower than the level needed by 2030 to limit global warming. While there is sufficient capital to close investment gaps, increasing flows relies on clearer signalling from governments.</p>
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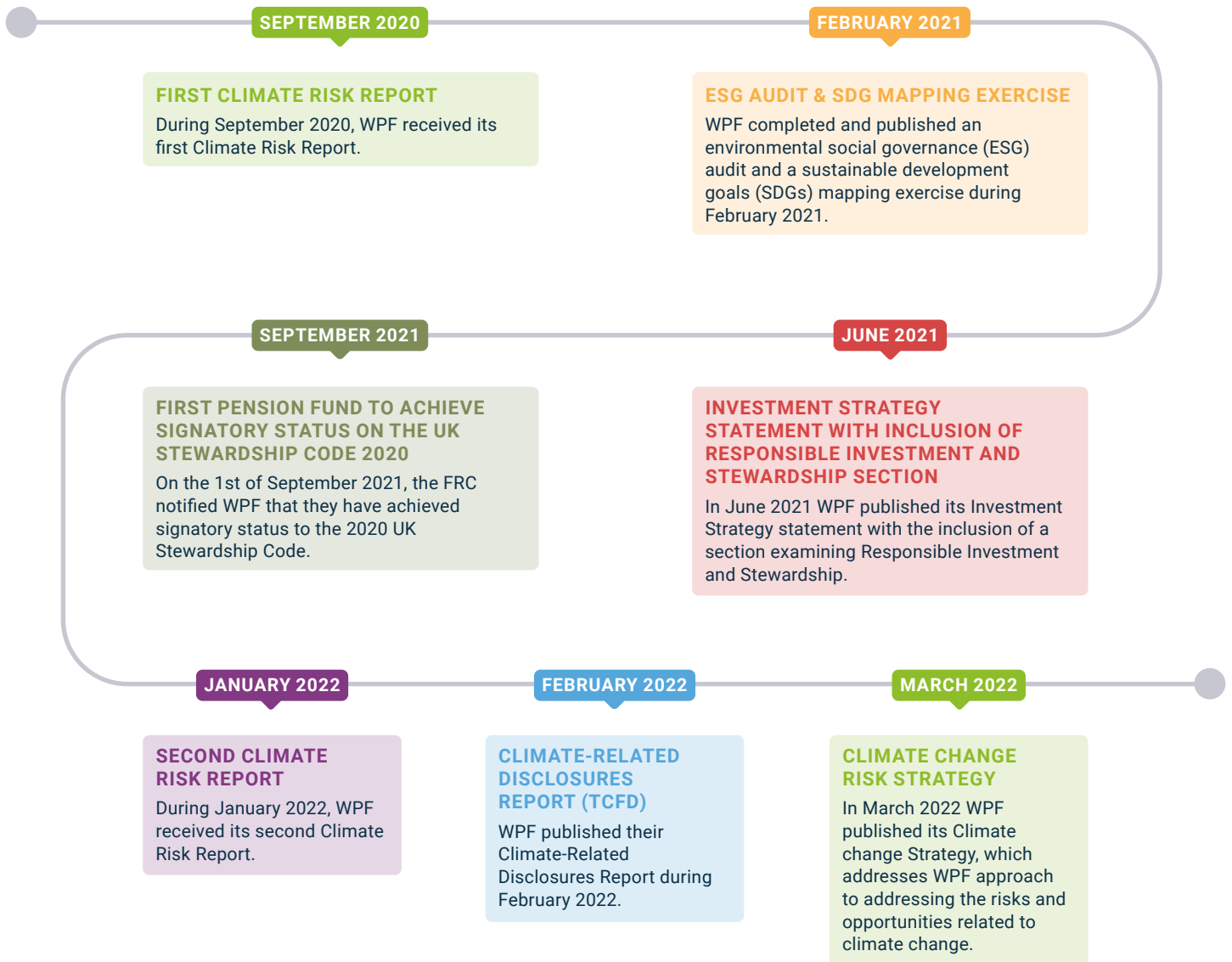
4.0 Analysis

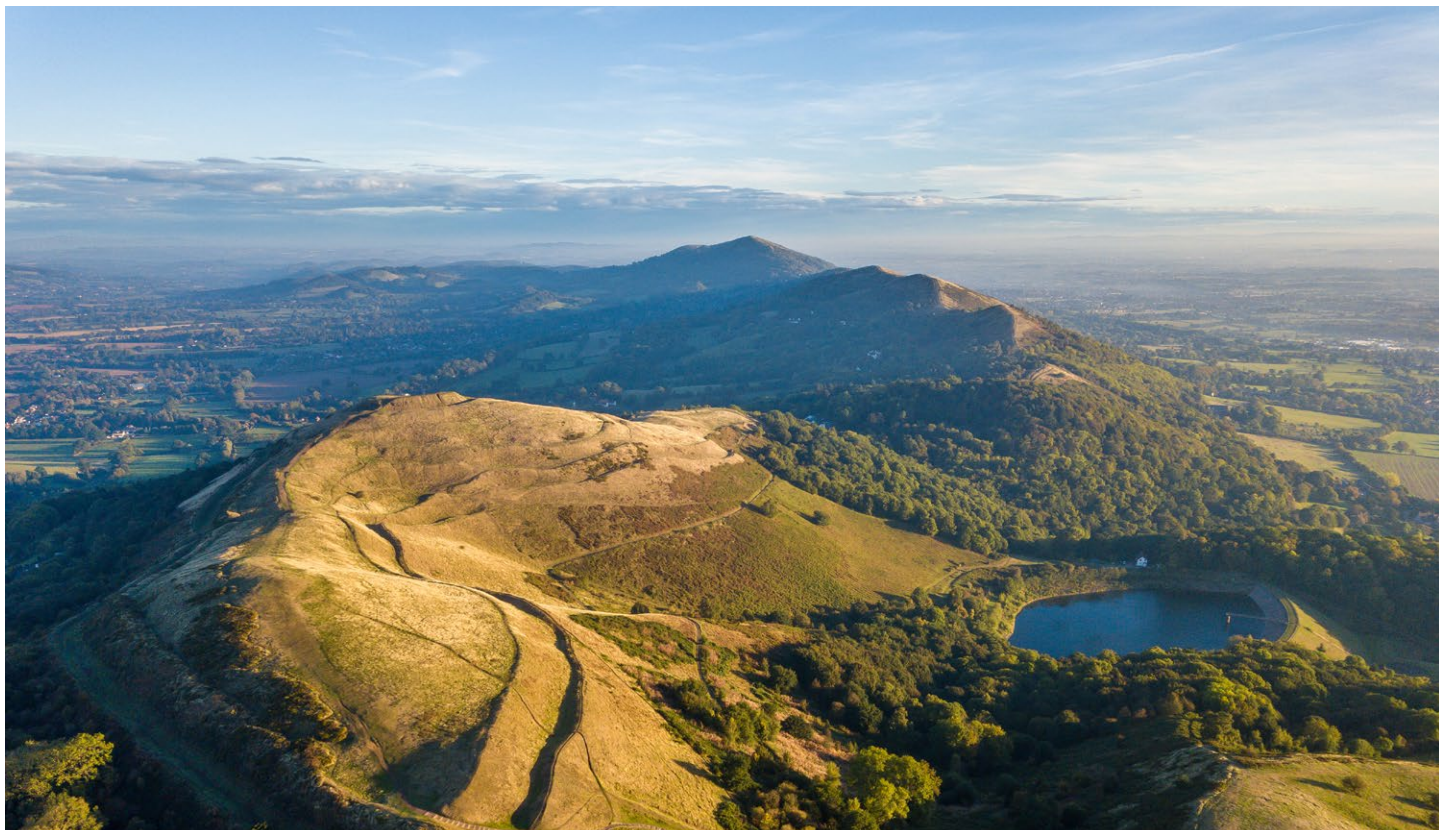
4.1 Governance

4.1.1 SCOPE

In the Fund’s 2020 Climate Risk Report we reviewed the Fund’s published documentation and governance arrangements from the perspective of climate strategy setting. In the subsequent 2021 Climate Risk Report we provided a progress update and refresh to this review. Both reports identified areas in which the Fund’s governance and policies could further embed and normalise the management of climate risk. We provide a progress update against the recommendations and considerations issued in the previous report and suggest further policy extensions the Fund could consider. We recognise that the Fund’s existing climate governance is already to a high standard, and our perspectives offered below are suggestive only.

4.1.2 WPF’S CLIMATE MANAGEMENT TIMELINE





4.1.3 KEY FINDINGS

WPF has made significant progress in terms of its responsible investment and climate change practice. Since 2020 WPF has published several key documents/reports as well as integrating responsible investment into the Investment Strategy.

4.1.4 FURTHER ACTIONS

RECOMMENDATIONS:

The following recommendations were successfully achieved in 2022 but due to their ongoing nature we recommend they continue as regular practice in future years.

- Continue to schedule time at Pension Fund Committee meetings for the discussion of climate-related risks and climate strategy. Schedule one training session on general RI matters, and one climate-specific training per year.
- Continue to include Quarterly Stewardship updates in Pension Committee meetings.

CONSIDERATIONS:

We recommend that the following recommendations/considerations are carried over from the 2021 Climate Risk Report.

- WPF could consider a Net Zero Climate Strategy for the fund, as well as short term and long-term net zero targets.

4.2 Strategy

4.2.1 CLIMATE SCENARIO ANALYSIS

CLIMATE SCENARIO ANALYSIS INTRODUCTION

In the Fund’s 2020 Climate Risk Report, we utilised the services of Mercer LLC (Mercer) to conduct Climate Scenario Analysis of the Fund. Climate Scenario Analysis estimates the effects on key financial parameters (such as risk and return) that could result from plausible climate scenarios. In this report the scenarios were defined according to the change in mean global surface temperatures since pre-industrial times. We considered three scenarios (2°C, 3°C and 4°C) across three timescales (2030, 2050 and 2100).

For 2022, Mercer has partnered with Ortec Finance and Cambridge Econometrics to develop climate scenarios that are grounded in the latest climate and economic research and give practical insights. This partnership brings together Mercer’s investment and climate expertise alongside Ortec’s research and scenario generator technology.

