

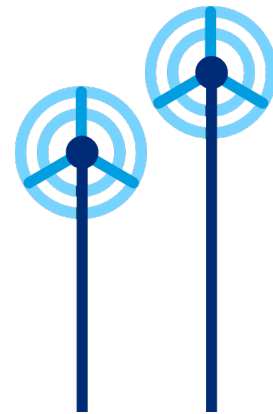
ARUP UK PENSION SCHEME

Climate change governance and reporting in line with the recommendations of the Task Force on Climate-related Financial Disclosures (“TCFD”)

Reporting period: 12 months to 31 March 2023

September 2023





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Section 1

Introduction

Dear Members,

Welcome to our climate change report, which has been prepared in line with the recommendations of the Task Force on Climate-related Financial Disclosures (“TCFD”) and the statutory requirements prescribed by the Department of Work and Pensions¹. This report outlines how the Trustees of the Arup UK Pension Scheme (the “Scheme”) have established and maintained oversight and processes to satisfy themselves that the climate-related risks and opportunities, which are relevant to the Scheme, are appropriately considered by all stakeholders involved in the day-to-day management of the Scheme.

The Trustees have a legal fiduciary responsibility to invest the Scheme’s assets in the best way possible for its members. As part of this responsibility, the Trustees recognise climate change as a risk that could impact the financial security of members’ benefits if it is not properly measured and managed. The Trustees also recognise that climate change presents an opportunity, by investing in companies or assets that are expected to perform well in an economy that is positioned to address the challenges associated with climate change.

The Trustees’ assessment of climate-related risks and opportunities has been carried out based on information that is currently available, both in terms of data from the companies and assets in which the Scheme invests and in consideration of the different global warming scenarios analysed. This data is subject to change as climate change reporting improves.

Climate change is one risk amongst many that the Trustees measure, monitor and manage. To this extent, climate change needs to be considered alongside these other risks in a balanced and proportionate way. The Trustees will therefore continue to invest in companies where there is a sufficiently attractive investment case and the asset manager believes there is an opportunity to engage and influence change in the behaviour and actions of a company.



¹ The Occupational Pension Schemes (Climate Change Governance and Reporting) Regulations 2021 and the Occupational Pension Schemes (Climate Change Governance and Reporting) (Miscellaneous Provisions and Amendments) Regulations 2021

This report has been split into several sections to help members understand:



Governance: How the Trustees incorporate climate change into their decision making;

Strategy: How potential future climate warming scenarios could impact the Scheme;

Risk Management: How the Trustees incorporate climate-related risk in their risk management processes; and

Metrics and Targets: How the Trustees measure and monitor progress against different climate-related indicators known as metrics.

The final section sets out the methodology and assumptions used to produce the information contained in this report.

The Trustees support the TCFD recommendations as a best-practice framework to manage and report on the actions being taken to identify climate change related-risks and incorporate climate change risk management into investment processes. For the avoidance of doubt, the Scheme does not fall under the statutory requirements prescribed by the Department of Work and Pensions until at least 2024, subject to further guidance that may come into force in future, but the Trustees have decided to adopt the framework proactively.

As always, members are encouraged to contact the Trustees if there are comments you wish to raise.

You can contact the Trustees via arup.uk.pensions@arup.com

David Storer

Chair of the Trustees of the Arup UK Pension Scheme

Section 2

Governance



Trustees’ oversight of climate change-related risks and opportunities

The Trustees have ultimate responsibility for ensuring effective governance of climate-related risks and opportunities. The Trustees maintain a Statement of Investment Principles (SIP), which details the key objectives, risks and approach to considering Environmental, Social and Corporate Governance (“ESG”) factors, such as climate change, as part of their investment decision making. The document is reviewed at least on an annual basis or following a significant change in investment policy.

The Trustees also maintain a separate Responsible Investment policy with further detail on their beliefs relating to ESG integration, stewardship and climate change and this is appended to the SIP.

The Trustees’ key beliefs on ESG and climate change are:

Belief	Position
Overall ESG Beliefs	The Trustees believe that environmental, social, and corporate governance (ESG) factors may have a material impact on investment risk and return outcomes over the time horizon of the Scheme, and that good stewardship can create and preserve value for companies and markets as a whole. The Trustees also recognise that long-term sustainability issues, particularly climate change, present risks and opportunities that increasingly may require explicit consideration.
ESG integration and broad risk management	Effective management of ESG issues is a key determinant of long-term shareholder value and good risk management. Their consideration is part of the Scheme’s fiduciary duty to beneficiaries. The Trustees therefore recognise the importance of their investment managers integrating all material financial and non-financial factors, including ESG considerations, into the decision-making process for Scheme’s investments and the ongoing monitoring of these same issues.

Belief	Position
Stewardship	Good stewardship can protect and enhance value for companies and markets as a whole. The Trustees have given appointed investment managers full discretion in evaluating ESG factors, including climate change considerations, and exercising voting rights and stewardship obligations attached to the investments, in accordance with their own corporate governance policies and current best practice, including the UK Corporate Governance Code and UK Stewardship Code.
Climate change risk	The Trustees believe that climate change presents risks over the short, medium and long-term that the Scheme should understand and mitigate where possible. Investment action is an important area for the Scheme to further develop its approach, including collaborative engagement opportunities. The Trustees support the objectives of the Paris Agreement, and believe that keeping a global temperature rise this century to well below 2°C relative to pre-industrial levels is entirely consistent with securing strong financial returns.
Thematic sustainable investments opportunities	Long-term sustainability trends, including climate change, present opportunities that increasingly require explicit consideration. The Scheme will actively consider investing in strategies that target long-term ESG themes on the basis that such opportunities will generate good risk-adjusted investment returns.
Ongoing commitment	Responsible investment is a rapidly developing area and the Trustees are committed to staying informed, developing their approach and increasing the ambition with regard to these issues.

While the Trustees have ultimate oversight in respect of climate change exposures and their potential impact on the Scheme, decision making in respect of investment aspects is delegated to an Investment Sub-Committee (“ISC”) with oversight from the Trustees.

The role of the ISC includes oversight and decision-making authority for evaluating, implementing and monitoring the investment strategy of the Scheme, the appointment and ongoing review of investment managers, and identifying new investment opportunities (including climate-related opportunities).

The Trustees have dedicated time over recent years to training on climate change related risks and opportunities, and how these may influence their decisions in relation to risk management, strategy setting and in the monitoring and implementation of the investment strategy. This included dedicated training on the TCFD reporting framework, climate risk and carbon metrics at a meeting in 2022. Training is expected to be refreshed regularly given the importance and complexity of these concepts.

Roles of the advisors and of those undertaking scheme governance activities

The Trustees have reviewed the roles of parties who undertake scheme governance activities, in particular the ISC, in-house pensions team and professional advisors (Investment advisor, Scheme Actuary and Covenant advisor). The Trustees will consider any advisor recommendations and will ratify any decisions that require its approval.

The roles and responsibilities of those undertaking governance activities are described in the appendix to this report, as part of the Scheme’s Governance statement.

The Trustees set ongoing objectives for their Investment Consultant and reviews these on an annual basis; the objectives specifically incorporate those related to ESG and climate change competency (with

additional climate-related objectives added in 2022). The Investment Consultant is formally assessed against these objectives annually, with feedback provided on any areas of development.

The Trustees expect advisors to act with integrity and diligence in fulfilling the agreed objectives, and use meetings with the advisors to assess and challenge them as required.

Ultimately, the steps above help ensure that the Trustees are comfortable that the advice they receive is appropriate in terms of the assessment and management of climate-related risks and opportunities.

Time and resources spent on climate change-related matters

The Trustees have given appointed investment managers full discretion in evaluating ESG factors, including climate change considerations, and exercising voting rights and stewardship obligations attached to the investments, in accordance with their own corporate governance policies and current best practice, including the UK Corporate Governance Code and UK Stewardship Code.

The Trustees publish an Engagement Policy Implementation Statement detailing how they have implemented their approach to Responsible Investment and climate change considerations, as laid out in the SIP. This includes information around the oversight of investment managers, bearing in mind the delegations set out above.

Climate change will form an explicit agenda item at least annually for the Trustees when the annual TCFD report is prepared. It will also be covered as part of other agenda items as part of a wider discussion of funding or investment strategy, or as part of investment manager appointment and review discussions. The Trustees are satisfied that the amount of governance time spent is reasonable and will allocate more time at future meetings if any analysis or wider industry research requires additional review and consideration.

There are a number of work-streams that are completed regularly in order for the Trustees to fulfill their responsibility for managing climate risks and opportunities. It is important to note that many of these items will cover wider ESG risks other than just climate change risk, as the Trustees do not consider climate risks in isolation but holistically alongside the various other ESG risks the Scheme may be facing. These are listed below as well as the frequency with which each task is carried out (where relevant):

- Scenario analysis modelling the investment and funding strategy, at least every 3 years;
- Review appropriateness of undertaking scenario analysis in light of a) data availability changes b) material changes in investment strategy / funding position, annually;
- Carbon metric collection and analysis, annually;
- Target setting / annual review of target appropriateness;
- Annual progress against target assessment;
- ESG beliefs (including climate change) update / review where required;
- Annual review of manager ESG ratings and policies;
- Stewardship monitoring and reporting, covered as part of the Trustees' annual implementation statement;
- Responsible Investment Total Evaluation on annual basis, which includes an assessment undertaken by the investment advisor of the Scheme's ESG and Climate Change progress versus a representative peer group.
- Preparing the annual TCFD report

- Regular review of Risk Register, which includes climate change risk likelihood and impact.

Training

The Trustees, ISC and in-house pensions team receive relevant training on Responsible Investment, including climate change, as required. Responsible Investment topics may also form stand-alone agenda items at meetings. The Trustees' investment managers are also asked to explicitly cover ESG and climate issues when presenting to the Trustees or the ISC. In the year under review, the Trustees undertook investment training provided by their investment advisor on responsible investment, which covered stewardship, climate change and impact investing.

Section 3 Strategy



Analysing the potential impact of climate change on assets, liabilities and the covenant

As a long-term investor, the Trustees recognise the risks and opportunities arising from climate change are diverse and continuously evolving. In relation to climate-related risks, the Trustees believe it is important to understand how the Scheme’s exposure to these risks may change over time, when the risk exposure may be greatest and what actions can be taken now, or in the future, to avoid those risks becoming financially material to the Scheme.

Investment action is an important area for the Scheme to further develop its approach, including collaborative engagement opportunities. The Trustees support the objectives of the Paris Agreement, and believe that keeping a global temperature rise this century to well below 2°C relative to pre-industrial levels is entirely consistent with securing strong financial returns.

