



LGPS Central Limited

PREPARED BY LGPS CENTRAL

Leicestershire Pension Fund 2022 Climate Risk Report

NOVEMBER 2022

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1.0 Executive Summary

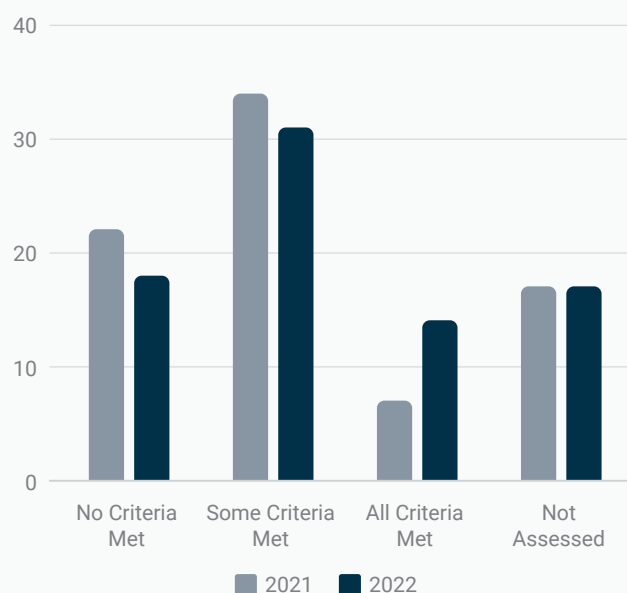
Key Highlights from 2022:

AS OF MARCH 2022
the carbon
intensity of total
equities has
decreased by
▼ 26.45%
from December 2019

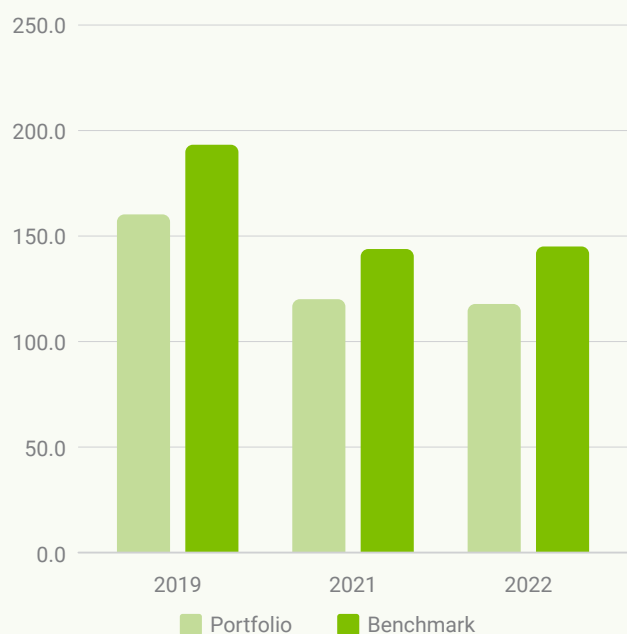
FINANCED EMISSIONS¹
of total
equities have
decreased by
▼ 20.14%
FROM
December 2019
TO
March 2022

AS OF MARCH 2022
the carbon
intensity of total
equities is now
▼ 18.82%
lower than
the benchmark

Climate Action 100+ Net Zero Benchmark Indicators
Met by Climate Stewardship Plan Companies



Total Equities Carbon Intensity



Decreases in the carbon intensity and
financed emissions have been
driven by the switch

FROM
FTSE RAFI All World 3000
Developed Europe Ex UK
Equity Index and North
America Equity Index

TO THE
LGPS Central Climate
Multi Factor Fund

62.5%

OF COMPANIES IN THE
CLIMATE STEWARDSHIP PLAN

achieve a Transition
Pathway Initiative²
Management Quality
rating of 4 or 4*

THESE ARE THE
HIGHEST RATINGS
AWARDED BY TPI

implying that the
company has developed
a strategic and holistic
understanding of the
risks and opportunities
related to the
low-carbon transition

¹ A metric used to measure the absolute tons of CO₂ for which an investor is responsible. Calculated by multiplying the company emissions by the investor's proportion of the company (investor exposure / EVIC).

² The Transition Pathway Initiative (TPI) framework evaluates companies based on their climate risk management quality and their carbon performance.



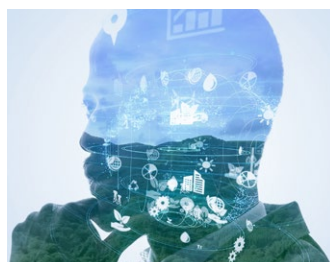
This Report is Leicestershire Pension Fund's (LPF) Third Climate Risk Report. LPF received its first and second climate risk report in October 2020 and September 2021. Through a combination of bottom-up and top-down analysis, the report was designed to allow LPF a view of the climate risk held throughout its entire asset portfolio, accompanied by proposed actions the Fund could take to manage and reduce that risk.

The purpose of this third report is to analyse progress against the baseline of data from previous reports, reassess the Fund's exposure to climate-related risks and opportunities, and identify 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 integrating climate change as a regular item within Pensions Committee meetings, developing a Responsible Investment Plan and publishing its first TCFD Report. From 2020 significant progress has been made in terms of completing and progressing through recommendations provided.



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. Currently, none of these companies have attained all the indicators within the CA100+ benchmark assessment, and only two companies (Cemex and Holcim) are aligned with a 1.5°C scenario by 2050. However, most of the companies are making clear progress in their climate strategies, which is evidenced through several measures of success.



METRICS AND TARGETS

Carbon Risk Metrics demonstrate that both carbon intensity and financed emissions of the Fund have decreased from December 2019 to March 2022 by 26.45% and 20.14% respectively. At both December 2019 and March 2022 the carbon intensity of the total equities remained below that of the benchmark, but over this period the carbon intensity of the portfolio has decreased by a greater magnitude than that of the benchmark. During December 2019 total equities has a carbon intensity which was 17.09% lower than the benchmark, during 2022 this value became 26.45%.

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 report decarbonisation progress on an annual basis, comparing results with previous values. R: Approval of net zero targets and policy. 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: Finalise LPF's Net Zero Climate Strategy. Continue to manage climate risks and opportunities through the annual responsible investment plan and inclusion of ESG throughout the Investment Strategy. R: Integrate communications on climate risk into communications strategy. The Fund has increased its climate-related communications recently by publishing its first TCFD-aligned report. The Fund's approach to communicating climate risk will likely be further developed through development Fund's Net Zero Climate Strategy. R: Make clear the roles of key governance committees in the Investment Strategy Statement (ISS) which was refreshed in February 2021. The document currently includes several references to RI and climate change. The Fund is planning a refresh of the ISS in 2022 with approval in early 2023. 	4.1

2.2 Strategy

CATEGORY	PORTFOLIO	RECOMMENDED ACTION	REPORT REFERENCE
Strategy	Total Fund	<ul style="list-style-type: none"> R: We recommend the Fund continue with actions which are positively correlated with broader Net Zero strategies through its various collaborations with LGPSC and other external managers. This is to ensure that climate transition and physical risks are identified and managed through stewardship and/or asset allocation activities. C: LPF could consider reducing portfolio weighting of growth assets and increasing the portfolio weighting of sustainable equity to mitigate potential transition impact in the short- to medium-term. It is also important to work with managers with existing net zero commitments and potentially find alternative benchmarks for its passive strategy to tilt the portfolios further towards climate alignment. R: LPF could 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 Global indices. Regional exposures should be kept under review. 	4.2

- **R:** Using the analysis from this Climate Scenario Analysis and the overall Climate Risk Report, LPF 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 LPF's sustainable investment targets to include more ambitious climate objectives.

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. 	4.4.3

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 intensity and financed emissions of this portfolio. • R: Continue to monitor key carbon intensive and fossil fuel holdings via the Fund's Climate Stewardship Plan. • C: Consider adding other carbon intensive firms to the Climate Stewardship Plan which are not yet included. • C: Consider adding Linde PLC to the Climate Stewardship Plan, as it is now the second highest contributor to the carbon intensity of the portfolio. 	4.4.6

3.0 Introduction

3.1 Scope of the Report

This report is LPF's third Climate Risk Report. It follows previous iterations delivered in October 2020 and September 2021. The purpose of this report is to:



Our mode of analysis continues to be consistent with the recommendations of the Taskforce on Climate-related Financial Disclosures (TCFD). Each section in chapter 4 corresponds to one of the TCFD pillars.

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.