This report will summarise the key changes in the model and discuss the results of the analysis, focusing on annualised and cumulative impacts against a baseline assumption, and comparison between the two asset allocations.

WHY SHOULD A PENSION FUND CONDUCT CLIMATE SCENARIO ANALYSIS?

Investors often use scenario analysis to support Strategic Asset Allocation (SAA) and portfolio construction decisions, as it helps to model potential risks and returns.

With a growing (but still early) understanding of the potential impacts of climate change on investment performance and following the recommendations of the TCFD, more pension funds are electing to conduct Climate Scenario Analysis. Climate Scenario Analysis helps investors to better understand the short-, medium- and long-term climate change risks and opportunities associated with plausible climate change scenarios, to understand the portfolio’s sensitivities to such scenarios, and to build more resilient portfolios.

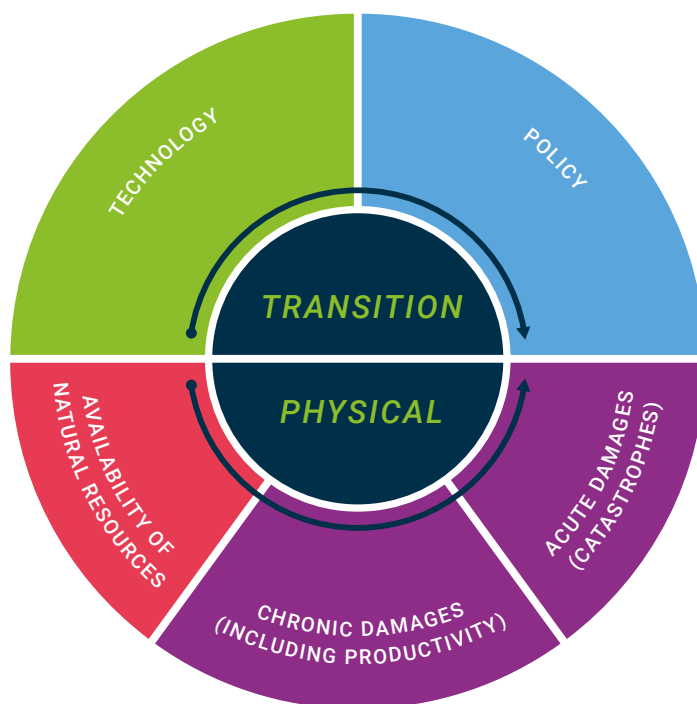
As we argue above, although the predictions made by climate scientists have gained overwhelming consensus, there remains a great deal of uncertainty for investors around the market reaction to climate risks and changing climate policies. This creates a strong argument for Climate Scenario Analysis to understand the different possible eventualities across a range of scenarios. It is important that investors assess their portfolio’s resilience to different climate scenarios and consider the impact of their portfolios on future climate trajectories.

We remain conscious that scenario analysis (of any kind) requires by necessity the use of assumptions about inherently unpredictable phenomena. Climate Scenario Analysis is no different in this regard. We believe, however, that investors looking to manage climate risk proactively ought to attempt an ‘inference to the best explanation’ and we think the Mercer’s

model and approach to Climate Scenario Analysis is the best available.

Mercer’s climate scenarios are constructed to explore three climate scenarios (Rapid Transition, Orderly Transition and Failed Transition) and explore a range of plausible futures over 5 to 40 years, rather than exploring tail risks. Mercer’s analysis considers two risk factors: transition risk and physical risk.

RISK FACTORS



CLIMATE SCENARIO ANALYSIS: PROS AND CONS

Future developments are inherently uncertain and impossible to predict. To manage uncertainty, scenario analysis is used to assist asset allocation decisions.

SCENARIO ANALYSIS CHALLENGES:

- Scenario uncertainty: Any climate scenario only reflects one possible way to achieve a certain temperature goal, while in reality many different scenarios are possible for the same temperature outcome.
- Model uncertainty: Different models lead to different results, due to different model structure and assumptions.
- Uncertainty around assumptions: For example, ambitious scenarios depend on future (negative emissions) technologies such as carbon capture and storage.

- Gaps: On the other hand, certain necessary changes to achieve zero emissions are currently not included in most models, such as changes in lifestyle (e.g. plant-based diets) or economic systems (e.g. circular economy). Furthermore, certain high-risk impacts cannot be covered in most models, such as impacts of sea level rise, migration, health and tipping points in the climate system.

SCENARIO ANALYSIS BENEFITS:

- Proactively assesses impact of changing future climate events.
- Ability to understand a wide range of climate outcomes.
- Forecast the potential impacts into actionable insights.

MERCER'S CLIMATE SCENARIOS

Mercer's three climate scenarios are developed by building the investment modelling on top of the economic impacts of different climate change scenarios within the Cambridge Econometric's E3ME climate model. Each climate scenario covers a specific level of warming driven by levels of carbon dioxide (CO₂) and other greenhouse gases. These levels are determined by the policies enacted and technological developments. The impacts of the warming are shown in the physical damages. The three scenarios used in the modelling are outlined below.

1.5°C RAPID TRANSITION

AVERAGE TEMPERATURE INCREASE OF 1.5°C BY 2100 IN LINE WITH THE PARIS AGREEMENT

This scenario assumes sudden large-scale downward re-pricing across multiple securities in 2025. This could be driven by a change in policy or realisation that policy change is inevitable, consideration of stranded assets or expected cost. To a degree the shock is sentiment driven and therefore followed by a partial recovery across markets. The physical damages are most limited under this scenario.

1.6°C ORDERLY TRANSITION

AVERAGE TEMPERATURE INCREASE OF 1.6°C BY 2100

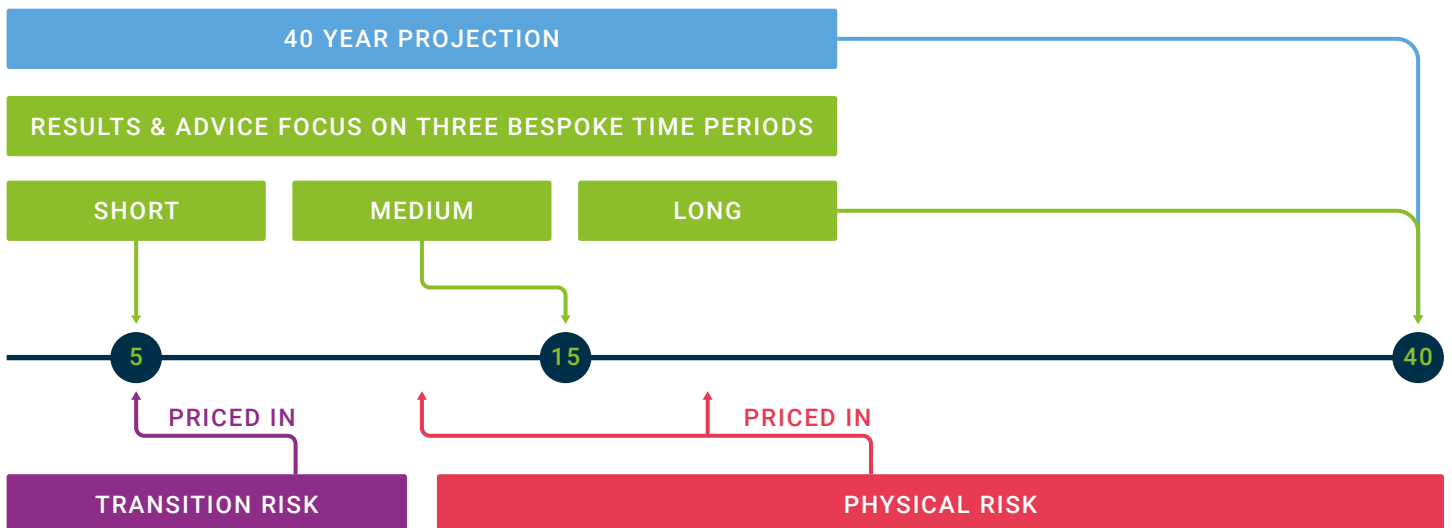
This scenario assumes political and social organisations act in a co-ordinated way to implement the recommendations of the Paris Agreement to limit global warming to well below 2°C. Transition impacts do occur but are relatively muted across the broad market.

4°C FAILED TRANSITION

AVERAGE TEMPERATURE INCREASE ABOVE 4°C BY 2100

This scenario assumes the world fails to co-ordinate a transition to a low carbon economy and global warming exceeds 4°C above pre-industrial levels by 2100. Physical climate impacts cause large reductions in economic productivity and increasingly negative impacts from extreme weather events. These are reflected in re-pricing events in the late 2020s and late 2030s.

In the analysis, Mercer focused on short-, medium- and long-term time frames of 5, 15 and 40 years. In shorter time frames, transition risk tends to dominate while over longer time frames physical risk is expected to be the key driver of climate impacts. Transition risks are priced in around 2026 and future physical damages are priced in around the end of 2020s and 2030s. These pricing in shocks reflect likely market dynamics and mean climate impacts are more likely to fit within investment timeframes.



INTERPRETATION OF THE MAIN RESULTS

The main results produced by Mercer’s model is an estimated impact on investment returns, given some particular pair of (a) climate scenario and (b) time horizon, expressed either as annualised (%) or cumulative (£) returns. This should be interpreted as the climate-related impact on the estimated returns for a portfolio or asset class, i.e., it is additional to the expected mean return for that portfolio or asset class. The expected mean return of the portfolio is expressed by a climate aware baseline. It incorporates climate impacts that has been ‘priced-in’ by the economy and markets associated with the global warming that has occurred to date (approximately 1.2°C relative to pre-industrial levels). It does not include future additional climate impacts associated with further warming or the paradigm shifts in economies that could plausibly result from the transition or physical impacts. There is compelling academic evidence to suggest that climate impacts are currently priced-in to some extent. This means the impacts of the Orderly and Rapid Transition scenarios tend to be smaller as some of the impact is already priced in. The transition impact of a Failed Transition can be positive for sectors that the market is expecting to be negatively impacted by a transition in the short-to medium-term.

This analysis focuses on the potential impacts on the funds’ performance of different global warming scenarios given the funds asset allocation. Under this analysis, the asset allocation of WPF does not determine which scenario is realised or most probably. WPF has developed a climate strategy, which includes supporting the ambitions of the Paris Agreement and aims to achieve a portfolio of assets with net zero carbon emissions by 2050. The transition process and outcome achieved will be determined by a multitude of factors including the policy response and global coordination (or failure to coordinate) of political and social organisations.