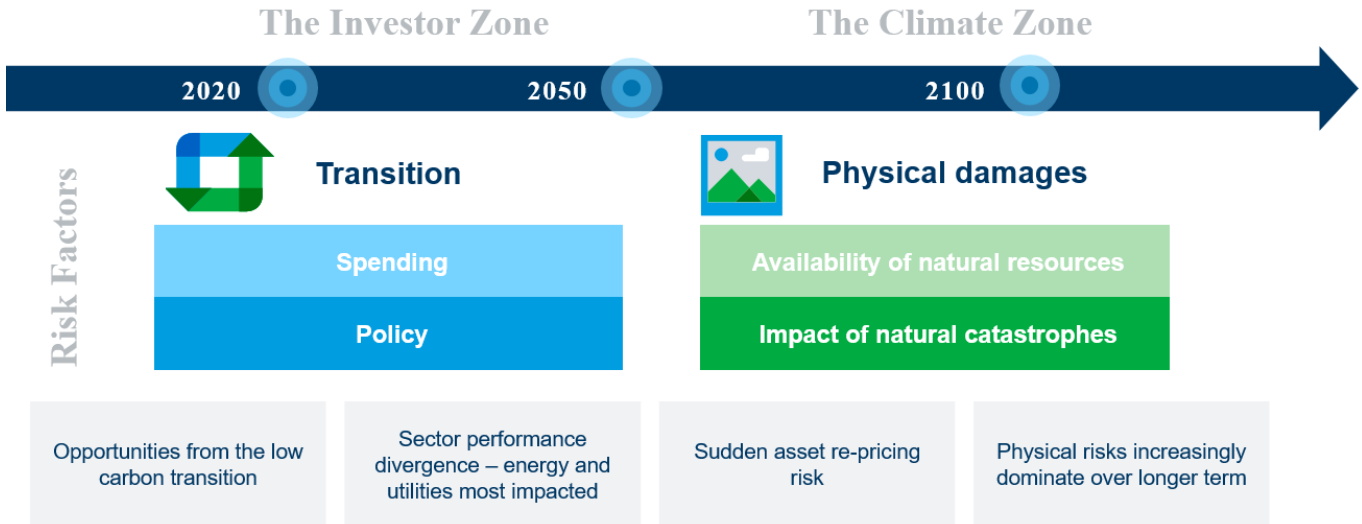
To help with this assessment, the Trustees have defined short-, medium- and long-term time horizons for the Scheme.

Short Term	Medium Term	Long Term
Next 5 years	15 years	40 years
Representative of risks for the Scheme’s strategy over the next few years when it is aiming to reduce the Technical Provisions deficit in line with the agreed recovery plan	Aligned with the expected timescales for full funding on a potential long term funding target basis	Reflecting the possibility of achieving any agreed long term objectives later than expected

The Trustees have considered a range of short, medium and long-term drivers of climate-related risk, as set out overleaf.

Climate change is a complex global issue that spans over many decades and is far longer than many pension scheme time horizons today. It is a systemic risk that will impact most industries, geographies and asset classes in some way.

The two primary types of climate related risk dominate at different points in time and have different risk factors associated with them.



Source: Mercer

1. Transition risks

This covers the potential risks and opportunities from the transition to a low-carbon economy (i.e. one that has low or no reliance on fossil fuels), in areas such as:

- Policy and legislation
- Market
- Technology
- Reputation

Risks include the possibility of future restrictions, or increased costs, associated with high carbon activities and products. There are also opportunities, which may come from the development and implementation of low-carbon technologies.

In order to make a meaningful impact on reducing the extent of global warming, most transition activities need to take place over the next decade and certainly in the first half of this century.

2. Physical risks

The higher the future level of global warming, the greater physical risks will be in frequency and magnitude. Physical risks cover:

- Physical damage (storms; wildfires; droughts; floods)
- Resource scarcity (water; food; materials; biodiversity loss)

Physical risks are expected to be felt more as the century progresses, though the extent of the risks is highly dependent on whether global net zero greenhouse gas emissions are achieved by 2050.

3. Evolution of climate-related risk over time

Over the short term (next 5 years), transition risks may present themselves through rapid market re-pricing as:

- Scenario pathways become clearer. For example, if there is a change in the likelihood of a well below 2°C scenario occurring (an increase in the probability would be expected to drive additional transition risk).
- Market awareness grows. For example, the cost and impacts of the transition suddenly influence market pricing.
- Policy changes unexpectedly surprise markets. For example, if a carbon price or significant regulatory requirement was introduced across key markets to which the portfolio is exposed, at a sufficiently high price to impact behaviour.
- Perceived or real increased pricing of greenhouse gas emissions/carbon.
- Litigation risk relating to dangerous warming becoming more prevalent.
- Increases in the energy/heat efficiency of buildings and infrastructure.

As well as risks associated with these drivers, there could also be opportunities; for example, investing in climate solutions as policy support strengthens.

The Trustees' ability to understand these short-term changes can position the Scheme favourably, for example taking advantage of the climate transition by avoiding and reducing investment in high-emitting carbon sensitive businesses/assets that do not have a business plan that supports the transition to a low carbon economy.

Over the medium term (next 15 years), risks are likely to be more balanced reflecting both transition and physical risks. Over this time period the transition pathway will unfold and the level of anticipated physical damage will become clearer. While the full extent of the physical damage is unlikely to have occurred, financial markets are likely to be allowing for it to a large degree in asset pricing.

Over the medium term, risks associated with the transition to a low carbon economy are likely to dominate. These include the development of technology and low carbon solutions. Policy, legislation and regulation are likely to also play a key role at the international, national and subnational level. Technology and policy changes are likely to produce winners and losers both between and within sectors, and lead to 'stranded asset' risks.

The Trustees' ability to understand these changes and evolve the portfolio as the pathway develops should help to control risk and potentially enhance returns. The Trustees seek to select managers and choose strategies that can identify the potential emergence of low carbon opportunities and the decline of some traditional sectors.

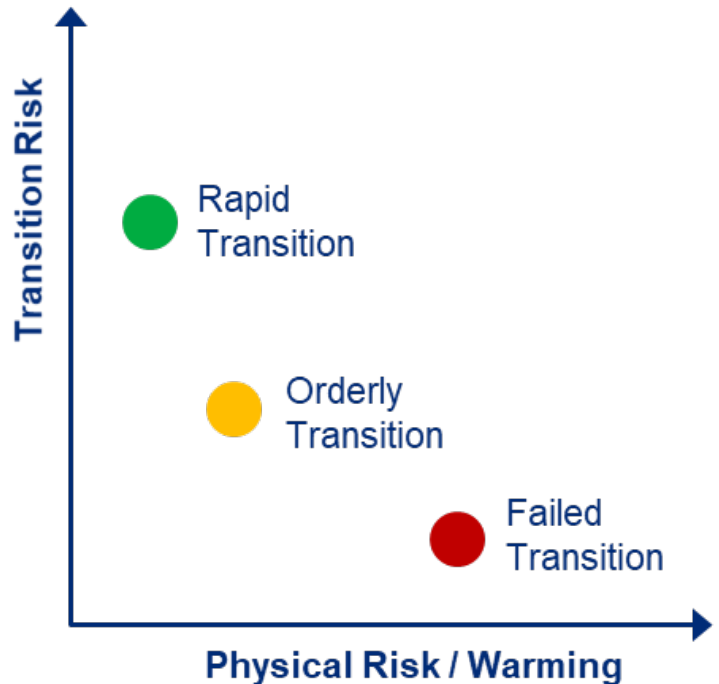
Over the long term (beyond 40 years), physical risks are expected to dominate. This includes the impact of natural catastrophes leading to physical damages through extreme weather events. Availability of resources is expected to become more important if changes in weather patterns (e.g. temperature or precipitation) affect the availability of natural resources such as water. The impact of global heating on productivity, particularly in areas closer to the equator, will also be a key driver.

Testing the resilience of the investment and funding strategy

Scenario analysis

The Trustees have undertaken climate scenario analysis to test the resilience of the investment (and funding) strategy adopted by the Trustees. Quantitative climate change scenario analysis has been undertaken on the Trustees' strategic asset allocation to assess the potential implications of climate change under three modelled scenarios; a Rapid Transition (1.5°C), an Orderly Transition (less than 2°C) and a Failed Transition (greater than 4°C). The analysis is based on scenarios developed by Mercer working with Ortec Finance.

- Rapid Transition** – Average temperature increase of 1.5°C by 2100 (relative to pre-industrial averages). This scenario assumes sudden downward re-pricing across assets in 2025. This could be driven by a change in policy, consideration of stranded assets or expected costs. The shock is partially sentiment driven and so is followed by a partial recovery. Physical damages are most limited under this scenario.
- Orderly Transition** – Average temperature increase of less than 2.0°C by 2100. Governments and wider society act in a co-ordinated way to decarbonise and to limit global warming to well below 2°C. Transition impacts do occur but are relatively muted.
- Failed Transition** – Average temperature increase above 4°C by 2100. The world fails to co-ordinate a transition to a low carbon economy. Physical climate impacts significantly reduce economic productivity and have increasingly negative impacts including from extreme weather events. These are reflected in re-pricing events in the late 2020s and late 2030s.



Source: Mercer

In designing scenario analysis a fundamental decision is whether to assume that any climate impacts are priced in today. The analysis in this report is expressed relative to a 'climate-informed' baseline²; the implication is that all return impacts are presented in terms of how they are different to what we are assuming is priced in today.

Further detail on climate scenario narratives, including modelling limitations, is included in the appendix of this report.

² The baseline represents what we are assuming the market is currently pricing in. The baseline includes a 10% weight to a **Failed Transition**, 40% weight to an **Orderly Transition**, 10% to a **Rapid Transition** and 40% to a range of **low impact scenarios**.

Scenario Analysis Results

The charts below represent the output of the Trustees' quantitative analysis of the investment and funding strategy. The charts represent projections of funding level and annualised returns from an analysis date of 31 March 2023 over a period of 5, 15 and 40 years.

Projections assume a static asset allocation that does not allow for any future expected de-risking. Further detail on the underlying asset allocations and limitations associated with climate scenario analysis are set out in the Technical Appendix.

	Annualised Cumulative Return Impact (% p.a.)*	Cumulative Funding Level Impact driven by financial factors (%)*	Immediate liability impact from adopting change in mortality assumption
Rapid Transition			
Short Term (Next 5 Years)	-0.3%	-1.4%	No impact
Medium Term (Next 15 Years)	0.0%	-0.2%	+1%
Long Term (Next 40 Years)	+0.1%	+1.8%	+3%
Orderly Transition			
Short Term (Next 5 Years)	-0.1%	-0.2%	No impact
Medium Term (Next 15 Years)	+0.1%	+2.1%	+1%
Long Term (Next 40 Years)	0.0%	-2.5%	+3%
Failed Transition			
Short Term (Next 5 Years)	0.0%	-0.2%	No impact
Medium Term (Next 15 Years)	-0.4%	-7.7%	-1%
Long Term (Next 40 Years)	-0.4%	-112.8%	-3%

Source: Mercer and LCP.

*Relative to the baseline and excluding any impact on the liabilities driven by mortality which is included in the last column.