MAY 2021	OCTOBER 2021	OCTOBER 2021	NOVEMBER 2021	DECEMBER 2021	FEBRUARY 2022	APRIL 2022
<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>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>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>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>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>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>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>

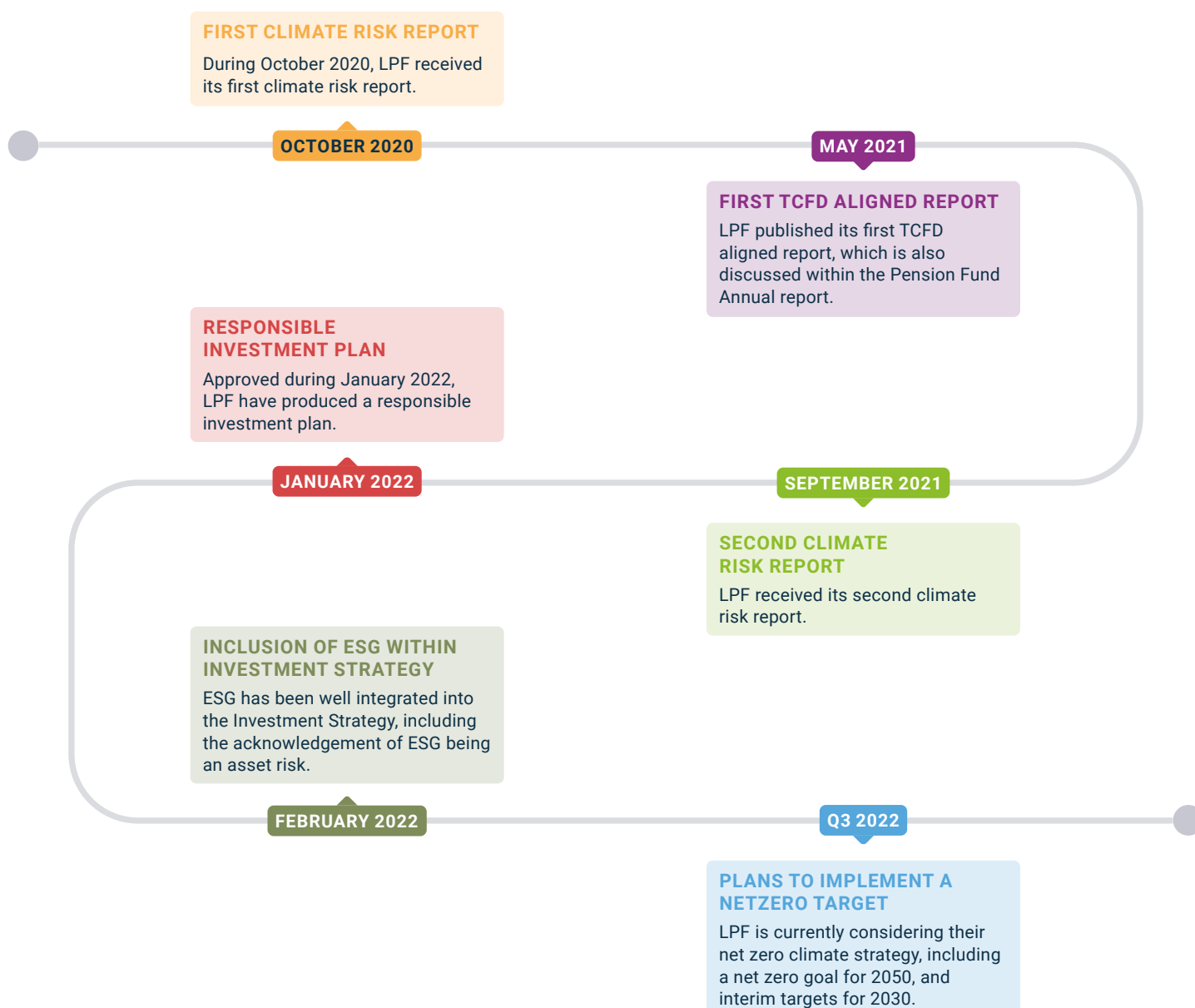
4.0 Analysis

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 LPF'S CLIMATE MANAGEMENT TIMELINE



4.1.3 KEY FINDINGS

The Fund has made considerable progress in terms of its responsible investment and climate change practice. Since 2021, LPF has published its first TCFD aligned report which was then included in the Pension Fund Annual report. LPF has also approved a responsible investment plan and successfully integrated key ESG themes into the 2022 investment strategy. LPF has now begun plans to implement Net Zero targets.

4.1.4 FURTHER ACTIONS

RECOMMENDATIONS AND CONSIDERATIONS

The following recommendations were successfully achieved in 2021 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.

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

- Finalise LPF's Net Zero Climate Strategy. Continue to manage climate risks and opportunities through the annual responsible investment plan and inclusion of ESG throughout the Investment Strategy.
- Integrate communications on climate risk into communications strategy. The Fund has increased its climate-related communications recently by publishing its first TCFD-aligned report. The Fund's approach to communicating climate risk will likely be further developed through development Fund's Net Zero Climate Strategy.
- Make clear the roles of key governance committees in the Investment Strategy Statement (ISS) which was refreshed in February 2021. The document currently includes several references to RI and climate change. The Fund is planning a refresh of the ISS in 2022 with approval in early 2023.

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 these reports the scenarios are defined according to the change since pre-industrial times in mean global surface temperatures, and 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. The partnership brings together Mercer's investment and climate expertise with Ortec's research and scenario generator.

This report will summarise the key changes in the model and discuss the results of this 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 (see above) 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.

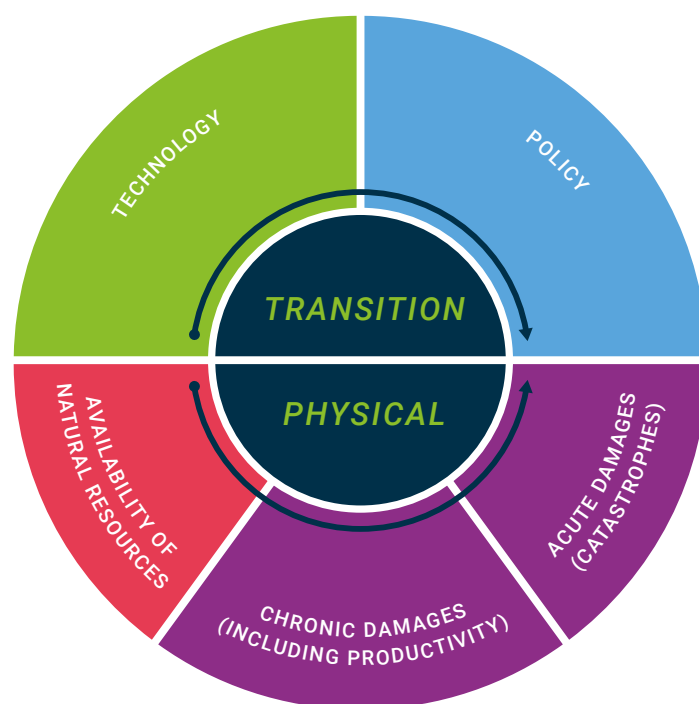
As we argue above, although the predictions made by climate scientists have gained overwhelming consensus, there remains a great deal of uncertainty for investors around the market reaction to climate risks and changing climate policies. This creates a strong argument for Climate Scenario Analysis to

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) are constructed to 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