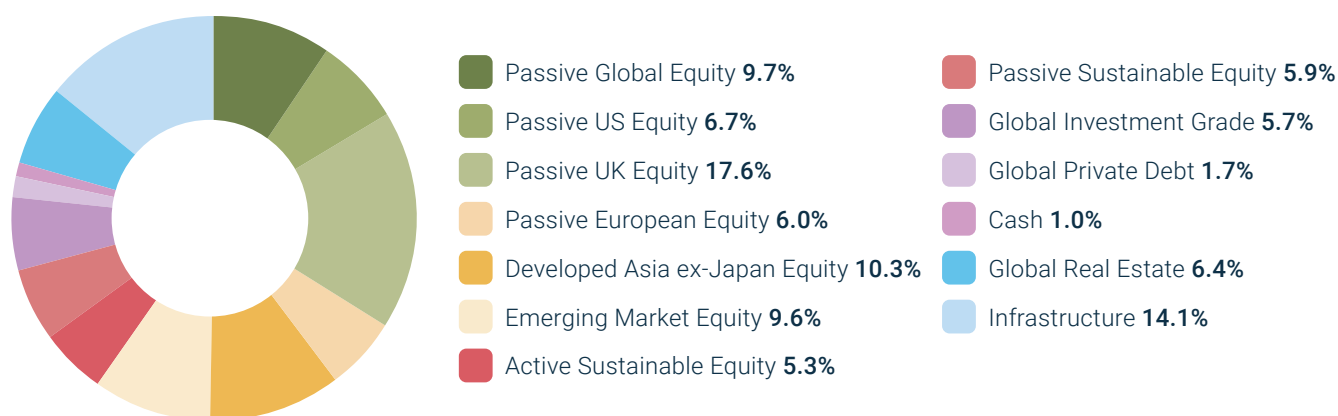
CLIMATE SCENARIO ANALYSIS SCOPE

The analysis includes the whole of WPF’s investment portfolio. The analysis is top-down, mapping each of WPF’s underlying portfolios to an asset class that is featured within Mercer’s model. The projections utilise asset allocations as of 30th June 2022, assume £3,312m initial asset value and contributions income matches benefit outgo. Two variations of WPF’s investment portfolio are analysed by Mercer:

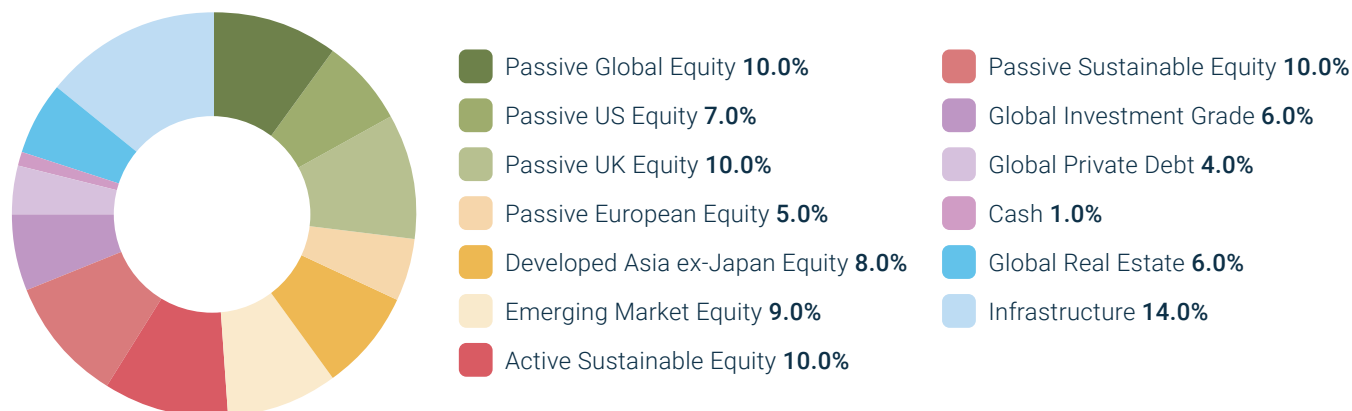
1. The Current Asset Allocation (invested as of 30th June 2022)
2. The Reduced Carbon Asset Allocation

TABLE 4.2.1.1 ASSET ALLOCATION VARIANTS ANALYSED

CURRENT ASSET ALLOCATION (CURRENT AA)



REDUCED CARBON ASSET ALLOCATION (RCAA)



CURRENT AA	%	MODELLING ASSET CLASS	CURRENT AA (%)	REDUCED CARBON ASSET ALLOCATION (%)
DEVELOPED EQUITY	50.3%	Passive Global Equity	9.7%	10.0%
		Passive US Equity	6.7%	7.0%
		Passive UK Equity	17.6%	10.0%
		Passive European Equity	6.0%	5.0%
		Developed Asia ex-Japan	10.3%	8.0%
EMERGING MARKET EQUITY	9.6%	Emerging Market Equity	9.6%	9.0%
SUSTAINABLE EQUITY	11.2%	Sustainable Equity*	11.2%	20.0%
GLOBAL INVESTMENT GRADE	5.7%	Global Investment Grade	5.7%	6.0%
GLOBAL SENIOR PRIVATE DEBT	1.7%	Global Senior Private Debt	1.7%	4.0%
REAL ESTATE	6.4%	Global Real Estate	6.4%	6.0%
INFRASTRUCTURE	14.1%	Infrastructure	14.1%	14.0%
CASH	1.0%	Cash	1.0%	1.0%
TOTAL	100.0%		100.0%	100.0%

CLIMATE SCENARIO ANALYSIS FINDINGS

KEY CONCLUSION ONE: A SUCCESSFUL TRANSITION IS AN IMPERATIVE

Over the long term a successful transition is imperative for WPF as both asset allocations are forecasted to fare better under Rapid and Orderly transition scenarios versus the Failed transition. This is similar for nearly all investors, as over the long term a successful transition leads to enhanced projected returns when compared to scenarios associated with higher temperature outcomes due to lower physical damages.

Under a Failed transition scenario, climate impact on returns is felt in the long-term from the manifestation of physical risks. Both asset allocations suffer under this scenario relative to the expected return under the baseline scenario. Under the Orderly and Rapid transition scenarios, long-term physical impact from climate change is less prevalent due to the mitigation responses in the short-term such as policy changes and technological breakthroughs. In a Rapid transition, the hastiness and uncoordinated responses lead to short-term transition impact as asset prices decline as a consequence of these moves.

According to Mercer’s model, an Orderly transition leads to superior economic outcomes relative to other climate change scenarios. The model suggests that an Orderly scenario would in the long-term see both the Current Asset Allocation and the Strategic Asset Allocation experience returns that are most aligned with the baseline. The Rapid transition scenario produces marginally lower returns compared to the Orderly scenario stemming from the short-term transition impact. The asset allocations perform the worst under the Failed scenario. Cumulative losses under the Failed transition scenario over 40 years could amount to c.37% of portfolio’s value relative to the baseline.

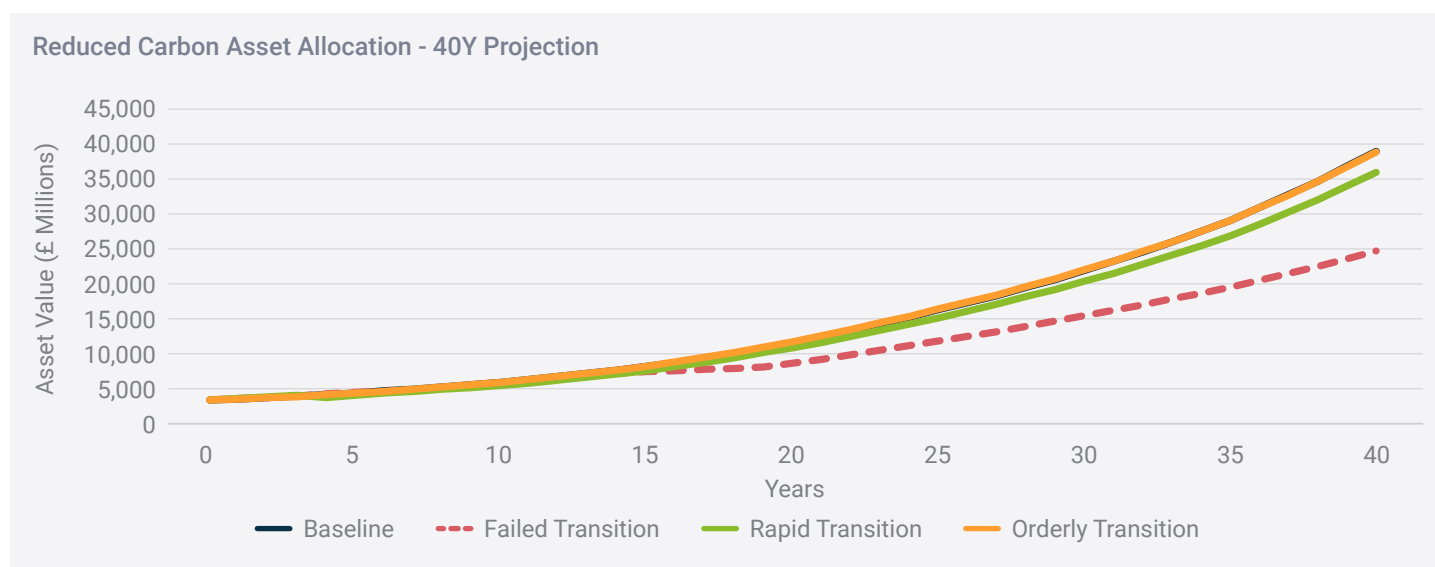
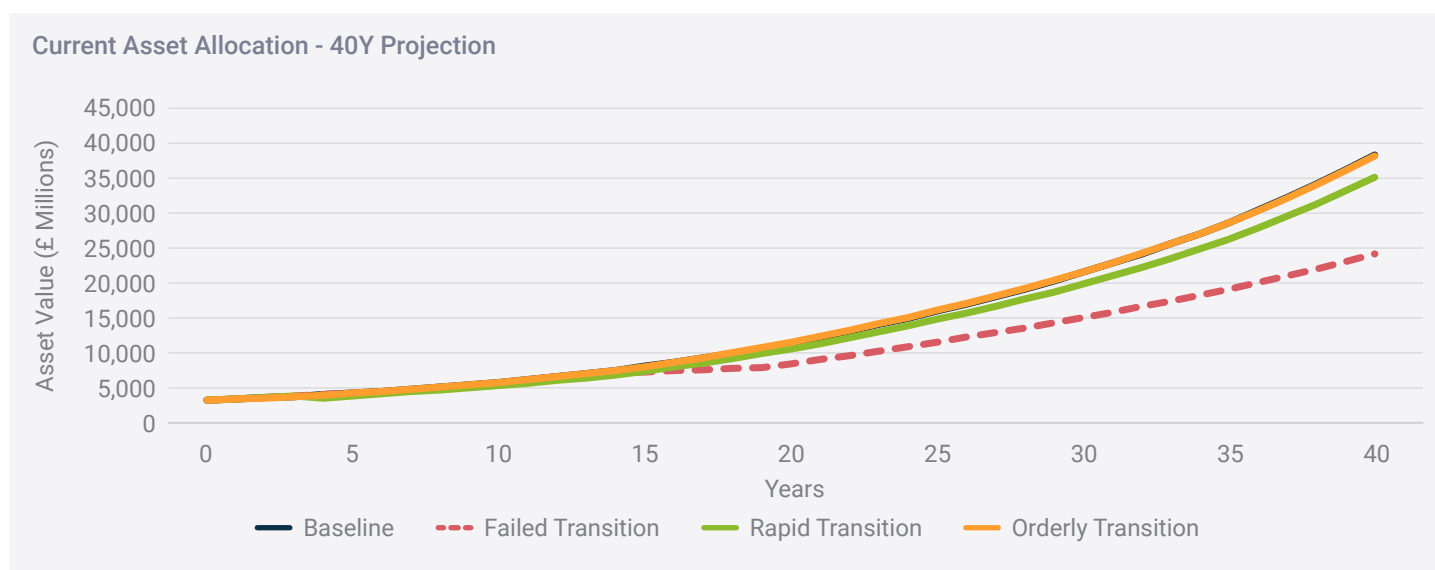
The reduced carbon asset allocation’s performance is marginally less impacted in all three climate scenarios compared to the current asset allocation. Although there are similar allocations to developed equities between the current asset allocation and reduced carbon asset allocation the allocation to sustainable equities almost doubles (from 5.9% to 10.0%), which translates into a slight improvement in both the orderly and rapid transitions. The performance of the reduced carbon asset allocation is also assisted by a greater allocation to private debt.