Funding levels shown are estimates based on the LCP estimates and Mercer calculations, and are measured on the gilts flat basis.

Liability impact from adopting change in mortality assumptions is estimated by LCP. Positive figures represent an increase in life expectancy and liability which would lead, all else equal, to a deterioration in the funding level.

Assumes a static asset allocation, whereas in practice the Scheme is expected to de-risk the investment strategy in future as the funding level improves.

In respect of the potential impact of climate risk on the Sponsor covenant, the Trustees note that the Sponsor has sustainability at the heart of its business, having made a commitment to be net zero by 2030. The Sponsor expects to achieve this by pursuing a 1.5°C aligned science-based target for the full value chain emissions and compensating residual hard-to-decarbonise emissions with greenhouse gas removal. The Trustees expect to consider in greater detail the impact of climate risk on the covenant in advance of future reports.

Scenario Analysis Findings

In light of the above quantitative analysis, the Trustees noted the following findings:

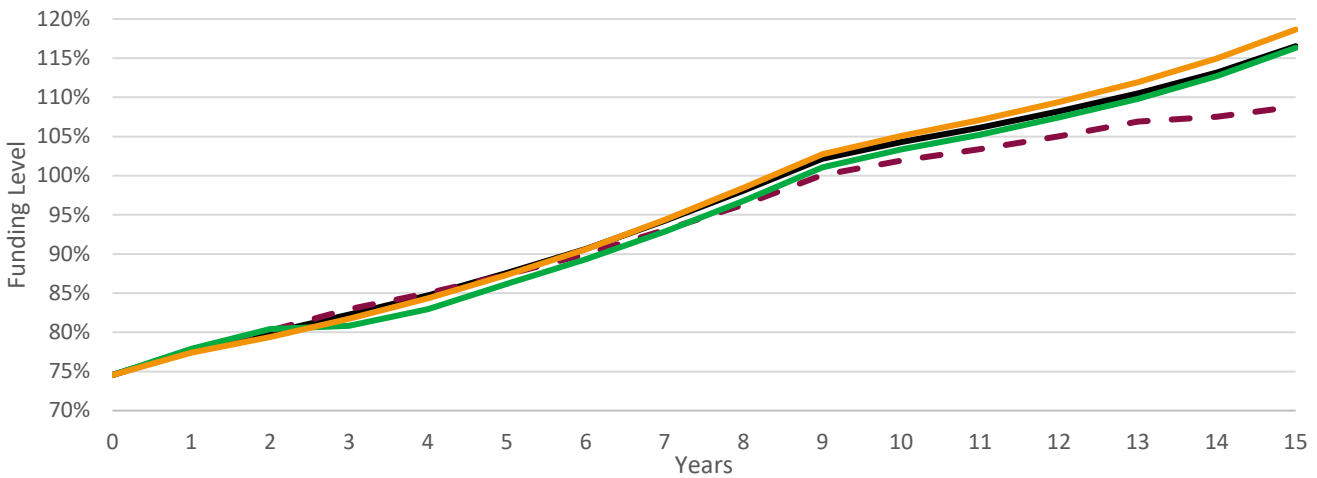
	Potential impact on the Scheme
<p>Rapid Transition</p>	<p>Over the short term transition risk is material, as expected. The Rapid Transition scenario shows a potential fall in the funding level of around 1.4% over the short term, relative to the central scenario, followed by a recovery of the initial funding level deterioration over the medium term and long term. This scenario assumes sudden large-scale downward re-pricing across multiple securities in 2025. Under this scenario companies and the broader economy are taking necessary action to address climate risks, but this has negative performance implications under the short term for some of the mandates the Scheme invests in.</p> <p>Longer term impacts are expected to be more muted under this scenario, due to the mitigation of potential physical risk, thus improving the Scheme’s funding level by an estimated 1.8% relative to the baseline over the 40 year period. Over this time horizon and under the Rapid Transition scenario, an improvement in the life expectancy of the members is expected, thus increasing the estimated liability figures by 1% and 3% over the medium and longer terms, respectively. This is mainly driven by the adoption of healthier lifestyles, modest temperature rises and air quality improvement due to investment in low carbon technology and the reduction of fossil fuels.</p> <p>The decision to move to Climate/ESG-tilted equities and Buy and Maintain Credit mandates has positively contributed to robustness of the results under scenarios where a transition materialises.</p>
<p>Orderly Transition</p>	<p>The Orderly Transition scenario results in a less negative impact than the Rapid Transition scenario over the short term and an improvement in the funding level in the medium term as a result of lower transition and physical risk. This scenario assumes that political and social organizations act quickly and predictably to implement the recommendations of the Paris Agreement to limit global warming to below 2°C.</p> <p>Nevertheless, the longer term impacts are expected to be more severe versus the Rapid Transition scenario, with the Scheme’s funding level expected to decrease by 2.5% compared to the baseline. This scenario estimates additional economic damage, either by further human emissions or greater impacts from feedback loops and tipping points, consistent with a 1.8°C of average temperature rise – peaking in 2070.</p> <p>It is worth noting that in terms of mortality, the impacts in the liabilities driven by mortality are similar to the Rapid Transition scenario.</p>
<p>Failed Transition</p>	<p>The Failed Transition scenario results in a less negative funding level impact versus the Orderly Transition scenario over the short term, given lower transition risk. However, over the medium and long term, the impact is more profound due to materially higher physical risk (7.7% in the medium term and 112.8% in the long term). Under this scenario, the world fails to meet the Paris Agreement goals and global warming reaches 4.3°C above pre-industrial levels by 2100. Physical climate impacts cause large reductions in economic productivity and increasing impacts from extreme weather events, thus having a major impact in the Scheme’s investments.</p> <p>A very small proportion of this impact could be offset were the Actuary to adopt revised mortality assumptions as part of a future actuarial valuation that reflect the expected impact of a Failed Transition on the liabilities, as this scenario is expected to reduce life expectancy due to more air pollution, extreme temperatures and weather events.</p> <p>The funding level impacts are meaningful and could negatively impact the journey plan over the medium term, increasing potential reliance on the Sponsor covenant. In terms of the long term figures, these have been included for completeness but in practice do not reflect the fact that the Scheme would be expected to be substantially de-risked and/or have implemented a bulk annuity transaction well in advance of these timescales. They do however demonstrate the potential impact of a Failed Transition on financial markets, which is profound.</p>

Additional commentary: funding level impact from financial factors

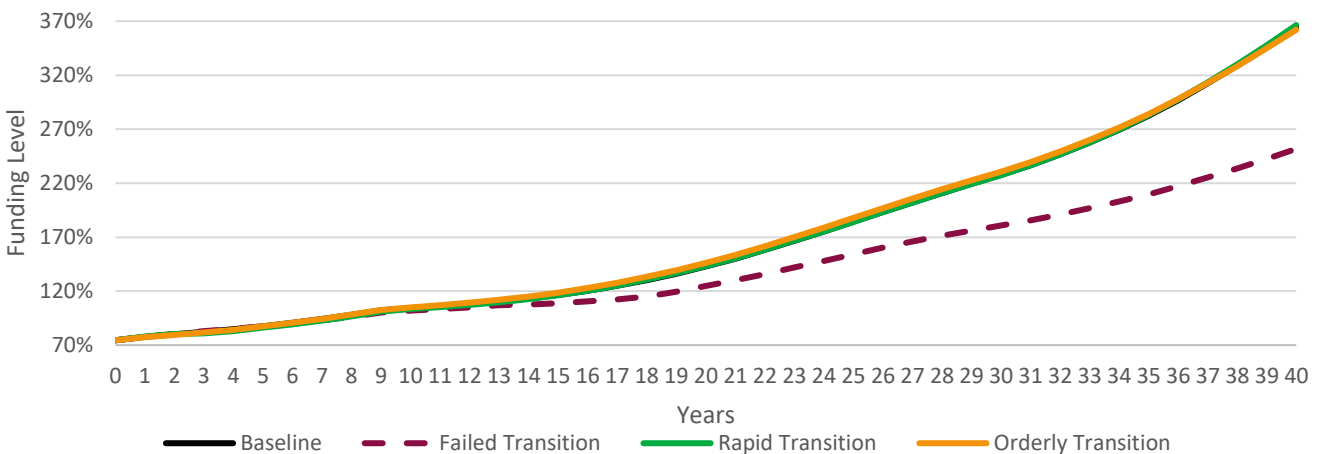
The estimated funding level impact from financial factors set out above takes into account the expected impact on the various asset classes in which the Scheme invests, as well as the impact on both the assets and liabilities of expected changes to interest rates and inflation expectation. For example, realised inflation is expected to be elevated under the Failed Transition scenario, resulting from damages to agriculture and change in food prices, increasing the value of benefits with inflation-linked increases. These impacts are partly hedged by the Scheme’s Liability Driven Investment (“LDI”) mandate. The numbers do not, however, explicitly take into account the impact of changes to mortality, as noted on the previous page of this report.

The impact on the expected progression of the Scheme’s funding level (from financial factors only) is set out in the charts below, where the baseline represents the expected progression of the funding position from 31 March 2023:

Funding Level Impact (Short to Medium-term)



Funding Level Impact (Long-term)



Additional commentary: potential liability impact from changes in mortality assumptions

The mortality outcomes from climate change scenarios are impossible to accurately predict and will depend on complex interactions between various factors. As such, analysis on the impact on life expectancies and liability values have been estimated by LCP in a relatively pragmatic way.

Different scenarios were determined, covering a range of life expectancy changes. These used the Scheme’s existing mortality assumptions but with different long-term trends in mortality improvements. A more detailed overview of the assumptions is set out in the Technical Appendix.

Conclusions and strategic actions undertaken to manage climate risk

Conclusion 1 – Sustainable Allocations Protect against Transition Risk, while Growth Assets are Highly Vulnerable to Physical Risk

Growth assets are generally more exposed to transition and physical risks, while fixed Income asset classes are less sensitive. Equities and real estate are materially exposed to physical risks under a Failed Transition over the longer term. For Arup specifically, the allocation to sustainable equity protects against transition risk when comparing to listed equity.

Modelling Asset Class	5 Years			40 Years		
	Failed Transition	Rapid Transition	Orderly Transition	Failed Transition	Rapid Transition	Orderly Transition
MSCI World Equity	2%	-11%	-4%	-42%	-7%	-10%
MSCI Paris Aligned Equity	0%	-5%	-3%	-40%	2%	-8%
Absolute Return Fixed Income	0%	-2%	0%	-1%	-3%	-1%
Global High Yield Credit	0%	-6%	1%	0%	-8%	-3%
Global Investment Grade Credit	0%	-2%	0%	-2%	-2%	-1%
Cash	0%	0%	0%	-6%	3%	0%
UK Real Estate	-1%	-4%	-1%	-42%	1%	-3%
Hedge Fund	0%	0%	0%	-6%	3%	0%

This table sets out the cumulative return impacts relative to the baseline across the three scenarios by asset class. Asset class returns vary significantly by scenario depending on their respective exposure to transition and physical risks.