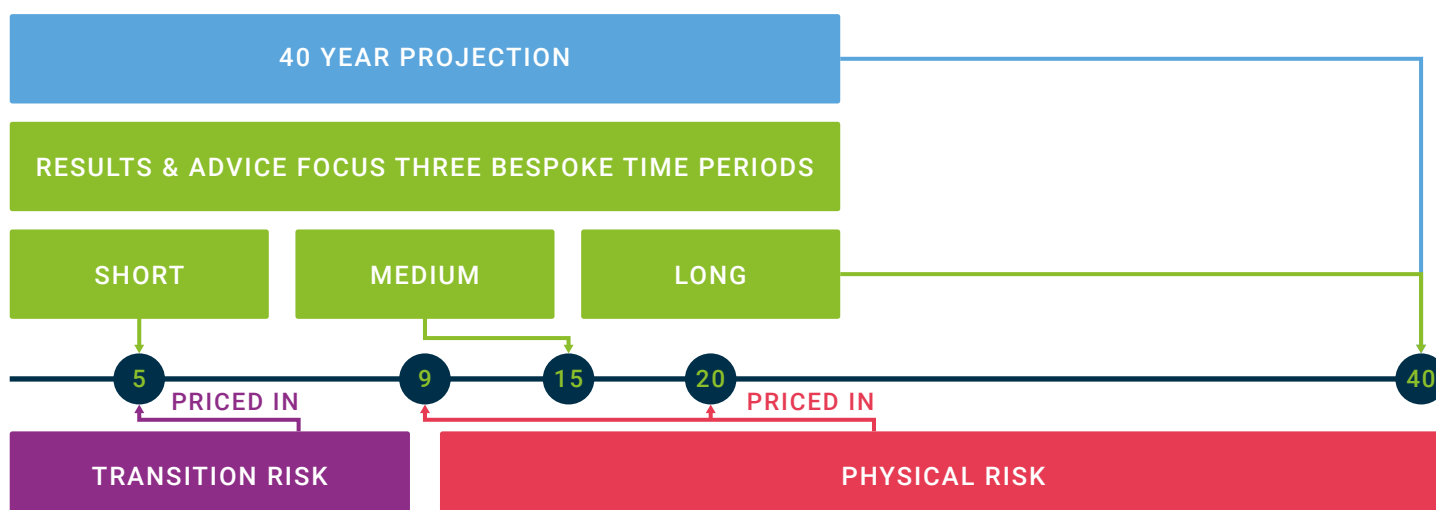


MERCER'S CLIMATE SCENARIOS

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 analyses the policies enacted and the technologies developed to manage climate risks. An implied temperature score is calculated to indicate the level of warming which occurred as a result of these climate actions and is driven by levels of carbon dioxide (CO₂) and other greenhouse gases. 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	1.6°C ORDERLY TRANSITION	4°C FAILED 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.	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.	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.
RAPID TRANSITION	ORDERLY TRANSITION	FAILED TRANSITION
<ul style="list-style-type: none"> Sudden divestments in 2025 to align portfolios to the Paris Agreement goals have disruptive effects on financial markets with sudden repricing followed by stranded assets and a sentiment shock Locked-in physical impacts 	<ul style="list-style-type: none"> Early and smooth transition Market pricing-in dynamics occur smoothed out in the first 4 years Locked-in physical impacts 	<ul style="list-style-type: none"> The world fails to meet the Paris Agreement goals and global warming reaches 4.3°C above pre-industrial levels by 2100 Severe gradual physical & extreme weather impacts Markets price in physical risks of the coming 40 years over 2026-2030, and risks of 40-80 years over 2036-2040
Average temperature increase of 1.5°C	Average temperature increase of 1.6°C	Average temperature increase of 4.3°C
Shows the resilience of the portfolio to sudden repricing, triggering a market dislocation centred on high-emitting stocks	Tests exposure to the risks/ opportunities from the systemic drivers of an ideal transition and locked-in physical risk	The main focus of this pathway is physical risk, results show the exposure to plausible, severe climate change impacts

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 – which Mercer depicts as the baseline – for that portfolio or asset class.

Mercer modelled scenarios relative to a climate aware baseline, based on the assumption that climate impacts are currently priced-in to some extent. The main assumptions include:

- At a market level transition risks are reasonably priced in; however longer-term physical risks are more likely to be mispriced.

- Transition risks remain at sector level and at the market level due to the potential for more extreme transition scenarios to occur.

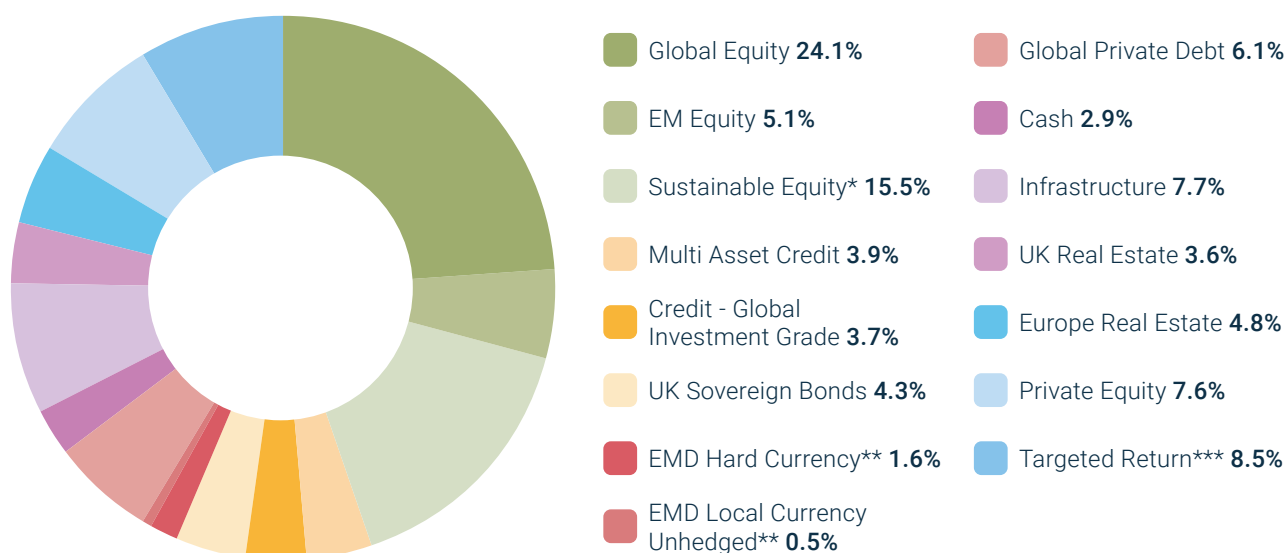
CLIMATE SCENARIO ANALYSIS SCOPE

The analysis includes the whole of LPF's investment portfolio. The analysis is top-down, mapping each of LPF's underlying portfolios to an asset class that is featured within Mercer's model. The projections utilise asset allocations as of 31 March 2022, assume £5.8 billion initial asset value and contributions income matches benefit outgo. Two variations of LPF's investment portfolio are analysed by Mercer:

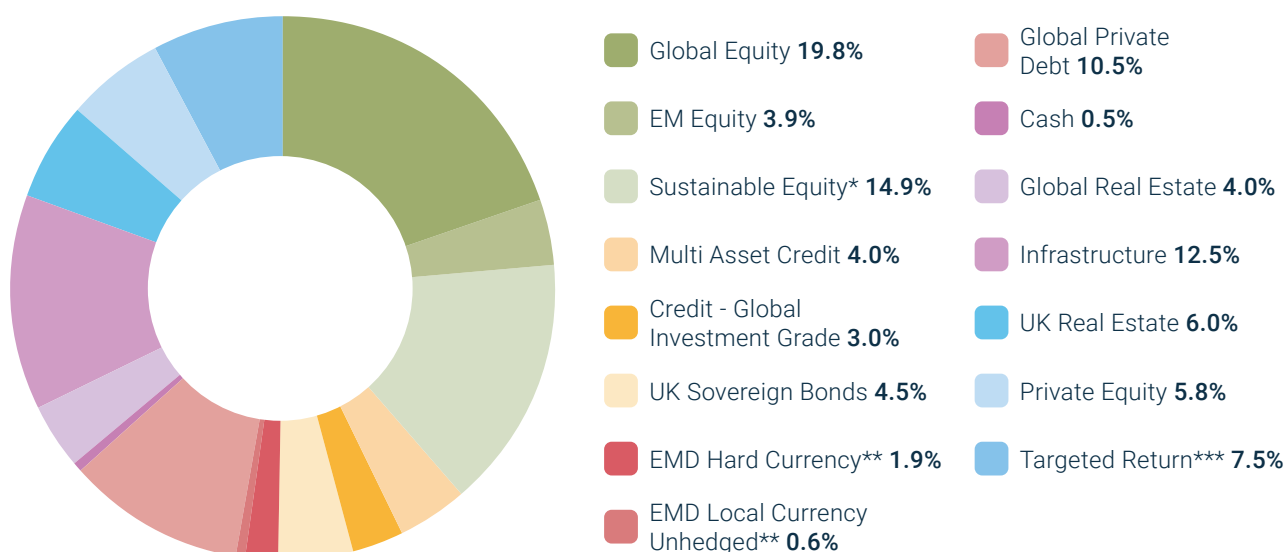
- The Current Asset Allocation (invested as of 31st March 2022)
- The Alternative Asset Allocation