TABLE 4.2.1.2 ANNUALISED CLIMATE CHANGE IMPACT ON PORTFOLIO RETURNS – TO 5, 15 AND 40 YEARS

		CURRENT ASSET ALLOCATION	REDUCED CARBON ASSET ALLOCATION
RAPID	5 years	-2.03%	-1.92%
	15 years	-0.60%	-0.56%
	40 years	-0.23%	-0.21%
ORDERLY	5 years	-0.15%	-0.15%
	15 years	-0.02%	-0.01%
	40 years	-0.01%	-0.01%
FAILED	5 years	0.18%	0.16%
	15 years	-0.71%	-0.72%
	40 years	-1.21%	-1.21%

■ ≤ - 10 bps
 ■ > -10 bps, < 10bps
 ■ ≥ 10 bps

FIGURE 4.2.1.1 CUMULATIVE RETURN PROJECTIONS BY CLIMATE CHANGE SCENARIO



RECOMMENDATIONS:

We recommend the Fund to continue to collaborate with its various partners including LGPS Central and other external managers to address key physical and transition risks in the portfolio. Key findings from this section can help inform priority areas from an asset class perspective.

KEY CONCLUSION TWO: 2. SUSTAINABLE ALLOCATIONS PROTECT AGAINST TRANSITION RISK, GROWTH ASSETS ARE HIGHLY VULNERABLE TO PHYSICAL RISK

Asset class returns vary significantly by scenario depending on their respective exposure to transition and physical risks. Allocations to sustainable asset classes provide some transition risk protection in the event of a Rapid Transition. On the other end of the scale, growth assets are generally more vulnerable to physical risk.

TABLE 4.2.1.3 CUMULATIVE RETURN IMPACTS FOR CURRENT ASSET ALLOCATION, BY ASSET CLASS ACROSS THREE CLIMATE CHANGE SCENARIO

CURRENT SAA	MODELLING ASSET CLASS	ALLOCATION	5 YEARS			40 YEARS		
			FAILED TRANSITION	RAPID TRANSITION	ORDERLY TRANSITION	FAILED TRANSITION	RAPID TRANSITION	ORDERLY TRANSITION
Developed Equity	MSCI World Equity	9.70%	2%	-13%	-1%	-42%	-12%	-1%
	US Equity	6.70%	2%	-13%	-2%	-43%	-13%	-3%
	UK Equity	17.60%	1%	-10%	-1%	-36%	-8%	0%
	Europe Equity	6.00%	1%	-13%	0%	-39%	-12%	1%
	Developed Asia Ex. Japan Equity	10.30%	1%	-14%	-1%	-47%	-13%	-1%
Emerging Market Equity	Emerging Markets Equity	9.60%	1%	-12%	0%	-49%	-11%	0%
Sustainable Equity	Passive Sustainable Equity	5.90%	1%	-9%	-2%	-44%	-7%	0%
	Active Sustainable Equity	5.30%	-2%	-2%	0%	-45%	-3%	2%
Global Investment Grade	Credit - Global Investment Grade	5.70%	0%	-1%	0%	-5%	-1%	1%
Real Estate	Global Real Estate	6.40%	0%	-5%	0%	-36%	-3%	1%
Infrastructure	Infrastructure	14.10%	1%	-9%	0%	-37%	-9%	-1%
Global Senior Private Debt	Global Senior Private Debt	1.70%	0%	-1%	0%	-8%	-2%	0%
Cash	Cash	1.00%	0%	0%	0%	-7%	1%	1%

RECOMMENDATIONS:

WPF allocates a significant portion of its investments into growth assets which carry higher long-term physical risks from climate change, and the impacts are depicted in Table 4.2.1.3. The Funds exposure to sustainable equities provides protection against transition risks in the event of a rapid transition. We recommend WPF to keep the commitment to these allocations under review and continue to consider exploring allocations to low carbon strategies and other asset classes, such as sustainable private equity and sustainable infrastructure which will provide further protection against transition risks.

KEY CONCLUSION THREE: MONITOR SECTOR AND REGIONAL EXPOSURES

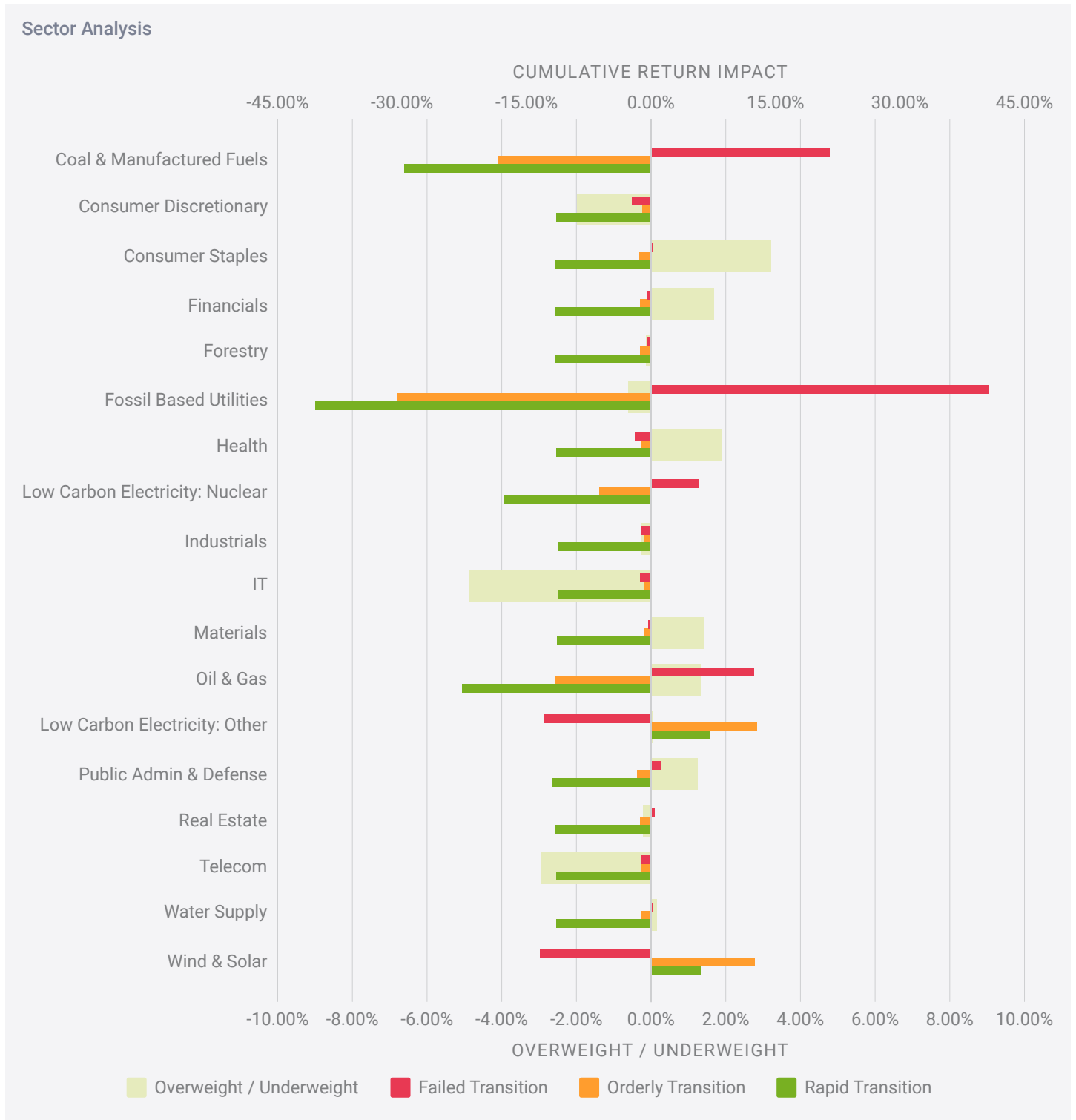
Differences in return impact are most visible at an industry sector level, with significant divergence between scenarios. Oil and Gas, Fossil Fuel Based Utilities and Renewables are most impacted by the transition.