Conclusion 2 – Sector exposure is key

Naturally climate exposure varies greatly by sector. For example, the cumulative impact on different sectors within their Credit portfolios over a 5 and 15 year period varies significantly - differences in return impact are most visible at an industry-sector level, with significant divergence between scenarios. Oil

and Gas, Fossil Fuel Based Utilities, Coal and Manufactured Fuels and Renewables are most impacted by the transition.

This can inform portfolio construction in a number of ways:

- The Trustees can monitor and discuss with investment managers their sector exposures and how they account for sector specific climate risk, particularly within the Oil & Gas, Fossil Based Utilities and Coal & Manufactured Fuels sectors.
- The Trustees can understand key risk exposures and prioritise areas of focus for engagement or decarbonisation planning.

Conclusion 3 – Investors should be aware of future pricing shocks

Investors, and therefore “the market”, look to predict future events / impacts and allow for them in asset prices. As particular events become more likely, market pricing will change before the events occur. This means that longer-term impacts, including transition impacts and particularly physical damages, could impact portfolios earlier than they occur.

The Rapid Transition scenario includes a shock around 2025 pricing in (and initially overreacting to a degree) to transition costs. The Failed Transition scenario 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 markets react to new information as a result of changing physical and policy / transition risks, investors will be vulnerable to rapid repricing shocks. Exploring and monitoring the potential impact that repricing events can have on investment strategy and positioning portfolios ahead of time is critical.

Strategic activity undertaken to manage climate risk

The Trustees continuously consider approaches to further manage climate change risks and opportunities in their investment strategy and their decisions have positively contributed to robustness of the results under scenarios where a transition materialises. Since 2020, the Trustees have taken a number of actions that support and reflect the key conclusions stated above.

A summary of the actions taken can be found below:

- In Q3 2020, the Scheme fully transitioned from the Newton Real Return Fund into its sustainable version, the Newton Sustainable Real Return Fund.
- During the second and third quarter of 2020, the Trustees discussed and implemented a switch of the Scheme’s equity exposure in order to improve the ESG and carbon footprint characteristics of the portfolio. This involved redeeming from the Legal and General Investment Management (LGIM) Synthetic Equity holdings and investing in an ESG focused equity mandate (LGIM Future World Global Equity, 50% GBP Hedged portfolio).
- The Trustees agreed to changes to the management of their corporate bond mandate at LGIM in order to better align with their ESG and climate change beliefs (the changes were implemented between July 2021 and February 2022). In July 2022, following the Trustees’ appetite to target more ambitious climate objectives, further changes were conducted to the portfolio and LGIM is now targeting a 1.5°C or lower implied temperature rise by 31 December 2030.
- Finally and perhaps most importantly, the Trustees have set an overall Scheme net zero target by 2050 or earlier if possible, as well as interim targets for the portfolio and some asset classes (Credit and DGF) to help drive progress.

Risk Management



The process of identifying and assessing climate change-related risks, and the integration of these risks within the Trustee's overall risk management processes

Identifying and managing climate-related risks and opportunities

A key part of the Trustees role is to understand and manage the risks that could have a financially material impact on the Scheme's investments and funding position. The climate-related risks set out above are considered in detail by the Trustees based on advice from their advisors, alongside other financially material risks that may impact outcomes for members.

This section summarises the primary climate-related risk management processes and activities of the Trustees. These help the Trustees understand the materiality of climate-related risks, both in absolute terms and relative to other risks that the Scheme is exposed to.

The Trustees recognise the challenges with various metrics, tools and modelling techniques used to assess climate change risks. The Trustees aim to work with their advisors and investment managers to continuously improve the approach to assessing and managing risks over time, as more data becomes available.

Governance

- The Trustees' Statement of Investment Principles is typically reviewed on an annual basis, or more frequently as required, and sets out how investment climate-related risks are managed and monitored.
- The Trustees receive training from time-to-time on climate-related issues. The training allows the Trustees to challenge whether the risks and opportunities are effectively allowed for in their governance processes and wider activities, and to be able to challenge their advisers to ensure the governance support and advice adequately covers the consideration of climate-related risks and opportunities. This process also affords the Trustees an opportunity to identify new and emerging risks related to climate change.
- The Trustees maintain an ESG Implementation Plan, which is reviewed on a quarterly basis. This document forms part of the Trustees' wider business plan and summarises the progress, actions and outcomes of scheduled ESG investment integration projects including climate-related activities, which are covered in the following sub-sections.

- The Trustees maintain a risk register that explicitly includes climate-related risks. This is used to effectively identify, prioritise, manage and monitor the different risks associated with the Scheme, and the escalations of risk are managed by internal controls in place. Risks are scored taking into account both their likelihood and potential impact, helping the Trustees assess their risk management priorities. The risk register was reviewed over the year, and additional wording included that specifically covers climate-related risk, including an overview of the climate scenario analysis that had been undertaken and the results of this analysis (as set out in the ‘Strategy’ section of this report).

Strategy

- The Trustees believe that good stewardship and ESG issues may have a material impact on investment risk and return outcomes and will therefore be considered as part of the Scheme’s investment process. The Trustees also recognise that long-term sustainability issues, particularly climate change, present risks and opportunities that require explicit consideration. When setting investment strategy, ESG factors, including climate change, will be considered alongside a number of other factors that can influence investment strategy.
- The Scheme’s advisors will take climate-related risks and opportunities into account as part of the wider strategic investment advice provided to the Trustees at least quarterly. This includes highlighting the expected change in climate-risk exposure through proposed asset allocation changes, both from the top-down (via climate scenario analysis) and bottom-up (via climate-related metrics) perspective.
- The climate scenario analysis (described in the ‘Strategy’ section) provides a top-down assessment of climate change risk at the asset class level, covering both transition and physical risks. The analysis is run using an Asset-Liability Model (“ALM”) that assesses the potential impact of different climate scenarios on the funding position and the potential impact on annualised investment returns. Climate scenario analysis will be reviewed at least triennially, or more frequently if there has been a material change to the strategic asset allocation.
- As this analysis is strategic in nature, the results of the analysis have been incorporated into wider investment strategy discussions and considerations and portfolio design. Examples of this include the implementation of a switch of the Scheme’s synthetic equity to an ESG-focused equity mandate in 2020, and changes to the management of the corporate bond mandate at LGIM in order to better align with Trustees’ ESG and climate change beliefs in 2021.

Manager Selection and Retention

- The Trustees, with advice from Mercer in its role as Investment Consultant, consider an investment manager’s firm-wide and strategy-specific approach to managing climate-related risks and opportunities when either appointing a new manager, in the ongoing review of a manager’s appointment, or as a factor when considering the termination of a manager’s appointment.
- Over the Scheme year, the Trustees took investment advice from Mercer on how they rate the investment managers on the extent of their integration of ESG factors, including both transition and physical damages climate-related risks, into their processes. Whenever a manager selection exercise is undertaken, the ESG rating is an important component of the decision making process. Typically, a new manager will only be appointed if their ESG rating is ESG2 or ESG1, as this demonstrates a robust approach to identifying and assessing climate-related risks. This may not be possible in all asset classes, and is pursued on a best-endeavours basis.
- ESG ratings are presented in quarterly investment performance reports and are reviewed by the Trustees at regular meetings. If a manager is considered to be “lagging the market”, the Trustees will engage with the relevant investment manager(s) to strongly encourage that they improve in policies

and practises in this area. A downgrade to the ESG rating may (taking into account other factors) lead to an investment manager being put on 'watch' by the Trustees, or play a role in the ultimate termination of the mandate.

- Managers are periodically invited to present to the Trustees to explain their approach to climate change risk management, amongst other topics. This is a standing item of discussion whenever the Trustees meet with an investment manager, and has been for a number of years. In 2022, the following managers presented on topics including climate-related risks and opportunities:
 - February ISC Meeting: Schroders
 - May ISC Meeting: LGIM
 - August ISC Meeting: Newton and Nordea
 - November ISC Meeting: Barings and Wellington
- A manager's stewardship process forms part of Mercer's ESG rating assessment; this is considered at the firm level and at the investment strategy/fund level, given this is expected to be a key avenue through which investment managers manage and mitigate climate-related risk. This is reported on by the Trustees as part of the Implementation Statement (see below).
- The Trustees believe that there is a role for both active and passive management within climate risk management. Active and passive management by the investment managers will continue to be a very important part of the Scheme's approach to managing climate-related risks.

Reporting

- The Trustees receive an annual Carbon Footprint report that covers climate-related metrics and analyses the Scheme's progress against its targets in respect of the assets held in the Scheme. The Trustees may use the information to engage with the investment managers.
- The Trustees, ISC and in-house pensions team meet at least quarterly and receive quarterly performance investment performance reporting, including Mercer's ESG ratings. These ratings assess the degree to which managers integrate ESG considerations, including climate change, into their investment processes and active ownership activities. The report also encompasses analysis on how the ESG ratings of each strategy that is part of the Scheme's investment strategy compares against the wider universe of strategies that are researched by the Investment advisor. Over the Scheme year, all of the Scheme's mandates had a better ESG rating than the average of the respective peer universe, with the exception of the Barings MAC strategy, that is in line with the rating of its peer group universe over the year under review. The management of climate-related risks and opportunities is a key component of these ESG ratings, and it would be impossible to achieve a strong ESG rating if climate-related risks and opportunities were not taken seriously by the manager.
- A summary of managers' voting and engagement statistics and a selection of what the Trustees consider to be the most significant votes cast on behalf of the Scheme over the year are disclosed in the annual Engagement Policy Implementation Statement, which is published on an annual basis as part of the Trustee Report and Accounts. The statement is available on the Scheme's website.

Responsible Investment Total Evaluation (“RITE”) assessment

- Over the Scheme year, the Trustees made significant steps to improve the level of integration of ESG factors within its investment decision-making and governance processes, helping to manage and mitigate climate related-risks.
- A benchmarking analysis of the extent to which ESG factors are integrated into investment decision making at the portfolio level is undertaken by Mercer on an annual basis. Mercer’s Responsible Investment Total Evaluation (RITE) assesses the extent to which pension schemes integrate ESG factors. Schemes are scored on a scale from 0-100, with those scored then mapped to a rating scale of C / C+ / B / B+ / A / A+ / A++. The RITE³ rating for the Scheme was A+ in 2022, compared against an average rating of B for schemes of comparable size. This shows that the portfolio is significantly ahead of its peers in this area.
- The Trustees incorporate recommendations from the RITE assessment framework into its ESG Implementation Plan, and will monitor the score over time with a view to seeking to ensure best practice.