TABLE 4.2.1.1 ASSET ALLOCATION VARIANTS ANALYSED

CURRENT ASSET ALLOCATION



TARGET STRATEGIC ASSET ALLOCATION



CURRENT STRATEGIC ASSET ALLOCATION (SAA)	%	MODELLING ASSET CLASS	CURRENT SAA (%)	TARGET SAA (%)
LISTED EQUITY	39.6%	MSCI ACWI Equity	8.9%	8.3%
		US Equity	6.4%	5.8%
		UK Equity	3.6%	3.0%
		European Equity	2.6%	2.0%
		Japan Equity	1.3%	0.7%
		Developed Asia Ex. Japan Equity	1.3%	0.7%
		Sustainable Equity*	15.5%	14.9%
EMERGING MARKET EQUITY	5.1%	Emerging Market Equity	5.1%	3.9%
CORPORATE BONDS	3.7%	Credit - Global Investment Grade	3.7%	3.0%
MULTI ASSET CREDIT	3.9%	Multi Asset Credit	3.9%	4.0%
GLOBAL PRIVATE DEBT	6.1%	Global Private Debt	6.1%	10.5%
PRIVATE EQUITY	7.6%	Private Equity	7.6%	5.8%
REAL ESTATE	8.4%	Global Real Estate	-	4.0%
		UK Real Estate	3.6%	6.0%
		European Real Estate	4.8%	-
INFRASTRUCTURE	7.7%	Infrastructure	7.7%	12.5%
TARGETED RETURN***	8.5%	Targeted Return***	8.5%	7.5%
EMERGING MARKET DEBT**	2.1%	EMD Hard Currency	1.6%	1.9%
		EMD Local Currency Unhedged	0.5%	0.6%
SOVEREIGN BONDS	4.3%	UK Sovereign Bonds	4.3%	4.5%
LIABILITY DRIVEN INVESTMENTS/CASH	2.9%	Cash	2.9%	0.5%

CLIMATE SCENARIO ANALYSIS FINDINGS

KEY CONCLUSION ONE: A SUCCESSFUL TRANSITION IS AN IMPERATIVE

Over medium- to long-term, a successful transition is imperative for LPF as both asset allocations fare better under rapid and orderly transition scenarios versus the failed transition. Over the long term for nearly all investors 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, both asset allocations are affected by a greater degree of physical impact which drive

underperformance in the long-term. Cumulative losses under the failed transition scenario over 40 years could amount to c.32% of the portfolio's value relative to the baseline.

According to Mercer's model, over the long term both asset allocations fare materially better under the orderly transition and rapid transition in comparison to the failed transition. In the orderly transition and rapid transition physical risks are lower due to temperature rises being limited.

Over 40 years, Mercer's model suggests an orderly transition leads to marginally superior economic outcomes in comparison to a rapid transition for both asset allocations.

There is little material difference between how the two asset allocations are impacted by climate because the two strategies are relatively similar in respect of sustainability tilts and broader allocations.

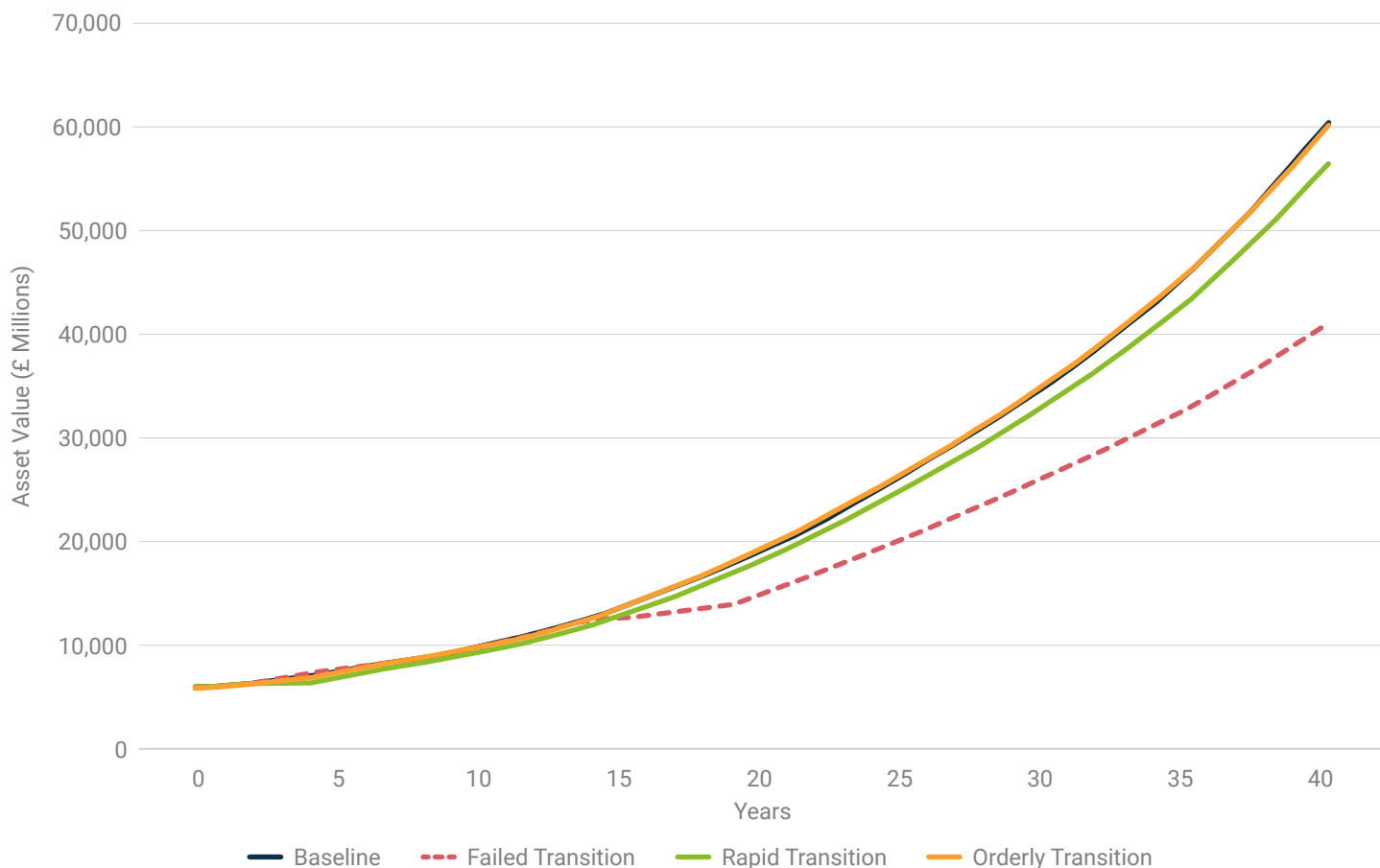
TABLE 4.2.1.2 ANNUALISED CLIMATE CHANGE IMPACT ON PORTFOLIO RETURNS – TO 5, 15 AND 40 YEARS.

		CURRENT ASSET ALLOCATION	ALTERNATIVE ASSET ALLOCATION
RAPID	5 years	-1.6%	-1.6%
	15 years	-0.4%	-0.4%
	40 years	-0.2%	-0.2%
ORDERLY	5 years	-0.2%	-0.2%
	15 years	0.0%	0.0%
	40 years	0.0%	0.0%
FAILED	5 years	0.2%	0.1%
	15 years	-0.6%	-0.6%
	40 years	-1.0%	-1.0%