WPF's equity portfolios are overweight to oil and gas while being slightly underweight to fossil based utilities, which are both sectors that are significantly exposed to transition risk. These sectors are therefore negatively impacted during the rapid and orderly transition scenarios. Conversely, these sectors perform well in a failed transition.

Figure 4.2.1.2 shows the relative under/overweight positions of WPF's overall equity portfolio versus MSCI ACWI (light grey bar), as well as cumulative return impact experienced by different sectors within an equity portfolio over a 5 year-period, when transition risks dominate.

In the Rapid and Orderly transition scenarios, Renewable Energy (Wind & Solar) and Low Carbon Electricity (ex. Nuclear) are the only two sectors to generate positive returns.

FIGURE 4.2.1.2 SECTORAL CUMULATIVE RETURN IMPACT AND WPF CURRENT EQUITIES SECTOR ALLOCATION



In terms of regional impact, China, Emerging Markets and Developed Asia ex-Japan are most exposed to climate risks. Figure 4.2.1.3 shows the relative under/overweight positions of WPF’s overall equity portfolio versus MSCI ACWI (light grey bar), as well as cumulative return impact experienced by different region within an equity portfolio over a 40 year-period, when physical risks dominate.

WPF is most notably overweight to UK equities, which are less impacted in a failed transition than most other regions. WPF is also significantly underweight to US equities, which are broadly impacted in line with most other developed regions under the different scenarios. There is also a slight underweight exposure to emerging markets (Excluding China) equities but overweight to developed Asia excluding Japan, these regions experience significant negative outcomes under a failed transition.

FIGURE 4.2.1.3 REGIONAL CUMULATIVE RETURN IMPACT AND WPF CURRENT EQUITIES SECTOR ALLOCATION



RECOMMENDATIONS:

We recommend WPF work with its appointed fund managers to understand how they are assessing, monitoring, and mitigating key transition and physical risks within the high-impact sectors, particularly in Oil & Gas where the Fund has an overweight position relative to the global index. The Fund should keep regional exposures under review, especially considering exposure to emerging market equities.

KEY CONCLUSION FOUR: BE AWARE OF FUTURE PRICING SHOCKS

As markets react to new information because of changing physical and policy / transition risks, investors will be vulnerable to rapid repricing shocks. Exploring the potential impact that repricing events can have on investment strategy and positioning portfolios ahead of time is critical.

Investors look to predict future events and price these events before they occur. This means that longer-term impacts, including transition and physical risks could impact portfolios earlier than the time these events occur.

Mercer's Rapid Transition includes a shock around 2025 pricing in (and overreacting to a degree) to transition costs. The Failed Transition includes shocks towards the end of the 2020s and 2030s pricing in future damage. While the exact timing of such shocks is unknowable, considering such shocks is an important aspect of Mercer's risk analysis.

As discussed in key conclusion two, WPF's current allocations to sustainable asset classes provide some transition risk protection in the event of a rapid repricing event. WPF's allocations to Listed Equity, Property and Infrastructure are materially exposed to physical risks under a Failed Transition over the longer term.

RECOMMENDATIONS:

Using the analysis from this Climate Scenario Analysis and the overall Climate Risk Report, WPF is on track to get a better understanding of the portfolio's capacity to transition into a low carbon economy. We recommend using these analyses to evolve WPF's sustainable investment targets to include more ambitious climate objectives.

4.3 Risk Management

4.3.1 CLIMATE STEWARDSHIP PLAN SCOPE

Based on the findings of its previous Climate Risk Reports, the Fund has developed a Climate Stewardship Plan (CSP). The CSP identifies the areas in which stewardship techniques can be leveraged to further understand and manage climate-related risks within the Fund.

Currently the CSP identifies a focus list of eight companies for prioritised engagement. These companies are chosen based of several factors including contribution to the Fund's carbon intensity, financed emissions, weight of holdings and regional spread. To ensure relevance to the Fund's investments, the list

is updated annually to reflect its current holdings. Reflecting the externally managed nature of WPF, the Fund's portfolio managers and suppliers are engaging with these companies on behalf of the Fund.

We have reviewed ongoing engagements with these companies and provide below a progress update on the outcomes of the engagement. The Climate Action 100+ Net Zero Benchmark and Transition Pathway Initiative are used as key tools to monitor progress within the Fund's CSP.

TRANSITION PATHWAY INITIATIVE

The Transition Pathway Initiative (TPI) framework evaluates companies based on their climate risk management quality and their carbon performance. The former includes an assessment of policies, strategy, risk management and targets. There are six management quality levels a company can be assigned to:

- **Level 0** – Unaware of (or not Acknowledging) Climate Change as a Business Issue
- **Level 1** – Acknowledging Climate Change as a Business Issue
- **Level 2** – Building Capacity
- **Level 3** – Integrated into Operational Decision-making
- **Level 4** – Strategic Assessment
- **Level 4*** – Satisfies all management quality criteria

Companies expected future emissions intensity pathways – labelled carbon performance – is assessed against international targets and national pledges made as part of the 2015 Paris Agreement. Alignment is tested on different timeframes, including 2030 and 2050. There are eight carbon performance trajectories:

- No or unsuitable disclosure
- Not aligned
- International pledges
- National pledges
- Paris pledges
- 2 Degrees
- Below 2 Degrees
- 1.5 Degrees

CLIMATE ACTION 100+ NET ZERO BENCHMARK

The CA100+ Net Zero benchmark is designed to assess the performance of the world's 166 largest corporate greenhouse gas emitters against ten key indicators. These indicators are all measures of success for business alignment with a net zero emissions future and with the goals of the Paris Agreement. The ten indicators are:

- 1 Net Zero GHG Emissions by 2050 (or sooner) ambition
- 2 Long-term (2036-2050) GHG reduction target(s)
- 3 Medium-term (2026-2035) GHG reduction target(s)
- 4 Short-term (up to 2025) GHG reduction target(s)
- 5 Decarbonisation Strategy (Target Delivery)
- 6 Capital Alignment
- 7 Climate Policy Engagement
- 8 Climate Governance
- 9 Just Transition
- 10 TCFD Disclosure

The first assessments for each CA100+ company against the ten indicators were published on 22nd March 2021 and refreshed on 30th March 2022. These assessments offer comparative assessments of individual focus company performance against the goals of the initiative. The Benchmark will be reviewed in 2022 with an aim to provide sector-specific transition pathway parameters that companies respectively are compared to.

4.3.2 PROGRESS UPDATE

TABLE 4.3.2.1 COMPANIES INCLUDED IN THE CLIMATE STEWARDSHIP PLAN

COMPANY	SECTOR	NET ZERO TARGET	% OF CA100+ INDICATORS MET	TPI MANAGEMENT QUALITY	TPI CARBON PERFORMANCE		
					TO 2025	TO 2035	TO 2050
BHP Group	Materials	Yes	60%	4	1.5 Degrees	1.5 Degrees	1.5 Degrees
BP	Energy	Yes	30%	4*	Not Aligned	National Pledges	1.5 Degrees
Cemex	Cement		40%	4	Below 2 Degrees	Below 2 Degrees	1.5 Degrees
CRH	Materials	Yes	30%	4	Below 2 Degrees	1.5 Degrees	1.5 Degrees
Glencore	Materials	Yes	40%	4	1.5 Degrees	Below 2 Degrees	National Pledges
Rio Tinto	Mining	Yes	20%	4	Paris Pledges	Paris Pledges	Below 2 Degrees
Royal Dutch Shell	Energy	Yes	50%	4	Not Aligned	Below 2 Degrees	1.5 Degrees
Taiwan Semiconductor Manufacturing Co	Info Tech	N/A	N/A	N/A	N/A	N/A	N/A
Reliance Industries	Energy	Yes	0%	1	No or unsuitable disclosure	No or unsuitable disclosure	No or unsuitable disclosure

Keep on the CSP Add to the CSP

4.4 Metrics and Targets

4.4.1 SCOPE AND DEFINITIONS OF TERMS

The following Carbon Risk Metrics section is a bottom-up analysis conducted at the company and portfolio level. The purposes of this analysis are:

- To observe climate transition risks and opportunities in the portfolio
- To identify company engagement opportunities
- To support manager monitoring of climate risk management

The scope of the analysis comprises the equities and fixed income portfolios as of 30th June 2022. The results are compared to baseline data taken as of 29th May 2020. The analysis seeks to identify and assess how the portfolio carbon risk metrics have changed within this timeframe.

The analysis is limited to equities and corporate bonds as unlisted asset classes do not have sufficiently complete and comparable data to facilitate carbon risk metrics analysis at this time. Data coverage for fixed income securities are also inconsistent which limits the accuracy and usefulness of the results.

TABLE 4.4.1.1: SCOPE OF CARBON RISK METRICS ANALYSIS AS OF 30TH JUNE 2022

	EQUITIES
NUMBER OF STRATEGIES ANALYSED	13
INDIVIDUAL COMPANIES INCLUDED	3,203

The analysis is based on a dataset provided by MSCI ESG Research LLC (MSCI)⁴. Table 4.4.1.2 provides an overview of the types of carbon risk metrics utilised. We are aware that the raw numbers are not a complete guide to climate risk and have published elsewhere our views on the limitations of carbon footprinting⁵. We believe, however, that this kind of bottom-up quantitative analysis can assist an asset owner in identifying the parts of the portfolio to prioritise, and in framing relevant questions to put to investee companies and external fund managers.

⁴ Certain information @ 2022 MSCI ESG Research LLC. Reproduced by permission. Attention is drawn to Section 8.0 Important Information.

⁵ <https://www.responsible-investor.com/articles/carbon-footprint-piece> In collaboration with other asset owners.