Benchmarking analysis is carried out against schemes with a similar level of assets under management and by sector of the Scheme sponsor. Any rating/score has been determined at the sole discretion of Mercer, as professional advisor to the Scheme. Mercer does not accept any liability or responsibility to any third party in respect of these findings. RITE is an evaluation at a point in time, informed by Mercer’s Sustainable Investment Pathway; more details on the Pathway can be found here: <https://www.mercer.com/our-thinking/wealth/pathway-to-responsible-investing.html>

³ Any rating/score has been determined at the sole discretion of Mercer, as professional adviser to the Scheme. Mercer does not accept any liability or responsibility to any third party in respect of these findings. RITE is an evaluation at a point in time, informed by Mercer’s Sustainable Investment Pathway; more details on the Pathway can be found here: <https://www.mercer.com/our-thinking/wealth/pathway-to-responsible-investing.html>

Section 4

Metrics and Targets



Assessing climate-change related risks and opportunities

Climate Metric Analysis

The Trustees have chosen to present climate-related metrics across four different categories in this report. The climate-related metrics help the Trustees to understand the climate-related risk exposures and opportunities associated with the Scheme's investment portfolio and identify areas for further risk management, including investment manager portfolio monitoring, voting and engagement activity and priorities. The metrics in this report relate to the Scheme's financed emissions only and exclude emissions associated with the operation of the Scheme. The metrics in this report are listed below and where metrics relate to emissions, these cover scope 1 and 2 only. The Trustees will consider beginning to report on scope 3 emissions from their next report, depending on data availability and quality.

The Trustees initially focused on emissions intensity analysis for assessing risk; this analysis was performed in Q3 2021, covering the 12 months period to 31 March 2021. Over the year to 31 March 2022, the Trustees considered how to report on additional metrics and requested information from the managers to assess their ability to do so.

As at 31 March 2023, for the listed equity, diversified growth, corporate bonds and alternative credit portfolios, together representing 50% of the Scheme's total strategic allocation (the remaining assets being government bonds (45%) and property (5%)), the Trustees have agreed to report on six metrics, although the regulation only requires four. In addition, the Trustees report on two metrics for government bonds (45% of the portfolio), leaving only property (5%) out of the analysis entirely, due to unavailability of data at present for this asset class. The Trustees will look to incorporate the Property mandate in future as data quality for the industry improves.

The selected metrics are absolute emissions, carbon footprint, Weighted Average Carbon Intensity ("WACI"), implied temperature rise, % of portfolio companies with targets approved by the Science Based Targets initiative ("SBTI's") and data quality; further information is set out in the table on the following page, with greater detail in the appendix

Metric category	Selected metric	Further detail
Absolute emissions	Total Greenhouse Gas Emissions	Tonnes of carbon dioxide and equivalents (tCO ₂ e) that the Scheme is responsible for financing.
	Carbon Footprint	The amount of carbon dioxide and equivalents (tCO ₂ e) emitted per million dollars of the Scheme's investments.
Emissions intensity	Weighted Average Carbon Intensity (WACI)	The exposure of the Scheme to carbon-intensive companies, measuring the amount of carbon dioxide and equivalents (tCO ₂ e) emitted per million dollars of holding company / issuer revenue ⁴ on average.
	% of portfolio companies with targets approved by the Science Based Targets initiative (SBTi)	Assessment of the proportion of portfolio companies/issuers that have set net-zero targets that have been validated by SBTi.
Portfolio Alignment	Implied Temperature Rise (ITR)	A forward-looking assessment of how aligned the Scheme's portfolios are relative to the Paris Agreement's 1.5°C target. This is estimated based on the activities and decarbonisation targets of portfolio companies / issuers, relative to what global decarbonisation needs to be to achieve 1.5°C.
Additional	Data Quality	Represents the proportions of the portfolio for which the trustees have high quality data.

Further detail on each metric is set out in appendix A.

The Trustee's choice of metrics complies with the TCFD requirement to select a minimum of one absolute emissions metric, one emissions intensity metric, one portfolio alignment metric and an additional climate change metric. The Trustees will review their decision from time to time and may report on different metrics as industry standards and data coverage evolve.

The Trustees recognise the challenges associated with various metrics, tools and modelling techniques used to assess climate change risks. The Trustees aim to work with their investment adviser and investment managers to continuously improve the approach to assessing and managing risks over time as more data becomes available. The Technical Appendix of this report sets out the data limitations and assumptions used in collating these metrics.

A summary of the results is set out on the following page of this report. We then provide additional commentary on each metric and the results of the analysis, including a comparison of how the metrics have evolved over time where relevant.

⁴ For sovereign bonds, Greenhouse Gas Emissions are expressed relative to Purchasing Power Parity adjusted Gross Domestic Product (PPP-adjusted GDP), in line with the Partnership for Carbon accounting of Financials guidance (PCAF).

Green (significantly below index)
 Amber (in line with index, or within 10% below index)
 Red (has contributed negatively with above index performance)

Summary of Results

Asset Class	Manager/ Mandate	Benchmark	WACI (tons CO2e / \$M revenue) / Sovereign Carbon Intensity (tCO2e / \$M PPP GDP)			Carbon Footprint (tons CO2e / \$M invested)			Percentage of Strategic Allocation for Asset Class
			Coverage (%)	Fund	Benchmark	Coverage (%)	Fund	Benchmark	(%)
Listed Equity	LGIM Global Equity*	MSCI ACWI	98.7%	77.5	150.2	98.7%	24.4	56.9	17.5%
Corporate Bonds	LGIM B&M**	iBoxx Non-Gilt	61.3%	146.6	109.1	45.5%	14.5	54.3	16.2%
Total Equity & Corporate Bonds			80.1%	110.7	-	72.5%	19.7	-	33.7%
Sovereigns	Wellington	-	64.4%	284.7	-	-	-	-	1.5%
	LGIM LDI		100.0%	136.1	-	-	-	-	45.0%
Total Sovereign			98.8%	140.9	-	-	-	-	46.5%
Diversified Growth	Nordea	MSCI ACWI	99.7%	50.0	150.2	94.8%	14.1	56.9	9.0%
High Yield Credit	Barings	ICE BofA Non- Financial Developed Markets High Yield	59.8%	405.7	322.9	56.4%	181.5	144.5	1.1%
Absolute Return Bonds	Wellington	iBoxx Non-Gilt	90.6%	295.8	109.1	71.7%	94.1	54.3	0.8%
Total Scheme	(ex Sovereigns)	-	-	109.0	-	-	-	-	44.6%

*LGIM Global Equity is composed of two mandates: (1) LGIM Future World Global Equity and (2) LGIM Future World Global Equity (GBP Hedged). For presentational purposes, both mandates will be displayed as a single one.

** The discrepancy between LGIM B&M WACI and carbon footprint comes from carbon intensive holdings that report WACI data but no carbon footprint information, such as Virginia Electric and Power Company and Oglethorpe Power Corp.

Asset Class	Manager/ Mandate	Benchmark	Absolute Emissions (tons CO2e)		Implied Temperature Rise (°C)			SBTi	Percentage of Strategic Allocation for Asset Class
			Coverage (%)	Fund	Coverage (%)	Fund	Benchmark	(%)	(%)
Listed Equity	LGIM Global Equity*	MSCI ACWI	98.7%	3,733	98.4%	2.2	2.6	42.1%	17.5%
Corporate Bonds	LGIM B&M**	iBoxx Non-Gilt	45.5%	2,056	45.3%	2.2	1.8	23.0%	16.2%
Total Equity & Corporate Bonds			72.5%	5,789	72.3%	2.0	-	32.7%	33.7%
Sovereigns	Wellington	-	64.4%	3,754	-	-	-	-	1.5%
	LGIM LDI***		100.0%	102,775	-	-	-	-	45.0%
Total Sovereign			98.8%	106,529	-	-	-	-	46.5%
Diversified Growth	Nordea	MSCI ACWI	94.8%	1,109	94.8%	1.6	2.6	47.1%	9.0%
High Yield Credit	Barings	ICE BofA Non- Financial Developed Markets High Yield	56.4%	1,788	55.6%	3.3	1.8	9.0%	1.1%
Absolute Return Bonds	Wellington	iBoxx Non-Gilt	71.7%	624	71.4%	2.2	1.8	24.6%	0.8%
Total Scheme		-	-	115,839	-	2.0****	-	-	91.1%

Notes: Scope 1 and 2 only. % of fund directly analysed reflects coverage under the MSCI tool used in this analysis.

Sovereign analysis has been conducted in line with the recommended methodology set out in the ongoing PCAF consultation. Data for Production Emissions (GHG) for 2021 sourced from EDGARv7.0 website, Crippa et al. (2021, 2022). Data for PPP Adjusted GDP for the latest available data (2020-2021) sourced from The World Bank.

* LGIM Global Equity Mercer calculated number is 2.2°C, which differs from 2.7°C reported by LGIM due to differences in calculation methodology. For the total ITR calculation, the Mercer calculated number has been used to ensure consistency. In the table above the Mercer number is also used, to ensure consistency with the benchmark figure.

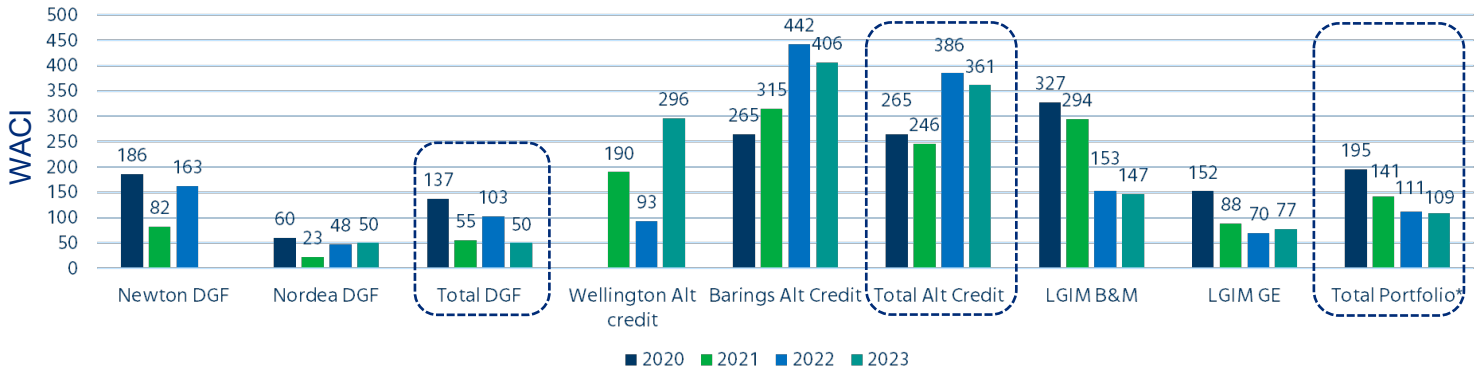
** LGIM B&M Mercer calculated number of 1.8°C, which differs from 2.2°C reported by LGIM due to differences in methodology. For the total ITR calculation, the Mercer calculated number has been used to ensure consistency. In the table, the LGIM number has been used given LGIM have bespoke targets included in their guidelines that use their methodology.