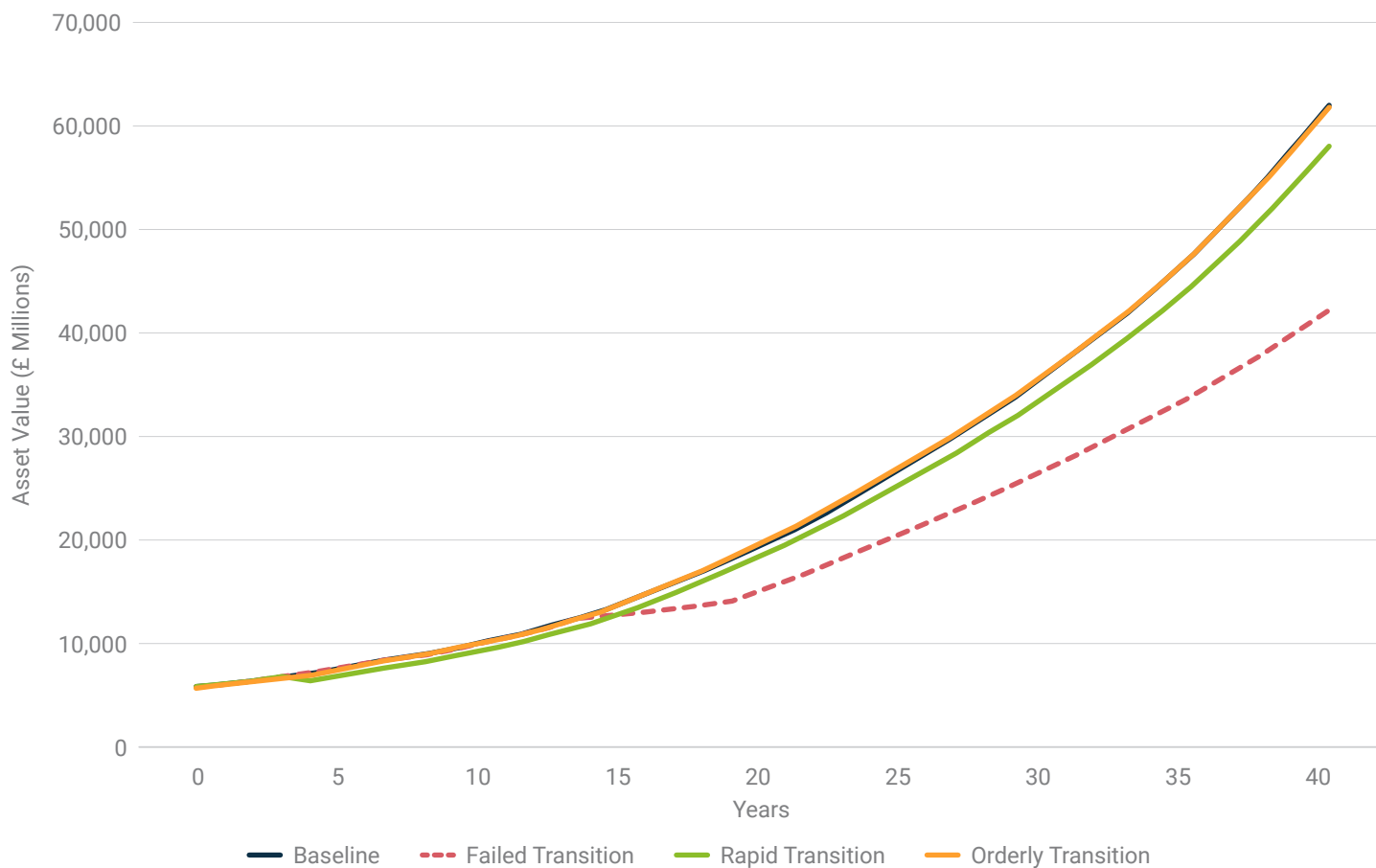
■ ≤ -10 bps ■ > -10 bps, < 10bps ■ ≥ 10 bps

FIGURE 4.2.1.1 CUMULATIVE RETURN PROJECTIONS BY CLIMATE CHANGE SCENARIO

CURRENT ASSET ALLOCATION - 40Y PROJECTION



ALTERNATIVE ASSET ALLOCATION - 40Y PROJECTION



RECOMMENDATIONS:

We recommend the Fund continue with the development of the net zero strategy through its various collaborations including with LGPSC and other external managers. This is to ensure that climate transition and physical risks are identified and managed through stewardship and/or asset allocation activities.

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. LPF has a large allocation of growth assets, which are generally more exposed to transition and physical risks. Increased allocations to sustainable equity would provide additional protection from transition and physical risks in the event of a rapid transition.

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	CURRENT ALLOCATION	5 YEARS			40 YEARS		
			FAILED TRANSITION	ORDERLY TRANSITION	RAPID TRANSITION	FAILED TRANSITION	ORDERLY TRANSITION	RAPID TRANSITION
Listed Equity	MSCI ACWI Equity	11.40%	2%	-1%	-13%	-43%	-1%	-12%
	US Equity	6.40%	2%	-2%	-13%	-43%	-3%	-13%
	UK Equity	3.60%	1%	-1%	-10%	-36%	0%	-8%
	Europe Equity	2.60%	1%	0%	-13%	-39%	1%	-12%
	Japan Equity	1.30%	0%	1%	-12%	-44%	3%	-10%
	Developed Asia Ex. Japan Equity	1.30%	1%	-1%	-14%	-47%	-1%	-13%
	Sustainable Equity*	15.50%	1%	-2%	-9%	-44%	0%	-7%
	Emerging Markets Equity	5.10%	1%	0%	-12%	-49%	0%	-11%
Corporate Bonds	Credit - Global Investment Grade	5.70%	0%	0%	-1%	-5%	1%	-1%
Multi Asset Credit	Multi Asset Credit	3.90%	0%	0%	-2%	-7%	0%	-3%
Global Private Debt	Global Private Debt	6.10%	0%	0%	-4%	-11%	-1%	-4%
Private Equity	Private Equity	7.60%	2%	-3%	-12%	-52%	-1%	-9%
Property	Global Real Estate	0.90%	0%	0%	-5%	-36%	1%	-3%
	Real Estate – UK	3.60%	-1%	0%	-8%	-41%	3%	-4%
	Real Estate – Europe	4.80%	0%	0%	-2%	-15%	0%	-1%
Infrastructure / Timberland & Farmland	Infrastructure	7.70%	1%	0%	-9%	-37%	-1%	-9%
Hedge Funds	Hedge Funds	3.20%	0%	0%	0%	-7%	1%	1%
Emerging Market Debt**	EMD Hard Currency	1.60%	0%	0%	-1%	-7%	-1%	-3%
	EMD Local Currency Unhedged	0.50%	1%	0%	-5%	-5%	2%	-4%
Sovereign Bonds	UK Sovereign Bonds	4.30%	0%	-1%	0%	-1%	1%	1%
Liability Driven Investments / Cash	Cash	2.90%	0%	0%	0%	-7%	1%	1%

*The sustainable equities have been modelled as 100% Broad Paris Aligned (a broad opportunity set of companies expected to align with the Paris Agreement over time). ** EMD allocations have been modelled as 75% EMD Hard Currency and 25% EMD Local Currency Unhedged.

RECOMMENDATIONS:

LPF could consider reducing portfolio weighting of growth assets and increasing the portfolio weighting of sustainable equity to mitigate potential transition impact in the short- to medium-term. It is also important to work with managers with existing net zero commitments and potentially find alternative benchmarks for its passive strategy to tilt the portfolios further towards climate alignment.

KEY CONCLUSION THREE: MONITOR SECTOR AND REGIONAL EXPOSURES

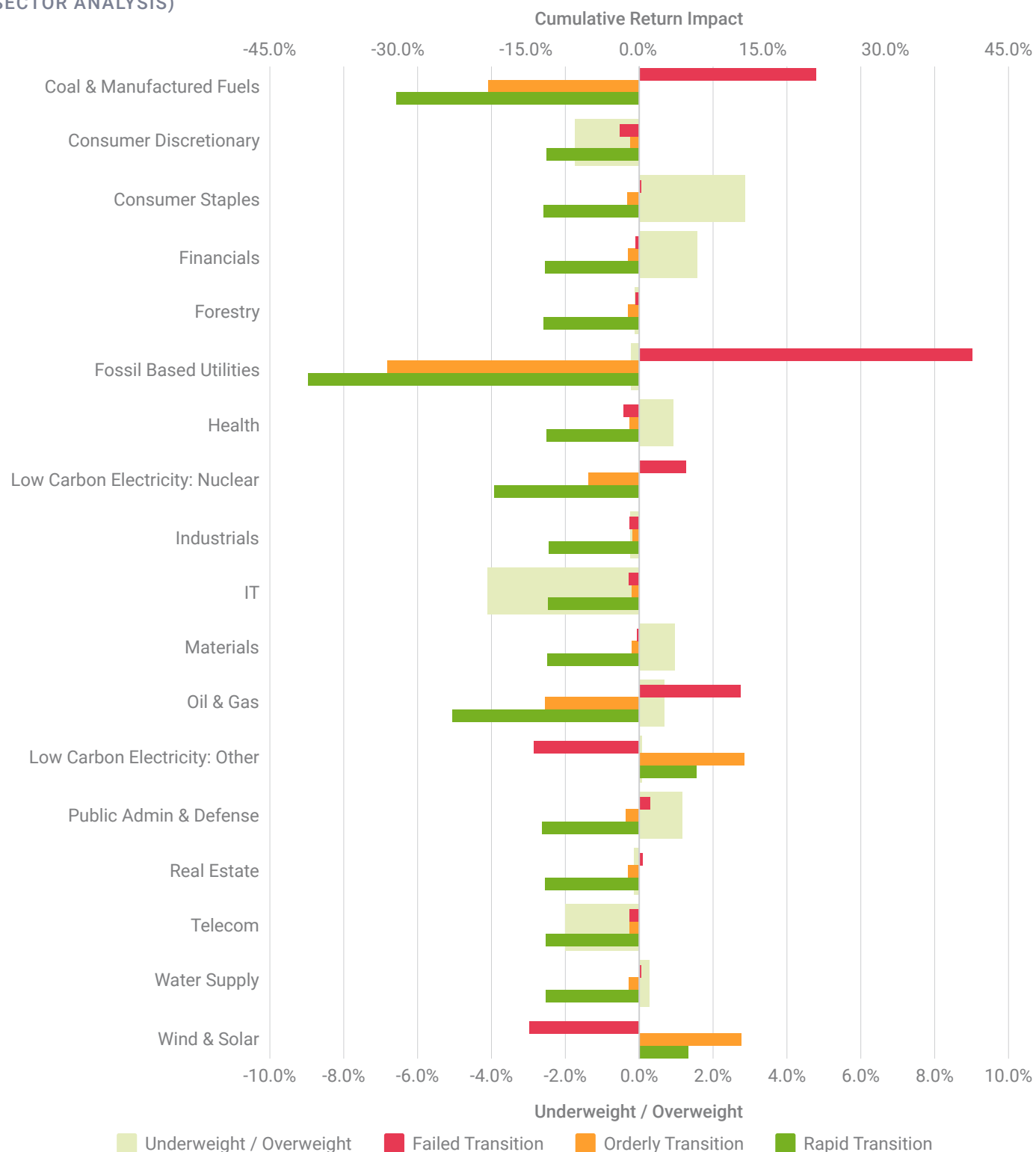
Differences in return impact are most visible at an industry sector level, with significant divergence between scenarios. Oil and Gas, Fossil Fuel Based Utilities and Renewables are most impacted by the transition.