TABLE 4.4.1.2: CARBON RISK METRICS USED

CARBON RISK METRIC	DEFINITION	USE CASE	LIMITATIONS
PORTFOLIO CARBON INTENSITY (WEIGHTED AVERAGE CARBON INTENSITY (WACI))	Is calculated by working out the carbon intensity (Scope 1+2 Emissions / \$M sales) for each portfolio company and calculating the weighted average by portfolio weight.	A proxy for carbon price risk. Were a global carbon price to be introduced in the form of a carbon tax, this would (ceteris paribus) be more financially detrimental to carbon intensive companies than to carbon efficient companies.	This metric includes scope 1 and 2 emissions but not scope 3 emissions. This means that for some companies the assessment of their carbon footprint could be considered an 'understatement'.
EXPOSURE TO FOSSIL FUEL RESERVES	The weight of a portfolio invested in companies that (i) own fossil fuel reserves (ii) thermal coal reserves (iii) utilities deriving more than 30% of their energy mix from coal power.	A higher exposure to fossil fuel reserves is an indicator of higher exposure to stranded asset risk.	It does not consider the amount of revenue a company generates from fossil fuel activities. Consequently, diversified businesses (e.g. those that own a range of underlying companies, one of which owns reserves) would be included when calculating this metric. In reality, these companies may not bear as much stranded asset risk as companies that do generate a high proportion of revenue from fossil fuels.
EXPOSURE TO FOSSIL FUEL RESERVES BY REVENUE	This identifies the maximum percentage of revenue either reported or estimated derived from conventional oil and gas, unconventional oil and gas, as well as thermal coal. These values by companies are summed and weighted by the portfolio weights to produce a weighted exposure.	This has been included to overcome the limitations of the metric of Exposure to Fossil Fuel Reserves, which includes all companies which have any exposure regardless of how small.	This measurement uses maximised estimates where reported values are not available. Therefore, there is a potential to overestimate exposure.
EXPOSURE TO CLEAN TECHNOLOGY	The weight of a portfolio invested in companies whose products and services include clean technology (Alternative Energy, Energy Efficiency, Green Buildings, Pollution Prevention, and Sustainable Water). The final figure comes from the percentage of each company's revenue derived from clean technology.	Provides an assessment of climate-related opportunities so that an organisation can review its preparedness for anticipated shifts in demand.	While MSCI has been used for this report due to its wide range of listed companies and data points, there is no universal standard or definitive list of green revenues. This is due to the inherent difficulty in compiling a complete and exhaustive list of technologies relevant for a lower-carbon economy.
EXPOSURE TO CLEAN TECHNOLOGY BY REVENUE	This identifies the maximum percentage of revenue, either reported or estimated, derived from companies involved in clean technology (see above).	Allows for a comparison of company's exposure to clean technology, adjusted according to a proportion of that company's size.	This measurement uses maximised estimates where reported values are not available. Therefore, there is potential to overestimate exposure.

CARBON RISK METRIC	DEFINITION	USE CASE	LIMITATIONS
CARBON RISK MANAGEMENT VIA THE TPI	The TPI framework evaluates companies based on their climate risk management quality and their carbon performance. The former includes an assessment of policies, strategy, risk management and targets.	Contextualises the companies contributing to a portfolio's carbon footprint or fossil fuel exposure. Can be used to track how companies are managing climate risk and whether their strategies are aligned with the goals of the Paris Agreement.	Does not assess every company, only the world's largest high-emitting companies. The data are also not updated very frequently, which can make some assessments outdated.
FINANCED EMISSIONS	Is calculated by multiplying an attribution factor by a company's emissions. The attribution factor is the ratio between an investor's outstanding amount in a company and the value of the financed company.	Measures the absolute tons of CO ₂ for which an investor is responsible.	Limited usefulness for benchmarking and comparison to other portfolios due to the link to portfolio size.
NET ZERO TARGET COVERAGE	The weight of the portfolio invested in companies that have set a "net zero" emissions target, as defined by the company.	Provides an insight into the alignment of a portfolio with Net Zero based on the commitments of the underlying companies.	Does not provide any insight into how likely the companies are to meet their targets. Does not provide any insight into the quality of the targets set.
ALIGNMENT TO CA100+	How a company performs against a set of 10 indicators published by CA100+. Indicators are divided into sub-indicators and metrics, each of which are scored on a Yes/No basis, upon which a final score is calculated.	Allows for a direct comparison of how different companies are approaching Net Zero, with a specific focus on strategy and governance rather than actual emissions.	Can be considered simplistic due to its reliance on Yes/No questions. Currently a relatively small number of companies are assessed.

4.4.2 TOTAL EQUITIES

Please note this section will examine total passive equity and active equity funds.

Recommendations will not be included for total equities, but instead will be included in the sections which provide a closer examination of the individual portfolios.

TABLE 4.4.2.1 TOTAL EQUITIES DESCRIPTIVE STATISTICS

STRATEGY	BENCHMARK	CLIENT AUM (£, DEC 2020)	STRATEGIES ANALYSED	NO. COMPANIES
Total Equities	Total Equities Blended BM	£2,341,566,797	2/2	3,203

CARBON FOOTPRINT

TABLE 4.4.2.2 TOTAL EQUITIES CARBON FOOTPRINT METRICS

	2020			2022			% DIFFERENCE BETWEEN 2020 AND 2022	
	PF	BM	% DIFF	PF	BM	% DIFF	PF	BM
Portfolio Carbon Footprint (tCO ₂ e/ \$m)	137.41	180.22	-23.75%	118.7	169.8	-30.10%	-13.63%	-5.79%
Weight in fossil fuel reserves (%)	6.58%	7.71%	-1.13%	7.44%	8.89%	-1.45%	0.86%	1.18%
Weight in thermal coal reserves (%)	2.17%	2.95%	-0.78%	1.92%	2.71%	-0.78%	-0.25%	-0.24%
Weight in coal power (%)	1.20%	1.53%	-0.32%	0.72%	1.28%	-0.56%	-0.48%	-0.25%
Weight in clean tech (%)	34.55%	34.67%	-0.13%	34.4%	36.2%	-1.70%	-0.10%	1.48%