***For LDI, absolute emissions in respect of funded gilt exposure (£323M) are 54,415 tCO2e, emissions from additional exposure achieved through repo to gilts (£287M) are 48,360 tCO2e. Emissions from total exposure to gilts (£611M) are shown in the table above. The exposure to short leg of repo contracts (-£319M) was not included in the analysis.

**** Implied Temperature Rise for Total excludes sovereign debt.

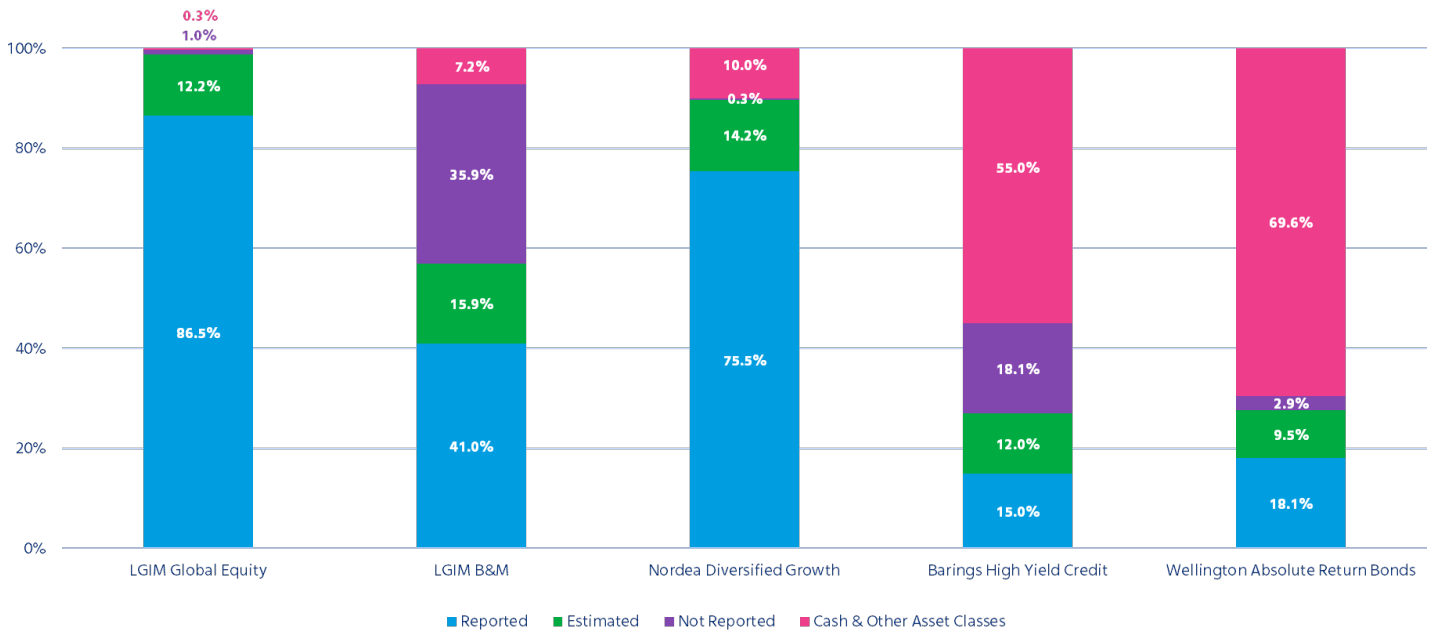
	Commentary on Results
Total Greenhouse Gas Emissions	<p>The absolute emissions of the Scheme (property) were equivalent to 115,839tCO₂e in March 2023. While sovereigns drive the majority of these emissions, these also represent the majority of the Scheme's portfolio. The Alternative Credit portfolios managed by Wellington and Barings contribute a meaningful proportion to total emissions, when taking into account the relatively low allocation to these mandates.</p>
Carbon Footprint	<p>Wellington and Barings had respectively c.73% and c.26% higher carbon footprints when compared with their comparator benchmarks. On the other hand, the LGIM Equity and Buy and Maintain Credit and the Nordea Diversified Growth mandates had carbon footprints that were materially lower than benchmark, which is pleasing.</p>
Weighted Average Carbon Intensity	<p>The Trustees have been analysing carbon intensity metrics since 2020, as part of the annual Carbon Footprint report. 2020 and 2021 metric data was sourced directly from the managers. In 2022 and 2023, Mercer undertook an independent calculation of metric data, based on stocklists provided by the managers and the MSCI carbon database. This WACI progression chart (shown overleaf) is therefore based off two different data sources. Nonetheless, when assessing managers' WACI progression since 31 March 2020 to 31 March 2023, it is possible to draw the following conclusions:</p> <ul style="list-style-type: none"> • Total Scheme (excluding LDI and Property) WACI has reduced by c.44% since 2020. This was mainly driven by the LGIM Buy & Maintain Credit and LGIM equity decarbonisation pathway, achieved via the Trustees' decision to rotate the exposures to climate and ESG aligned vehicles, as well as the disinvestment from Newton in early 2023. • Managers have generally reduced their WACI since 2020, with the exception of Barings and Wellington. Data coverage is currently low for Alternative Credit and managers are working to engage with issuers in sectors with high emissions regarding reporting of emissions data and reduction targets. Barings noted the WACI increase was linked to a larger allocation to oil & gas, as well as an increase in the positions in cruise lines; Wellington noted the increase was driven mainly by a larger allocation to the utilities sector.
% SBTi	<p>Nordea DGF and LGIM Equity are currently the mandates with the highest proportion of SBTi-approved targets, in line with expectations given coverage for corporate bonds is generally lower. The Trustees recognise that the SBTi does not currently cover every sector, however they are cognisant that the Initiative's coverage across additional companies and sectors is expanding rapidly and will monitor this over time.</p>
Implied temperature rise	<p>As at 31 March 2023, the weighted average of Implied Temperature Rise (excluding LDI and property) was 2.0°C, which is below the MSCI ACWI (2.6°C). This is still greater than the Paris Agreement ambition of "well below 2°C", but in line with global policies and pledges expected to result in a 2.6°C-2.9°C outcome this century.</p> <p>The Trustees agreed to set a target temperature alignment of 2.0°C from 2025 and 1.5°C from 2030 for the LGIM B&M Credit mandate. As at 31 March 2023, the mandate's implied temperature rise was 2.2°C.</p> <p><i>Note: LGIM B&M and Global Equity Mercer calculated numbers are 1.8°C and 2.2°C, respectively, which differ from 2.2°C and 2.7°C reported by LGIM due to differences in methodology. For the total ITR calculation, the Mercer calculated number has been used. The Trustee will monitor and consider any differences in methodology and/or differences between manager reported and Mercer calculated figures over time.</i></p>
Data Quality	<p>Overall we believe that good quality data can be defined as having reported and estimated emissions (as opposed to not reported) above 85% for listed equities and above 55% for public corporate bonds. The threshold for multi asset funds may be difficult to assess. Overall the Scheme's equity, diversified growth and investment grade credit mandates have reasonable data quality compared to expectations.</p>

Weighted Average Carbon Intensity Progression



*Totals excluding LDI and Property. Totals include WACI of terminated mandates (Newton).

Data Quality



Note: Scope 1 and 2 only. Only including the equity and corporate bond portions of each mandate. The remainder should be included in "Cash & Other Asset Classes".

Decarbonisation and Alignment Targets

The Trustees have set the following targets:

Scope	Agreed Target	Rationale	Comments
1 Total Scheme	Target net zero by 2050 or earlier if possible.	<ul style="list-style-type: none"> Setting a net zero target is aligned with fiduciary duty as climate change represents a material, systemic financial risk. 	<ul style="list-style-type: none"> At a total portfolio level, net zero by 2050 or earlier is an ambitious and pragmatic approach which is supported by scientific consensus and aligns with the UK government's target (relevant given the Scheme's significant gilt holdings).
2 Total Scheme (excluding LDI, alternative credit and Property)	Reduce greenhouse gas emissions (Scope 1 and 2) by 55% or more by 2025 and 60% or more by 2030, measured by Weighted Average Carbon Intensity with a 2020 baseline.	<ul style="list-style-type: none"> A 2050 target is consistent with limiting warming to 1.5°C and avoiding the worst impacts of climate change (IPCC* 1.5°C special report). Consistent with IIGCC** Net Zero Framework – a best practice investor framework – and other leading investors targeting a 'whole of portfolio' approach. Whilst not as aggressive as the Sponsor's net zero ambitions (which are Net Zero by 2030), this recognises constraints in the asset portfolio (e.g. high allocation to gilts) and the fact that the Sponsor might use offsetting strategies not accessible to the Scheme's portfolio. 	<ul style="list-style-type: none"> A 60% or more reduction target by 2030 is broadly consistent with what the Scheme's managers believe is achievable without prejudicing other portfolio characteristics. LDI, alternative credit and property are excluded from the interim targets for now, given specific characteristics. LDI is the Scheme's largest allocation and the exposure is effectively solely to UK government bonds, so the Trustees have to rely on the UK Government's progress in the area at the total Scheme level. Scope 3 emissions should be included in target setting as reporting methodologies improve. The Trustee should be cognisant that reporting improvements might lead to increased emissions when looking at metrics data. As at 31 March 2023, WACI reduction versus the baseline was 48%.
3 LGIM B&M Credit target	Gradual temperature alignment of 2.0°C from 2025 and 1.5°C from 2030 onwards	<ul style="list-style-type: none"> Intermediate targets needed to achieve and monitor ongoing progress. This represents a decarbonisation curve broadly in line with the IPCC 1.5°C pathway. 	<ul style="list-style-type: none"> LGIM Credit ITR was 2.2°C as at 31 March 2023 (LGIM calculated figure).
4 Diversified Growth Funds (DGFs – currently only Nordea following Newton termination in January 2023)	WACI reduction of 50% or more by 2030	<ul style="list-style-type: none"> Intermediate targets needed to achieve and monitor ongoing progress. This represents a decarbonisation curve broadly in line with the IPCC 1.5°C pathway. 	<ul style="list-style-type: none"> Nordea has signed up to the net zero asset managers' initiative. The firm's targets are aligned with the portfolio's target. As at 31 March 2023, WACI reduction versus the baseline was 60%, ahead of the interim target.

*Intergovernmental Panel on Climate Change

**The Institutional Investors' Group on Climate Change

The Trustees will review their targets at least annually and intends to set specific targets for other asset classes and include Scope 3 emissions when the available data has improved and there are suitable

methodologies. The Trustees have selected WACI as the overall metric used to measure progress against the target due to wider coverage across the portfolio, particularly at the 2020 baseline year.

A wide range of factors will affect whether the Trustees achieve their targets and the Trustees have varying degrees of control over these factors. For example, the quality and availability of data means that the quoted greenhouse gas emissions are likely to change. Further, LDI is the Scheme's largest allocation and the exposure is in effect solely to the UK government as an issuer, so the Trustees have to rely on the Government progress in the area.