Figure 4.2.1.2 shows the relative under/overweight positions of LPF'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.

LPF's equity portfolios are overweight in one sector that is particularly exposed to transition risk: Oil and Gas, which is negatively impacted by a rapid and orderly transition. This sector does perform well in a failed transition.

In the rapid and orderly transition scenarios, low carbon electricity and renewable energy (Wind & Solar) are the only two sectors to generate positive returns. The Fund is overweight Low Carbon Electricity.

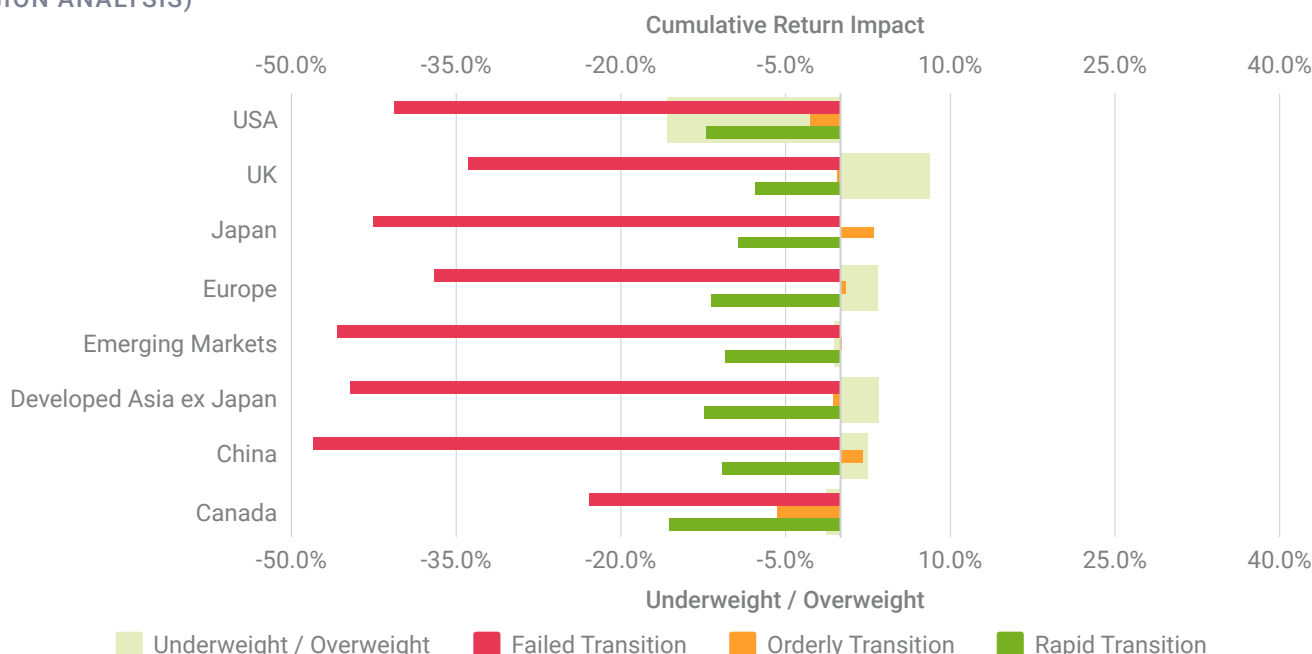
FIGURE 4.2.1.2 SECTORAL CUMULATIVE RETURN IMPACT AND LPF CURRENT EQUITIES SECTOR ALLOCATION (SECTOR ANALYSIS)



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 LPF'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.

The portfolio is overweight to UK equities which are less impacted under different scenarios than most other regions. The portfolio is also overweight to Developed Asia (excluding Japan) and China, which are both exposed to physical risk under a failed transition.

FIGURE 4.2.1.3 REGIONAL CUMULATIVE RETURN IMPACT AND LPF CURRENT EQUITIES SECTOR ALLOCATION (REGION ANALYSIS)



RECOMMENDATIONS:

We recommend LPF 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 Global indices. Regional exposures should be kept under review.

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 important to risk analysis.

As discussed in key conclusion two, LPF could reduce the portfolio's exposure to growth assets and increase the allocation of sustainable equities to provide some transition risk protection in the event of a rapid repricing event. LPF's allocations to Listed Equity, Private Equity, Infrastructure and Property are materially exposed to physical risks under a failed transition over the medium to longer term.

RECOMMENDATIONS:

Using the analysis from this Climate Scenario Analysis and the overall Climate Risk Report, LPF 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 LPF'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 LPF, 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	CA100+ ³	ENGAGEMENT OBJECTIVES	STRATEGY	% OF CA100+ NET ZERO INDICATORS MET	TPI MANAGEMENT QUALITY	TPI CARBON PERFORMANCE		
							TO 2025	TO 2035	TO 2050
Anhui Conch Cement	Mining		<ul style="list-style-type: none"> Achievement of the high-level objectives of the CA100+ initiative To duly account for climate risks in financial reporting 	CA100+ collaborative engagement with EOS as co-lead	0%	1	Not Aligned	Not Aligned	Not Aligned
BP	Energy		<ul style="list-style-type: none"> Achievement of the high-level objectives of the CA100+ initiative To duly account for climate risks in financial reporting 	CA100+ collaborative engagement with EOS as co-lead	30%	4*	Not Aligned	Not Aligned	Not Aligned
Cemex	Mining		<ul style="list-style-type: none"> Achievement of the high-level objectives of the CA100+ initiative To duly account for climate risks in financial reporting 	CA100+ collaborative engagement with EOS as co-lead	40%	4	Below 2 Degrees	Below 2 Degrees	1.5 Degrees
Glencore	Materials		<ul style="list-style-type: none"> Achievement of the high-level objectives of the CA100+ initiative including attainment of the specific indicators in the CA100+ benchmark 	Engagement by LGPSC as co-lead for the CA100+ Glencore Focus group.	40%	4	1.5 Degrees	Below 2 Degrees	National Pledges
Holcim	Cement		<ol style="list-style-type: none"> Paris-aligned accounts in line with IIGCC's Investor Expectations Achievement of the high-level objectives of the CA100+ initiative 	Collaborative engagement by the CA100+ focus group and through the Pairs-aligned financial accounting investor initiative	30%	4	Below 2 Degrees	Below 2 Degrees	1.5 Degrees

³ The following key is utilised for the pie charts above. Red represents "no criteria met". Yellow represents "partial, some criteria met". Green represents "all criteria met". Where grey is shown it is because an indicator is not currently assessed.