Figure 4.4.2.1 Total Equities Carbon Footprint

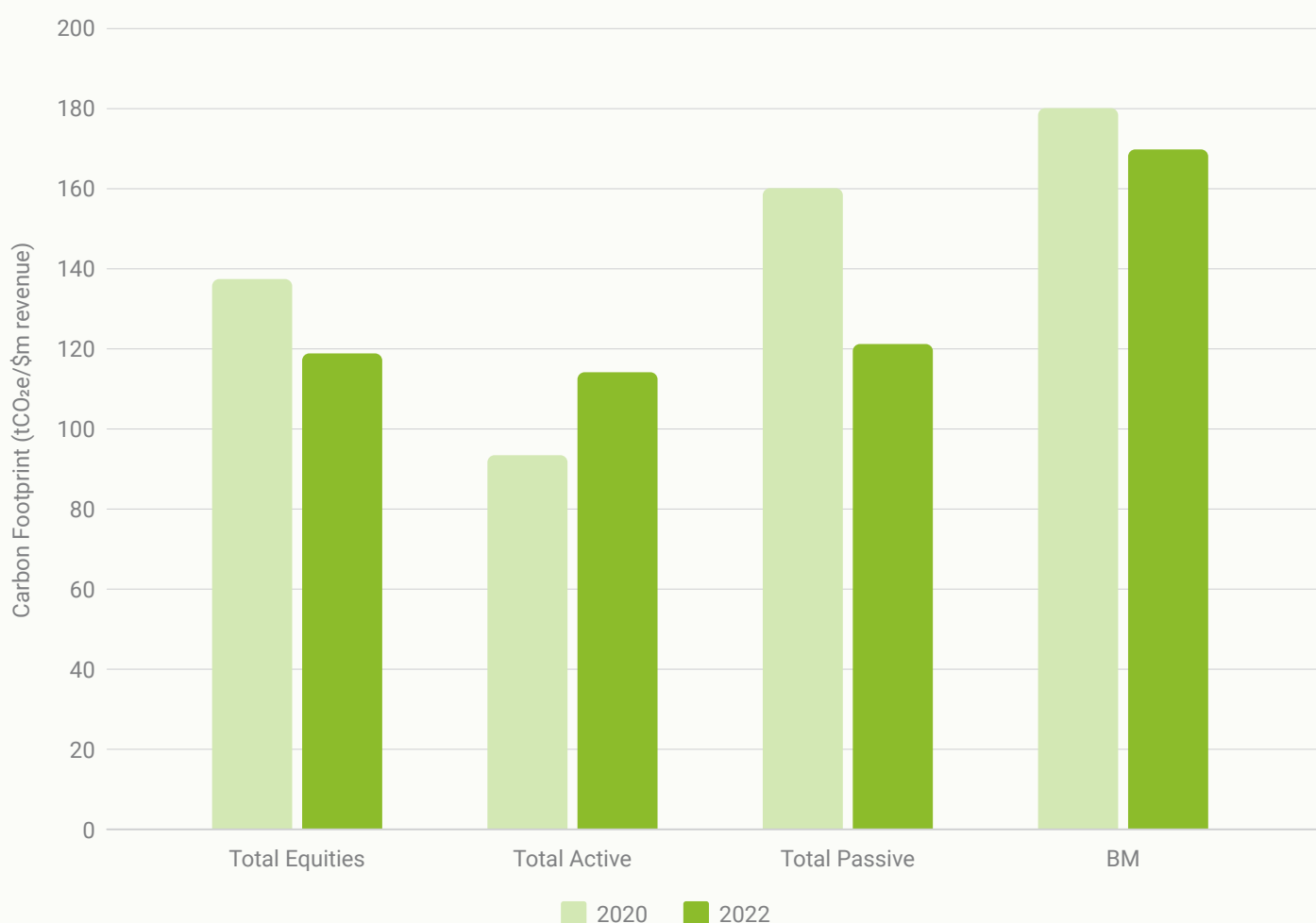


Figure 4.4.2.2 Total Equities Financed Emissions

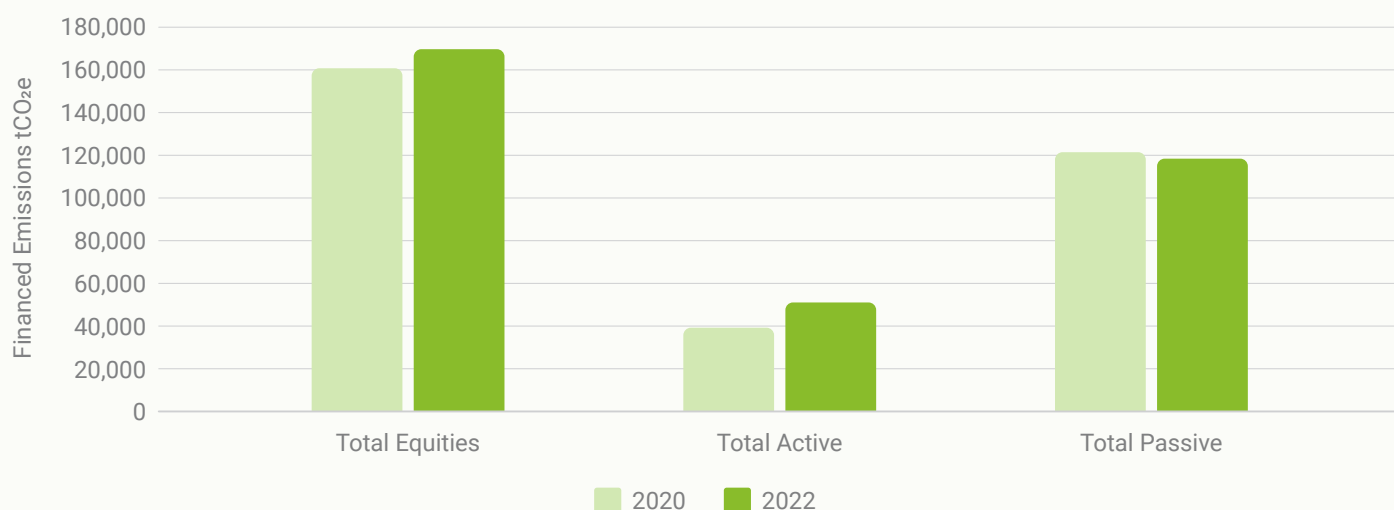


TABLE 4.4.2.3 TOTAL EQUITIES LARGEST CONTRIBUTORS TO PORTFOLIO CARBON FOOTPRINT

COMPANY	PORTFOLIO WEIGHT	CARBON INTENSITY	CONTRIBUTION TO PORTFOLIO CARBON FOOTPRINT
SHELL PLC	1.82%	382.4	6.17%
HUAXIN CEMENT CO LTD	0.05%	9735.1	4.04%
TAIWAN SEMICONDUCTOR MANUFACTURING CO., L	1.97%	197.8	3.45%
RIO TINTO PLC	0.63%	489.8	2.74%
CRH PUBLIC LIMITED COMPANY	0.25%	1162.0	2.61%

TABLE 4.4.2.4 TOTAL EQUITIES LARGEST CONTRIBUTORS TO PORTFOLIO FINANCED EMISSIONS

COMPANY	PORTFOLIO WEIGHT	SCOPE 1&2 EMISSIONS	CONTRIBUTION TO PORTFOLIO FINANCED EMISSIONS
SHELL PLC NEW	1.82%	100000000	14.00%
HUAXIN CEMENT CO LTD	0.05%	49165505	5.38%
GLENCORE PLC	0.66%	25724000	4.32%
BP PLC	0.83%	39100000	3.79%
NIPPON YUSEN	0.20%	13730592	3.55%

From 2020 the carbon intensity of the Total Equities portfolio decreased by 13.63%, which is driven by the 24.46% decrease in the carbon intensity of the passive portfolio, which in turn is driven by the portfolios changes which occurred between 2020 and 2022. The decrease in carbon intensity of Total Equities is mitigated by the 17.12% increase in carbon intensity of the active portfolio. The effect of the decrease in carbon intensity is compounded by the greater increase in the AUM of the Passive Equities in comparison to the AUM increase of the Active Equities. The carbon intensity of the total portfolio is 30.10% lower than that of the benchmark.

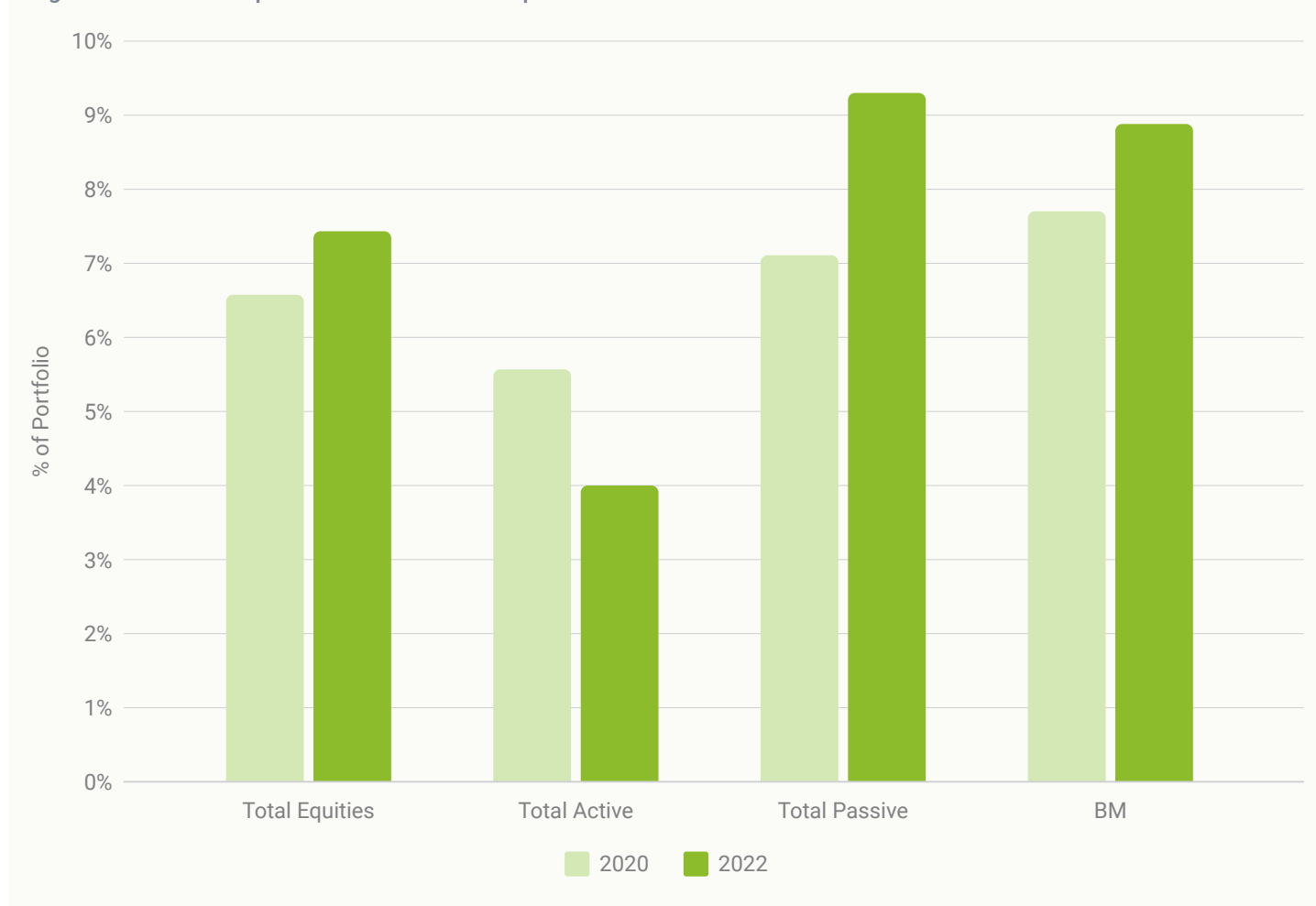
There are similar findings observed in the financed emissions where the financed emissions of the Total Active Portfolio have increased, and the financed emissions of the Total Passive Equities have decreased. However, the Total Equities portfolio experienced an overall increase in finance emissions from 2020 to 2022. This will be driven by the same factors as the portfolio carbon intensity, however changes in financed emissions are felt as absolute rather than being weighted by portfolio weights.

FOSSIL FUELS

TABLE 4.4.2.5 TOTAL EQUITIES FUND FOSSIL FUEL METRICS

	2020	2022	% DIFFERENCE BETWEEN 2020 AND 2022
Weight in fossil fuel reserves	6.58%	7.44%	0.86%
<i>By Revenue</i>		0.89%	
Weight in thermal coal reserves	2.17%	1.92%	-0.25%
<i>By Revenue</i>		0.05%	
Weight in coal power (%)	1.20%	0.72%	-0.48%