Ultimately achieving the desired level of decarbonisation will depend on global economies overall successfully decarbonising. Notwithstanding that there are factors outside of the Trustees' control, the Trustees' intention is to meet their targets and it engages with their investment managers to make clear their requirements.

Appendix A

Scheme’s Governance Statement

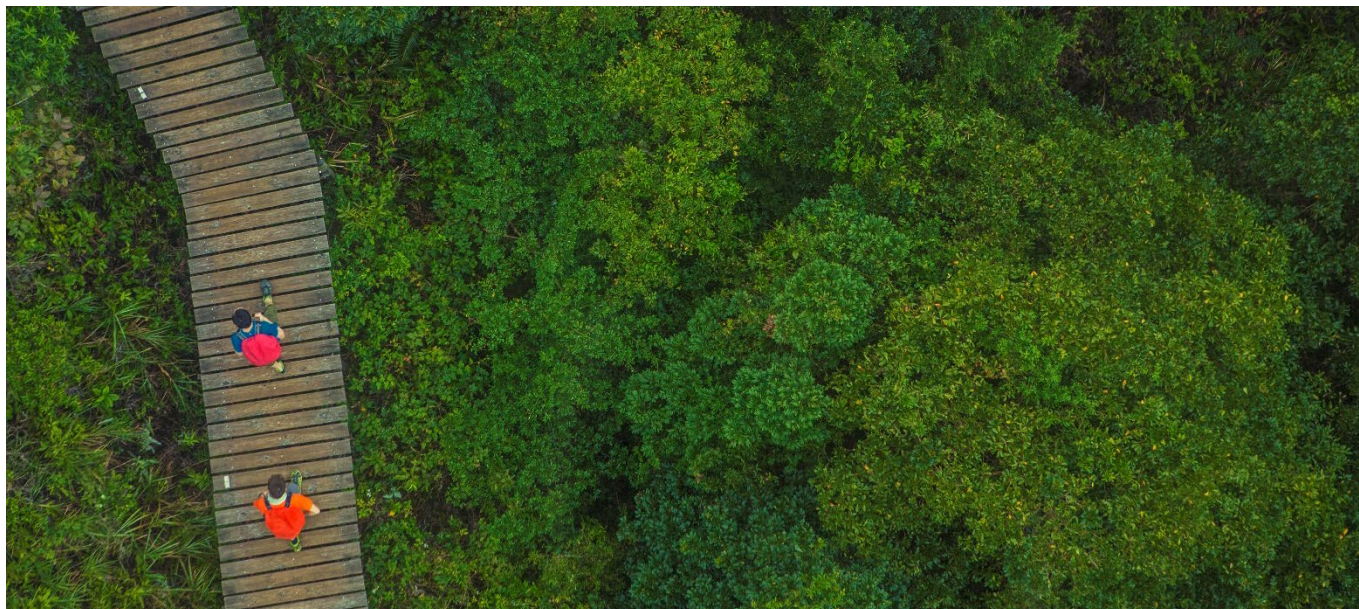
The below is an extract of the Scheme’s Governance Statement.

What	How	Roles/responsibilities
<p>The Trustees identify climate-related risks and opportunities, which may have an effect over the short term, medium term and long term on the Scheme’s investment and funding strategy.</p>	<p>Annual review of an Engagement Policy Implementation report and Task Force on Climate-related Financial Disclosures (“TCFD”) report, which review various climate metrics and the extent to which investment managers are integrating ESG and climate change considerations into their decisions and reviews the stewardship activities of the investment managers. These reports are publicly available on the Arup Group website.</p> <p>Presentations from managers on climate-related risks from time to time.</p> <p>Quarterly review of investment managers ESG rating (from investment advisor) shown in Quarterly Investment Monitoring Reports.</p> <p>Professional advisors may highlight any additional risks of opportunities that are relevant on an ongoing basis.</p>	<p>Trustees, Investment Sub-Committee and in-house pensions team: Consider, discuss and challenge Engagement Policy Implementation and Scenario Analysis reports.</p> <p>Investment advisor: Produce Engagement Policy Implementation, TCFD report, Scenario Analysis report and Quarterly Reports. Account for climate change risks/opportunities when reviewing strategy.</p> <p>Scheme actuary: Input into scenario analysis and advise on funding implications, including assessing impact of climate change on liabilities under different scenarios.</p> <p>Principal Employer/ Covenant advisor: Input into Scenario Analysis and advise on covenant implications.</p> <p>All professional advisors: Highlight any additional risks or opportunities that are relevant on an ongoing basis.</p> <p>Investment managers: Provide information required for Scenario Analysis and Quarterly Reports, present to the Trustees as required.</p>

What	How	Roles/responsibilities
<p>The Trustees allocate appropriate time and resources to climate change governance and reporting. It uses outputs from other climate-related activities to help determine how much time and resource is allocated to overseeing climate-related risk.</p>	<p>Time is allocated at least annually to climate change governance and reporting at both the ISC and Trustee level, as a substantive agenda item, and more often as required.</p> <p>Next steps are identified as part of other activities and Trustees time allocated by the Investment Sub-Committee and in-house pensions team as needed.</p>	<p>Trustees: Ensure sufficient agenda time is allocated.</p> <p>Investment Sub-Committee and in-house pensions team: Allocate sufficient agenda time.</p> <p>Professional advisors: Identify next steps when providing input on climate-related activities.</p>
<p>When using external advisers, the Trustees consider and document the extent to which climate-related responsibilities are included in any agreements.</p>	<p>The Trustees intend to agree specific climate-related objectives for its professional advisors and in-house pensions team in due course and review these in each calendar year thereafter.</p>	<p>Trustees: Agree objectives with professional advisors and review these annually.</p> <p>Professional advisors and in-house pensions team: Propose objectives and work over the year to meet these.</p>
<p>The Trustees provide opportunities for those carrying out governance activities to undertake training on climate risks and opportunities.</p>	<p>The investment advisor provides training to the Trustees, ISC and in-house pensions team on climate issues at regular intervals, at least annually. Timing of these training sessions is generally agreed as part of meeting agendas and annual business plans, developed by the advisor and agreed by the Trustees.</p>	<p>Trustees, Investment Sub-Committee and in-house pensions team: receive training.</p> <p>Professional advisors: provide training and plan timing for these moments over the year and as required.</p>

Appendix B

Technical Appendix



Asset Allocations Modelled

Strategic Asset Allocation(s) modelled

The strategic asset allocation as set out in the Statement of Investment Principles:

	31 March 2023 Actual Allocation (%)	Current Benchmark (%)	Current Ranges (%)
Future World Global Equity	15.0	17.5	+/- 5
Diversified Growth Funds (DGF)	12.2	10.0	+/- 10
Property	5.3	5.0	+/- 5
Alternative Credit	6.3	5.0	+/- 5
Total Growth	38.8	37.5	+/- 5
Buy and Maintain Fund	15.5	17.5	+/- 5
Bespoke LDI portfolio	45.7	45.0	+/- 20
Total Matching	61.2	62.5	+/- 5
Total	100.0	100.0	-

Climate scenario modelling approach

Climate scenario narratives

Investment Climate Scenario Analysis Assumptions:

	Rapid Transition	Orderly Transition	Failed Transition
Summary	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.	Political and social organizations act quickly and predictably to implement the recommendations of the Paris Agreement to limit global warming to below 2°C above pre-industrial levels by 2100.	The world fails to meet the Paris Agreement goals and global warming reaches 4.3°C above pre-industrial levels by 2100. Physical climate impacts cause large reductions in economic productivity and increasing impacts from extreme weather events.
Temperature Change	Average temperature increase stabilises at 1.5°C around 2050.	This scenario includes additional economic damage consistent with 1.8°C of average temperature rise – peaking in 2070.	Expected increase of 4.3°C, with a high-likelihood range of an increase between 3.4°C and 5.6°C by 2100.
Cumulative emissions to 2100	416 GtCO ₂ e	810 GtCO ₂ e	5,127 GtCO ₂ e
Key policy and technology assumptions	An ambitious policy regime is pursued to encourage greater decarbonisation of the electricity sector and to reduce emissions across all sectors of the economy. Higher carbon prices, larger investment in energy efficiency and faster phase out of coal-fired power generation under a 'Rapid' transition.		Existing policy regimes are continued with the same level of ambition.
Financial climate modelling	Pricing in of transition and physical risks of the coming 40 years occurs within one year in 2025. As a result of this aggressive market correction, a confidence shock to the financial system takes place in the same year.	Pricing in of transition and physical risks until 2050 takes place over the first 4 years.	Physical risks are priced in two different periods: 2026-2030 (risks of first 40 years) and 2036-2040 (risks of 40-80 years).
Physical risk impact on GDP	Physical risks are regionally differentiated, consider variation in expected temperature increase per region and increase dramatically with rising average global temperature. Physical risks are built up from: Gradual physical impacts associated with rising temperature (agricultural, labour, and industrial productivity losses) Economic impacts from climate-related extreme weather events Current modelling does not capture environmental tipping points or knock-on effects (e.g., migration and conflict).		
Physical risk impact on inflation	Gradual physical impact (supply shocks) on inflation included through damages to agriculture and change in food prices. Total impact on a	No explicit modelling of physical risk impact on inflation (supply-side shocks). Impact on inflation follows historical relationship between GDP and CPI.	Severe gradual physical impact (supply shocks) on inflation included through damages to agriculture and change in food prices. Total

	Rapid Transition	Orderly Transition	Failed Transition
	Global CPI Index is +2% in 2100.		impact on a Global CPI Index is +15% in 2100.

Source: Mercer and Ortec. Mercer's Capital Market Assumptions as at 31st March 2023 and Ortec's climate scenarios as at 31 December 2022.

The return impacts of the climate scenarios represented in this report are relative to the 'baseline'. The baseline represents what we are assuming the market is currently pricing in. The baseline includes a 10% weight to a **Failed Transition**, 40% weight to an **Orderly Transition**, 10% to a **Rapid Transition** and 40% to a range of **low impact scenarios**.

Limitations associated with climate modelling

Climate scenario modelling is a complex process. The Trustees are aware of the modelling limitations. In particular:

1. The further into the future you go, the less reliable any quantitative modelling will be.
2. There is a reasonable likelihood that physical impacts are grossly underestimated. Feedback loops or 'tipping points', like permafrost melting, are challenging to model particularly around the timing of such an event and the speed at which it could accelerate.
3. Financial stability and insurance 'breakdown' is not modelled. A systemic failure may be caused either by an 'uninsurable' 4°C physical environment, or due to the scale of mitigation and adaption required to avoid material warming of the planet.
4. Most adaptation costs and social factors are not priced into the models. These include population health and climate-related migration.
5. New and emerging risks, such as the impact of climate change on biodiversity loss, and vice versa, is expected to be integrated into climate scenario modelling over time once the supporting science and impact on econometrics and finance is better understood.