COMPANY	SECTOR	CA100+ ³	ENGAGEMENT OBJECTIVES	STRATEGY	% OF CA100+ NET ZERO INDICATORS MET	TPI MANAGEMENT QUALITY	TPI CARBON PERFORMANCE		
							TO 2025	TO 2035	TO 2050
NextEra	Utilities		<ul style="list-style-type: none"> Net Zero GHG emissions by 2050 or sooner ambition Capital allocation alignment with the Paris Agreement Commitment to clear medium- and long-term GHG reduction targets 	CA100+ collaborative engagement with LGPSC in the focus group.	10%	2	1.5 Degrees	National Pledges	National Pledges
Shell	Energy		<ul style="list-style-type: none"> To set and publish targets that are aligned with the goal of the Paris Agreement To fully reflect its net-zero ambition in its operational plans and budgets To set a transparent strategy on achieving net zero emissions by 2050 	CA100+ collaborative engagement with LGPSC involved in the focus group	50%	4	Not Aligned	National Pledges	National Pledges
Taiwan Semiconductor Manufacturing Company ⁴	Info Tech	N/A	<ul style="list-style-type: none"> Creation of a robust climate change strategy aligned with Net Zero Improved water management efficiency 	Direct engagement by EOS at Federated Hermes	N/A	N/A	N/A	N/A	N/A

³ The following key is utilised for the pie charts above. Red represents "no criteria met". Yellow represents "partial, some criteria met". Green represents "all criteria met". Where grey is shown it is because an indicator is not currently assessed.

⁴ TSMC is not included in the CA100+ or the TPI due to the methodology of each of those organisations. However, continuous engagements with TSMC have shown that the company is continuously developing its Net Zero targets and increasing its climate transparency.

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 portfolios as at 31st March 2022. The results are compared to data from 31st December 2019. 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. Therefore we have not included fixed income analysis in this report but will seek to do so as data improves.

TABLE 4.4.1.1: SCOPE OF CARBON RISK METRICS ANALYSIS AS OF 31ST MARCH 2022

	EQUITIES
NUMBER OF STRATEGIES ANALYSED	13
INDIVIDUAL COMPANIES INCLUDED	4,618

The analysis is based on a dataset provided by MSCI ESG Research LLC (MSCI)⁵. 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 footprinting⁶. 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.

⁵ Certain information @ 2022 MSCI ESG Research LLC. Reproduced by permission. Attention is drawn to Section 8.0 Important Information.

⁶ <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	Blended Equities BM	£2,572,200,000	2/2	4618

CARBON FOOTPRINT

TABLE 4.4.2.2 TOTAL EQUITIES CARBON FOOTPRINT METRICS

	2019			2022			% DIFFERENCE BETWEEN 2019 AND 2022	
	PF	BM	% DIFF	PF	BM	% DIFF	PF*	BM
Portfolio Carbon Intensity (tCO ₂ e/ \$m)	160.20	193.22	-17.09%	117.83	145.14	-18.82%	-26.45%	-24.88%
Weight in fossil fuel reserves (%)	8.57%	9.32%	-0.75%	6.79%	6.81%	-0.02%	-1.78%	-2.51%
Weight in thermal coal reserves (%)	2.87%	3.02%	-0.16%	2.50%	2.50%	0.00%	-0.37%	-0.53%
Weight in coal power (%)	1.40%	1.79%	-0.39%	1.15%	1.15%	0.00%	-0.25%	-0.64%
Weight in clean tech (%)	34.16%	33.92%	0.24%	38.2%	32.8%	5.39%	4.08%	-1.07%

* Portfolio column is colour coded, whereby Green = Performing ahead of benchmark; Amber = In line with benchmark; Red = Behind benchmark.

Figure 4.4.2.3 Total Equities Carbon Intensity

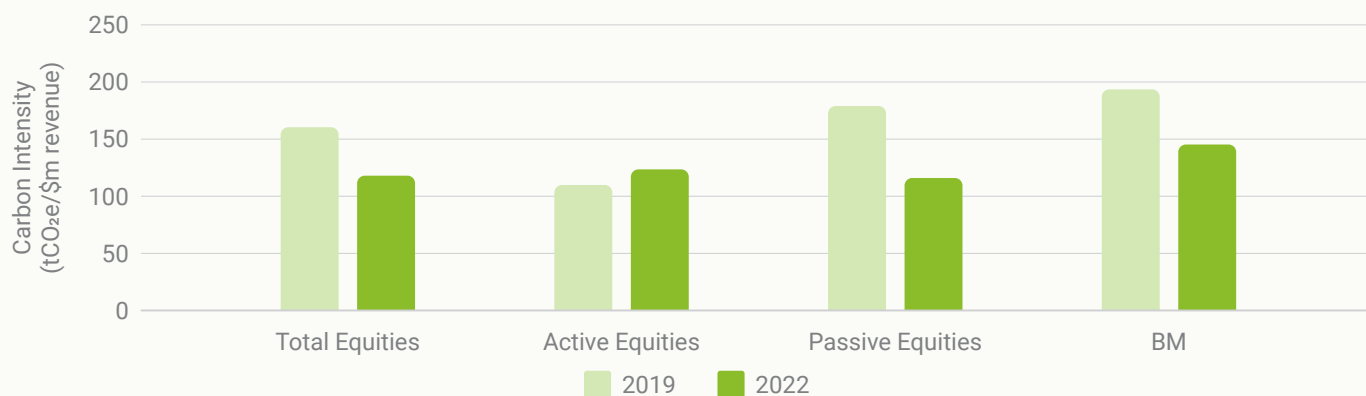


Figure 4.4.2.4 Total Equities Financed Emissions

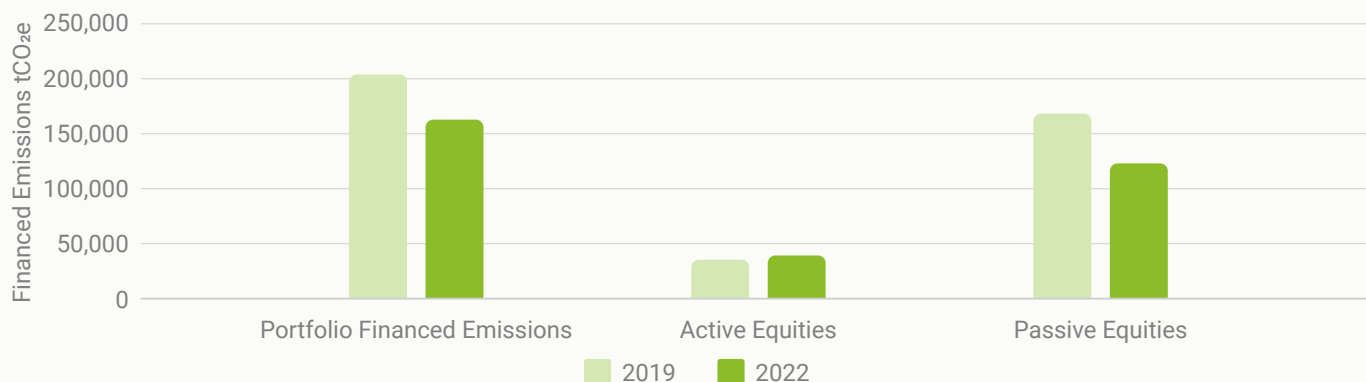


TABLE 4.4.2.5 TOTAL EQUITIES LARGEST CONTRIBUTORS TO PORTFOLIO CARBON INTENSITY

COMPANY	PORTFOLIO WEIGHT	CARBON INTENSITY (TONNES/\$M)	CONTRIBUTION TO PORTFOLIO CARBON INTENSITY*
Holcim AG	0.11%	4278.3	4.09%
Linde Public Limited Company	0.28%	1332.8	3.17%
Nextera Energy, Inc.	0.13%	2407.4	2.69%
Shell PLC	0.76%	398.8	2.62%
Taiwan Semiconductor Manufacturing Co., L	1.22%	216.0	2.27%

* This figure refers to each company's contribution to the portfolio's total carbon intensity.

TABLE 4.4.2.6 TOTAL EQUITIES LARGEST CONTRIBUTORS TO PORTFOLIO FINANCED EMISSIONS

COMPANY	PORTFOLIO WEIGHT	SCOPE 1&2 EMISSIONS (TONNES)	CONTRIBUTION TO PORTFOLIO FINANCED EMISSIONS
Holcim AG	0.11%	126,000,000	5.59%
Shell PLC	0.75%	72,000,000	4.96%
Glencore PLC	0.43%	25,724,000	3.31%
CRH PLC	0.17%	36,000,000	2.50%
Cemex SAB de CV	0.05%	42,100,000	2.41%

The carbon intensity of total equities decreased by 26.45% between 2019 to 2022, while the blended benchmark decreased by 24.88%. Weighted average carbon intensity for passive equity funds declined by the 35.22%, while the same measure for active equities showed an increase of 12.35%, dampening the overall improvement within the asset class. The switch from FTSE RAFI All World 3000 Developed Europe Ex UK Equity Index and North America Equity Index into LGPS Central Climate Multi Factor Fund was the main driver in lowering the carbon intensity.