Figure 4.4.2.3 Total Equities Fund Fossil Fuel Exposure



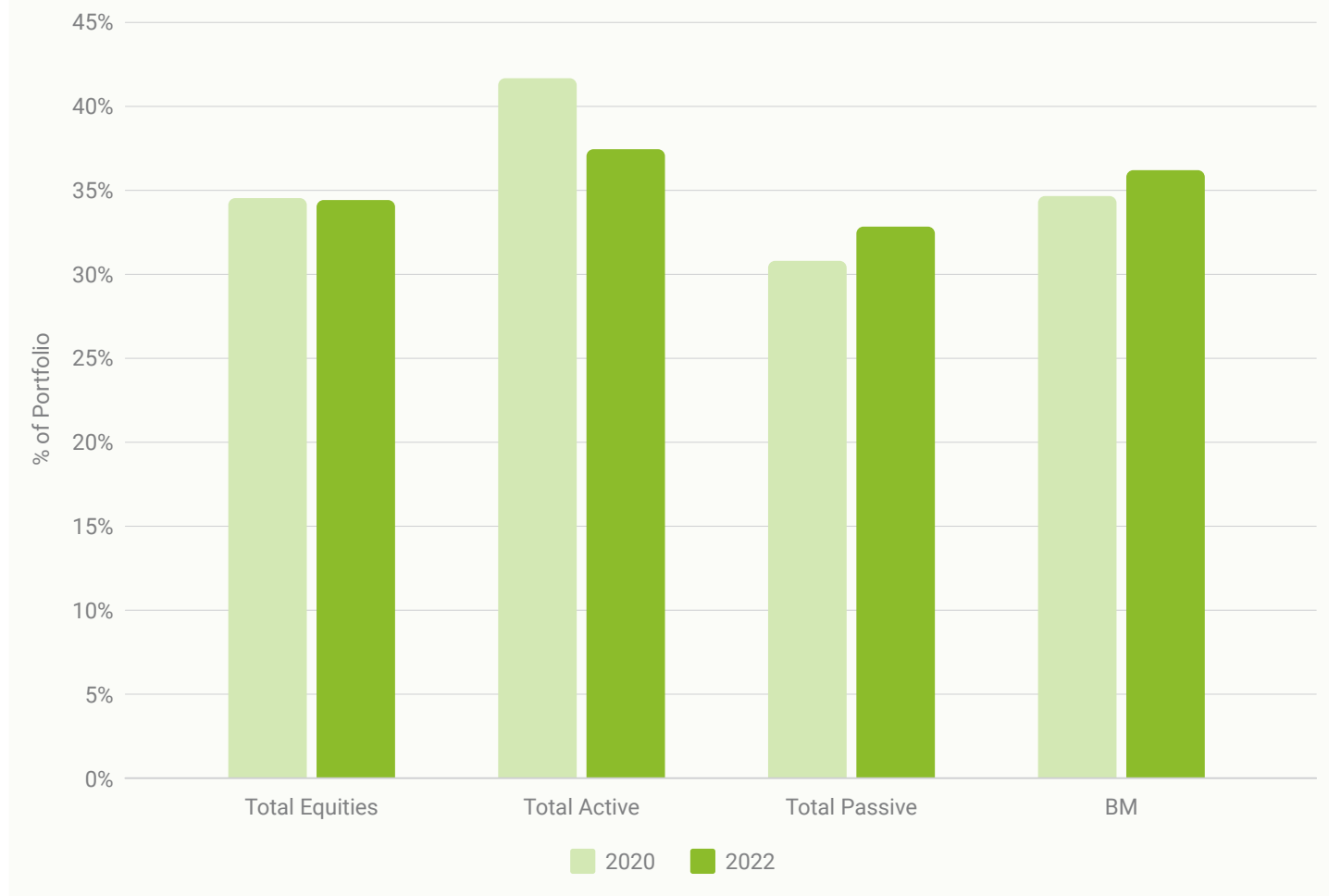
The portfolio's allocation to companies with fossil fuel reserves has increased by 0.86%, while exposure to thermal coal reserves and coal power has decreased by 0.25% and 0.48% respectively between 2020 and 2022. These values are all below their respective benchmarks.

CLEAN TECH

TABLE 4.4.2.6 TOTAL EQUITIES CLEAN TECHNOLOGY EXPOSURE

	2020	2022	% DIFFERENCE BETWEEN 2020 AND 2022
Weight in Clean Technology	34.55%	34.45%	-0.10%
<i>By Revenue</i>		3.93%	

Figure 4.4.2.4 Total Equities Fund Clean Tech Exposure



The exposure of Total Equities to clean technology has marginally decreased by 0.1% between 2020 and 2022. Apportioned by revenue, the portfolio has 3.93% exposure to clean technology solutions, suggesting the majority of companies are not pure-play clean technology companies (i.e, they do not derive a significant proportion of their revenue from clean tech).

CLIMATE GOVERNANCE

TABLE 4.4.2.7: TOTAL EQUITIES % OF COMPANIES WITH A NET ZERO TARGET

% of Total Portfolio	62.50%
% of Companies in Material Sectors	67.58%
% Financed Emissions	80.40%

TABLE 4.4.2.8: TOTAL EQUITIES FUND TPI ASSESSMENT

	RANKING	2022
Management Quality	4*, 4	57.78%
	3, 2	31.33%
	1, 0	10.89%
Paris Alignment	1.5 Degrees	27.71%
	2 Degrees or below	30.21%
	International/ National/ Paris Pledges	15.66%
	Not Aligned	26.43%

As of 31st June 2022, 381 companies in the Total Equities, accounting for 16.70% of holdings are ranked by the Transition Pathway Initiative. Over half (57.78%) of the companies assessed achieved a management quality rating of 4-4*.

The results for Paris Alignment exhibit, only 7.89% of companies were assessed suggesting the majority of companies are yet to release targets aligned to the goals of the Paris Agreement. From

these companies over half (57.91%) are aligned to 2 degrees or less (including 1.5 degrees), while over a quarter (26.43%) of companies are not aligned or there is no or unsuitable disclosure.

Looking at the net-zero target coverage, 57.78% of Total Equities are committed to achieving Net Zero emissions by 2050. 80.40% of financed emissions are attributed by companies which have net zero targets.

5.0 Conclusion

In WPF's third Climate Risk Report, we continue to argue that climate-related risks can be financially material, and that the management of climate risk is a fiduciary issue. Through physical events, policy or market changes, climate risks are likely to affect almost all asset classes, sectors and regions. Understanding how these impact WPF's portfolio helps the Fund with its strategic asset allocation and forms the basis of its net zero metrics.

In the Fund's first Climate Risk Report we used a combination of top-down and bottom-up analyses to explore the nature and magnitude of the Fund's climate-related risks. The report established a baseline for WPF's climate risk management and supported the Fund in shaping its strategic approach to climate risk. In this third report we focus on providing the Fund with a progress update.

KEY TAKEAWAYS:

The key takeaways from the report are:

- 1 WPF has made significant progress in its responsible investment and climate change practice. Since 2020 WPF has published several key documents/reports such as the Climate-Related Disclosures Report and the Climate Change Risk Strategy, as well as integrating responsible investment into the Investment Strategy.
- 2 The Fund has significantly decreased the carbon intensity and financed emissions of total equities. This has largely been driven by the portfolio changes made in the Total Passive Equities.
- 3 The Climate Stewardship Plan is a useful tool for tracking the progress of engagement with the most material contributors to the Fund's carbon performance. Notable progress in these companies includes 7 out of 8 of these companies have been awarded the highest Management Quality rankings of 4 or 4* by the Transition Pathway Initiative, and the number of CA100+ Categories with "all criteria met" has increased from 12 to 27 from 2021 to 2022. However, this means that across the 8 companies there are still 45 categories which are "partially met" or "not met". This would be a topic for future engagement.

6.0 Glossary

Carbon Risk Management: How well a company is managing ESG risks and opportunities. A higher score is indicative of better management.

Clean Technology/ Weight in Clean Technology: the weight of a portfolio invested in companies whose products and services include clean technology. Products and services eligible for inclusion include Alternative Energy, Energy Efficiency, Green Building, Pollution Prevention, Sustainable Water.

Coal Power Generation/ Portfolio exposure to coal power generation: the weight of a portfolio invested in electricity utilities where more than 30% of the fuel mix derives from coal power.

Coal Reserves/ Portfolio exposure to thermal coal reserves: the weight of a portfolio invested in companies that own thermal coal reserves.

COP: Conference of Parties (United Nations Climate Change Conference).

COP 26: The 26th edition of the annual United Nations Climate Change Conference. Held in Glasgow in November 2021.

Divestment/exclusion/negative screening: the exclusion, usually on moral grounds, of particular types of investments, possibly affecting in a negative way the risk-return profile of a portfolio.

Engagement: dialogue with a company concerning particular aspects of its strategy, governance, policies, practices, and so on. Engagement includes escalation activity where concerns are not addressed within a reasonable time frame.

ESG factors: determinants of an investment's likely risk or return that relate to issues associated with the environment, society or corporate governance.

Ethical investment: an approach to investment where the moral persuasions of an organisation take primacy over investment considerations.

Fossil Fuel Reserves/ Portfolio exposure to fossil fuel reserves: the weight of a portfolio invested in companies that own fossil fuel reserves.

Interaction effect: The combined impact of sector allocation decisions and stock selection decisions.

Non-financial factors: determinants of an investment's likely risk or return that cannot be, or cannot straightforwardly be, given a monetary value for insertion into an organisation's financial statements.

Physical risk/ climate physical risk: the financial risks and opportunities associated with the anticipated increase in frequency and severity of extreme weather events and other phenomena, including storms, flooding, sea level rise and changing seasonal extremities.

Portfolio Carbon Intensity/ Carbon Intensity: A proxy for a portfolio's exposure to potential climate-related risks (especially the cost of carbon), often compared to a performance benchmark. It is

calculated by working out the carbon intensity (Scope 1+2 Emissions / \$M sales) for each portfolio company and calculating the weighted average by portfolio weight.

Responsible Investment factor/RI factor: an aspect of an investment which relates to environmental, social or corporate governance issues.

Responsible Investment/RI: the integration of financially material environmental, social and corporate governance ("ESG") factors into investment processes both before and after the investment decision.

Scope 1 Greenhouse Gas Emissions: Direct emissions from owner or sources controlled by the owner, including: on-campus combustion of fossil fuels; and mobile combustion of fossil fuels by institution-controlled vehicles.

Scope 2 Greenhouse Gas Emissions: Indirect emissions from the generation of purchased energy.

Scope 3 Greenhouse Gas Emissions: Indirect emissions that are not controlled by the institution but occur as a result of that institutions activities. Examples include commuting, waste disposal and embodied emissions from extraction.

Sector Allocation Effect: The impact of over or underweighting portfolio sectors relative to a benchmark. Negative value comes from underweighting sectors with carbon footprints higher than the benchmark or overweighting sectors with carbon footprints lower than the benchmark.

Social investing/social impact investing: investments that seek to achieve a positive social impact in addition to a financial return.

Stewardship: the promotion of the long-term success of companies in such a way that the ultimate providers of capital also prosper, using techniques including engagement and voting.

Stock Selection Effect: The impact of specific security selection within a sector relative to the benchmark. A negative value indicates the fund manager is choosing more carbon-efficient assets than the benchmark.

TCFD: Taskforce on Climate-related Financial Disclosures. A body established by Mark Carney in his remit as Chair of the Financial Stability Board whose recommendations have come to be seen as the best practice framework for climate-related disclosures by companies, asset managers, asset owners, banks and insurance companies.

Transition risk/ climate transition risk: the financial risks and opportunities associated with the anticipated transition to a lower carbon economy. This can include technological progress, shifts in subsidies and taxes, and changes to consumer preferences or market sentiment.

Voting: the act of casting the votes bestowed upon an investor, usually in virtue of the investor's ownership of ordinary shares in publicly listed companies.

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