Longevity in scenario analysis

1. Models provide insight to help navigate uncertainty and understand risk.
2. Climate change scenarios are an extension of existing modelling:
 - Being optimistic about limiting climate change - implies significant policy interventions and changes in behaviour
 - Being pessimistic about limiting climate change - implies that the physical impacts of climate change will become significant
 - The modelling therefore suggests there is no status quo climate pathway, where climate change is limited but economies and carbon emissions continue as currently, indefinitely
3. The scenarios and outputs being considered are generated by modelling. There is, of course, significant “model risk” – the risk that the model does not fully capture the way the world works, either economically or physically.
4. However, the scenarios point to a consistent conclusion that climate change, and the actions taken to seek to prevent it, will have an impact on economies and asset values. For defined benefit pension schemes it is important to consider if the outcomes in those scenarios might also affect life expectancies.

Scenario	Rapid / Orderly Transition	Failed Transition
Global Warming	Paris aligned scenario – temperatures kept to a 1.5°C rise this century	Average global temperature is about 3.2°C to 5.4°C above pre-industrial levels by 2100
Economic Growth	Both global and UK GDP see material rises by 2100	Both global and UK GDP see material falls by 2100
Air Quality	Air pollution improves over the next 50 years Fine particles (PM2.5) fall by around a third over the next 30 years Hazardous ground level ozone (O3) falls by around 15% over the next 50 years	Air pollution deteriorates over the next 50 years Fine particles (PM2.5) fall by around a third over the next 30 years Minimal change in ozone (O3) over the next 50 years

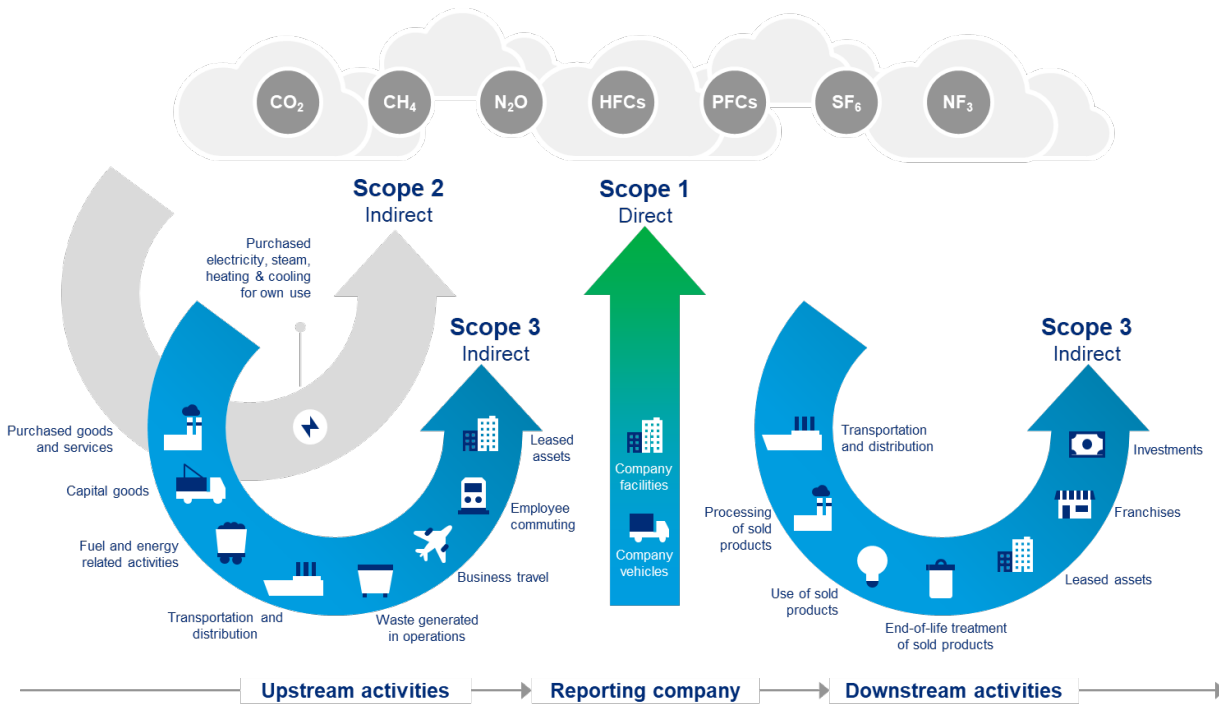
Source: LCP

Climate metric analysis approach

Know your metrics

Total Greenhouse Gas Emissions

This metric takes an ownership approach to answer what proportion of a company’s or asset’s emissions an investor owns and is therefore responsible for financing. It includes the seven types of greenhouse gas (“GHG”) (as defined in the Kyoto Protocol), across the three scopes of emissions, as summarized below. Please note that this report excludes scope 3 emissions, which are expected to be included from the Trustees’ next report, but may not be incorporated into target setting and monitoring depending on the quality of underlying data.



Source: GHG Protocol

Emissions of the seven greenhouse gases have different impacts on climate change. In order to simplify reporting, each greenhouse gas is calibrated relative to carbon dioxide and is reported as ‘carbon dioxide equivalent’ emissions (CO₂e). In this way the Trustees can compare companies that emit different amounts of different gases on a consistent basis.

In respect of sovereign debt investments, the Trustees follow the Partnership for Carbon Accounting of Financials (‘PCAF’) to derive absolute emissions. Recognising the different methodologies used to calculate absolute emissions for sovereigns and corporates, the Trustees report sub totals at the corporate and sovereign levels as well as a grand Total Greenhouse Gas Emissions figures.

The Trustees have chosen this metric to understand the absolute amount of emissions financed by the Scheme’s investments.

Carbon Footprint

Carbon Footprint is an intensity measure of emissions that takes the Scheme’s total GHG Emissions figure and normalises it to take account of the size of the investment.

Analysing an investment fund’s Carbon Footprint assists the Trustees in identifying carbon-intense sections of the Scheme’s portfolio. The Trustees have therefore chosen this metric to assist them in

prioritising carbon intense parts of the investment strategy for potential re-allocation or engagement as a means of mitigating associated climate-related risks.

Weighted Average Carbon Intensity

Weighted Average Carbon Intensity (WACI) is an alternative intensity measure of emissions that normalises a company's total GHG Emissions figure by its revenue. This metric is calculated by taking the total carbon emissions of the investment and dividing by annual company revenue. A portfolio level intensity metric is calculated as the weighted average of the underlying holdings' intensity metrics.

Analysing a fund's WACI assists the Trustees in identifying how carbon efficient the business models of the companies held within a portfolio are. Alongside Carbon Footprint, the Trustees have chosen this metric to assist them in prioritising carbon intense parts of the investment strategy for potential re-allocation or engagement as a means of mitigating associated climate-related risks.

% of portfolio companies with net zero targets approved by the Science Based Targets initiative (SBTi)

The Science Based Target initiative (SBTi) has established an industry standard methodology for companies setting long-term carbon emission reduction targets that are in line with climate science. Companies submit their net zero plans to SBTi, who then act as an independent assessor of the validity of the plans.

SBTi use either a sector decarbonisation approach (SDA) or an absolute contraction approach (ACA). Under the SDA approach, SBTi allocate the 2°C carbon budget to different sectors, taking into account differences between sectors today and mitigation potential going forwards (e.g. this takes into account the fact that power generation will likely be able to decarbonise faster than cement production). The ACA approach is a broad assumption that assumes that all companies should decarbonise at the same rate. The ACA approach is the most popular target that companies who submit their targets to the SBTi choose.

The Trustees have chosen this metric because it provides a measure of portfolio alignment with the goals of the Paris Agreement. Underlying funds with a low percentage of companies with SBTi-approved targets could indicate investment in companies or issuers that are not setting targets to align their businesses or activities with net zero, which is a forward-looking indication of climate transition risk.

Implied temperature rise

This is a forward-looking metric that considers the pledges, commitments and business strategy changes that underlying investee companies/issuers have made. It provides a prediction of the potential temperature rise over the rest of the century based on the activities of those companies and issuers. The metric illustrates the degree of portfolio alignment with the goals of the Paris Agreement.

The calculation of the level of warming is determined by mapping a given company's/issuer's level of over/undershoot (relative to its carbon budget) to a temperature outcome.

The Trustees have chosen this metric to include in this report because of its simplicity in presentation and a useful way to see, at a glance, the positioning of a fund relative to 1.5°C economy. This is also a measure of climate transition risk with greater transition risk highlighted in asset allocations with a higher Implied Temperature Rise.

Data Quality

Data Quality aims to represent the proportions of the portfolio for which the Trustees have high quality data. The Trustees have considered whether the underlying emissions data has been verified by a third party, reported by the company, estimated by the data provider, or unavailable to determine the how representative the analysis is of the Scheme's actual portfolio.

Data Quality also assists the Trustees in monitoring quality of reporting over time, as companies are expected to continually improve their reporting on climate-related metrics. As the quality of data improves, the decision usefulness of the climate metrics reported on the Scheme's portfolio increases. In addition, the Trustees are able to identify the companies in the portfolio that are not currently reporting emissions data and use this as the basis for engagement.

Data sources

Climate-related metrics provided by Mercer have been sourced from MSCI using stock list data provided by the investment managers. Other data has been requested directly from the asset managers.

Proxy data

For some asset classes, data coverage is too low (or no data is available) to be able to take a pro rata approach. Use of proxy data (data of other asset classes or funds that broadly represent a given fund) can help provide climate-related data where coverage for an asset class/fund is limited.

Scope of emissions

Only Scope 1 and 2 emissions data has been included in this report except where noted. This means that for some companies the assessment of their carbon footprint could be considered an understatement. Scope 1, 2 and 3 emissions are as defined by the GHG protocol.

Data coverage

Data coverage refers to the proportion of an asset in which the various climate-related metric data is available. There are gaps in the data as:

- Some public listed companies are not publishing climate-related data or are providing poor quality data. This is relevant to public equity and corporate bonds. Obtaining data for emerging market equity and debt can also be challenging due to general disclosure and transparency challenges.
- Many private companies do not currently produce climate-related data and coverage for private markets, such as private equity and private debt, will be low, or zero for mature funds.
- Sovereigns, or governments, may not publish climate-related data in the public domain. This is a particular challenge for emerging market debt. For UK government debt, data is available but there is a delay in the data being published.
- Short-term instruments, such as secured finance assets, have limited data available due to the short-term nature of the individual assets.
- For the long dated property portfolio, the occupiers of the buildings in the portfolio have full operational control and there are no Scope 1 or 2 emissions associated with the investments. The asset managers are looking to improve the collection of Scope 3 emissions data – this includes occupier activities where they have direct utility supplier contracts.

In this report, the Trustees have used a pro rata approach to scale up each climate metric in order to present the data as if full coverage was available for each asset. This assumes that the part of an investment fund that does not have data available has the same climate metrics as the part where there is data.

The Trustees are working with the investment advisor and asset managers to address the data gaps, as far as they are able.

Important notices from data providers

Mercer

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MSCI

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Ortec Finance

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