Linde Public Limited Company is now the second greatest contributor to total equities carbon intensity, due to the portfolio weighting increasing from 0.15% to 0.28%.

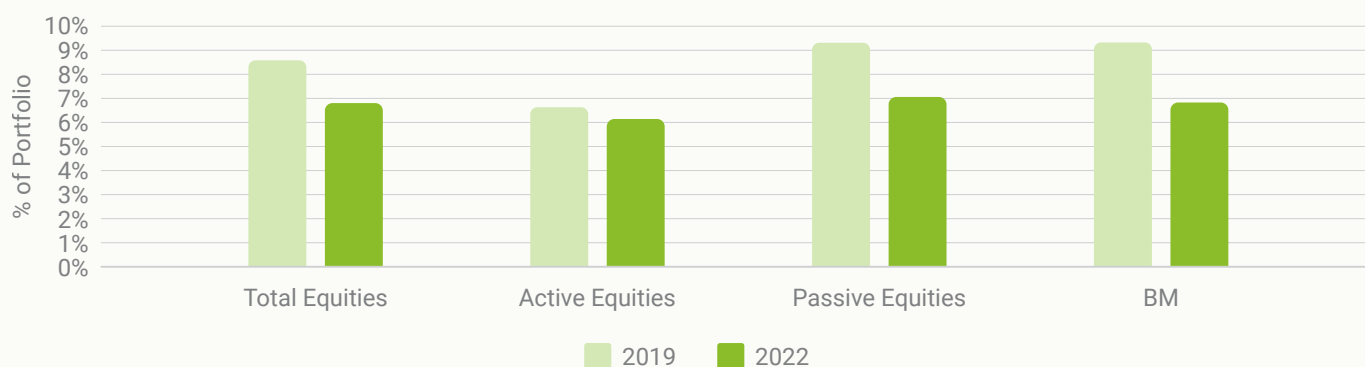
The financed emissions of the total equities have decreased by 20.14% between 2019 to 2022. Similar to the change in WACI, this decrease is associated with the 26.81% decrease in financed emissions of the passive equity funds, while financed emissions of active equities increased by 11.29%. This increase in financed emissions can be associated with the selection of companies within the materials sector and increased exposure to the energy sector in the multi manager funds.

FOSSIL FUELS

TABLE 4.4.2.7 TOTAL EQUITES FUND FOSSIL FUEL METRICS

	2019	2022	% DIFFERENCE BETWEEN 2019 AND 2022
Weight in fossil fuel reserves	8.57%	6.79%	-1.78%
<i>By Revenue</i>		1.00%	
Weight in thermal coal reserves	2.87%	2.50%	-0.37%
<i>By Revenue</i>		0.05%	
Weight in coal power (%)	1.40%	1.15%	-0.25%

Figure 4.4.2.8 Total Equites Fund Fossil Fuel Exposure



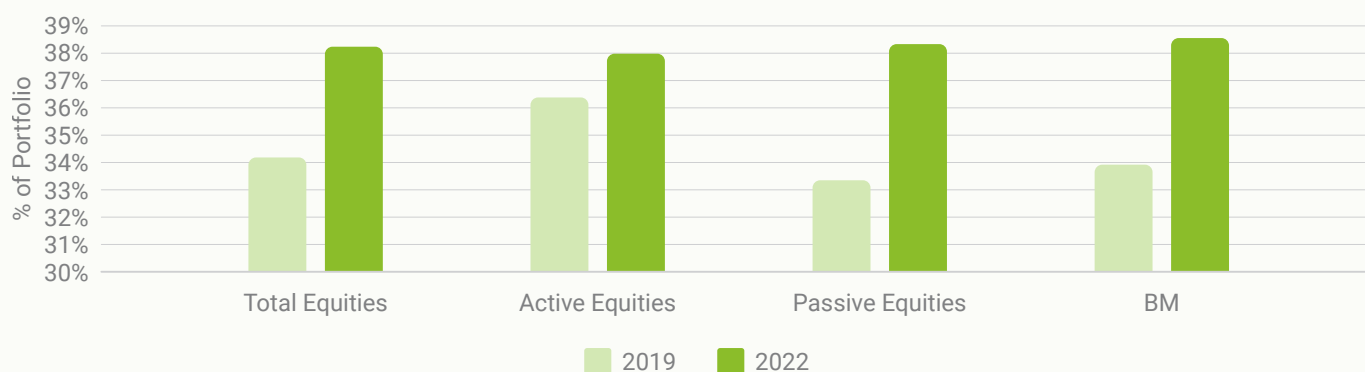
Exposure to fossil fuel reserves, thermal coal reserves and coal power in total equities has decreased by 1.78%, 0.37% and 0.25% respectively. Both total active and total passive equity funds experienced a decrease in exposure to all three aspects between 2019 to 2022. Most notably, the passive equity funds decreased exposure to fossil fuel reserves by 2.26%, while active equity funds decreased exposure by 0.49%. resulting in a decrease of 1.78% in total equities exposure.

CLEAN TECH

TABLE 4.4.2.9 TOTAL EQUITES CLEAN TECHNOLOGY EXPOSURE

	2019	2022	% DIFFERENCE BETWEEN 2019 AND 2022
Weight in Clean Technology	34.16%	38.24%	4.08%
<i>By Revenue</i>		4.21%	

Figure 4.4.2.10 Total Equities Fund Clean Tech Exposure



The exposure of the total equities to clean technology has increased by 4.08% between 2019 and 2022. Although 38.24% of total equities AUM is invested in companies with clean technology exposure, only 4.21% of the total revenue generated by portfolio companies is derived from clean technology solutions (as defined by MSCI) 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). We discussed the metric and its limitations in 4.4.1.

CLIMATE GOVERNANCE

TABLE 4.4.2.11: TOTAL EQUITES % OF COMPANIES WITH A NET ZERO TARGET

% of Total Portfolio	47.22%
% of Companies in Material Sectors	50.43%
% Financed Emissions	62.48%

TABLE 4.4.2.12: TOTAL EQUITES FUND TPI ASSESSMENT

	RANKING	2022
Management Quality	4*, 4	50.96%
	3, 2	38.66%
	1, 0	10.38%
Paris Alignment	1.5 Degrees	16.23%
	2 Degrees or below	28.98%
	International/ National/ Paris Pledges	10.87%
	Not Aligned	43.92%

404 companies within total equity funds (covering 15.12% of total holdings) were assessed and ranked by the Transition Pathway Initiative. About half of these assessed companies (50.96%) of the companies assessed achieved a management quality rating of 4-4*.

The results for Paris Alignment exhibit, 45.21% of companies within total equity funds are aligned to 2 degrees or less, while 43.92% of companies are not aligned or there is no or unsuitable disclosure. It should be noted only 7.89% of companies within this portfolio were assessed. This suggests the majority of companies are yet to release targets aligned to the goals of the Paris Agreement.

Just under half (47.22%) of the companies within equity funds are committed to achieving Net Zero emissions by 2050. 62.48% of the portfolio's financed emissions are generated by companies which have set Net Zero targets. Whilst this does suggest commitments are being made by the right companies, there are still a significant proportion yet to set a Net Zero Target, thus emphasising the need for engagement within this next critical decade.

5.0 Conclusion

In this LPF'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 LPF'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 LPF'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 The Fund has significantly decreased the carbon intensity and financed emissions of total equities. This has largely been driven by exiting the FTSE RAFI All World 3000 Developed Europe Ex UK Equity Index and North America Equity Index, and investing in the LGPS Central Climate Multi Factor Fund.
 - The weighted average carbon intensity has decreased by 26.45%.
 - Financed emissions have decreased 20.14%.
- 2 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. Progress observed in the last twelve months includes:
 - An improvement against the CA100+ Net Zero Benchmark scores for companies in the Climate Stewardship Plan from 2021 to 2022. Of the NZB indicators which Stewardship Plan companies are measured against, the number of indicators which achieved all criteria required doubled from 7 to 14, as a result indicators which only met some criteria decreased by 8.8%. The number of criteria which was not met decreased by 18.2%
 - 62.5% of companies in the Climate Stewardship Plan achieve a TPI Management Quality Rating of 4 or 4*.
 - Two out of eight of the companies in the Plan have committed to Net Zero by 2050.
- 3 Improvements have been made in LPF's reporting of ESG and climate risk.
 - First TCFD report published during 2021.
 - Approval of responsible investment plan during 2022.
 - Integration of key ESG themes in the 2022 investment strategy.
 - Plans to implement NetZero target.

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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