Clwyd Pension Fund

Climate change governance and reporting in line with the recommendations of the

Task Force on Climate-Related Financial Disclosures ("TCFD")

Clwyd Pension Fund
Reporting period: 12 months to 31 March 2023

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Contents

Section 1
Introduction

minWelcome to our climate change report, which has been prepared in line with the recommendations of the Task Force on Climate-Related Financial Disclosures ("TCFD").

The Committee of the Clwyd Pension Fund ("the Fund") recognises climate change as a risk that could impact the Fund's ability to achieve its required long term investment returns if it is not properly measured and managed. The Fund also recognises 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.

An 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 Fund invests, and in consideration of the different global warming scenarios. This data is subject to change as climate change reporting improves.

Climate change is one risk amongst many that the Fund measures, monitors and manages. To this extent, climate change needs to be considered alongside these other risks in a balanced and proportionate way.

This report has several sections:

Section	Information
Governance:	How the Fund incorporates climate change into its decision making
Strategy:	How potential future climate warming scenarios could impact the Fund
Risk Management:	How the Fund incorporates climate-related risk in its risk management processes
Metrics and Targets:	How the Fund measures and monitors 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.

As always, members and employers are encouraged to contact the Fund if there are comments they wish to raise.

You can contact the Fund via email: pensionsinvestments@flintshire.gov.uk

Philip Latham
Head of the Clwyd Pension Fund

Section 2
Executive Summary

The Committee recognises that the risks and opportunities associated with climate change could impact the long term financial position of the Fund. There is also a recognition that this is a complex issue.

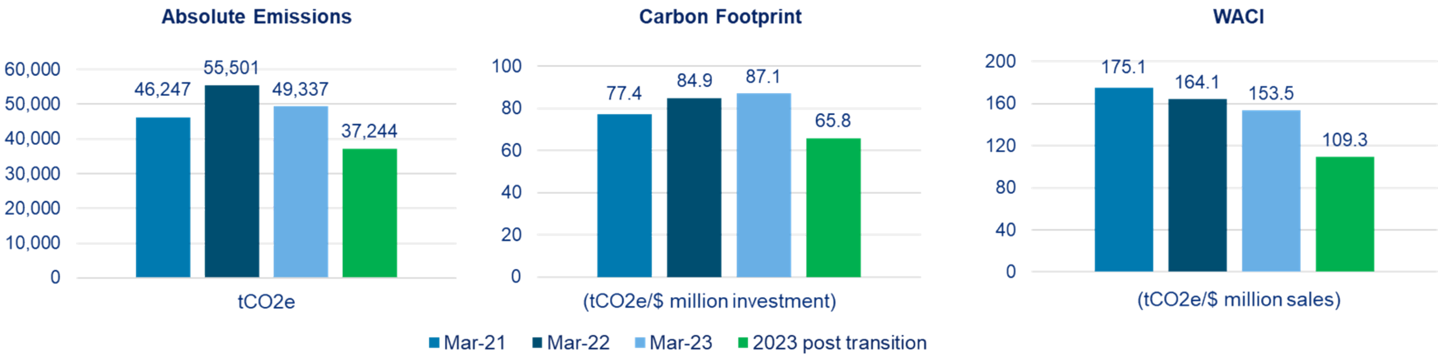
The Committee conducted baseline analysis on the Fund's investments as at 31 March 2021, and ultimately agreed a range of targets. Full details on all of the Fund's targets can be found in Section 7 of the report, with the key targets being:

- **to target a net zero investment portfolio (covering all assets) by 2045 or earlier;**
- **shorter-term target of a 50% or more reduction in greenhouse gas emissions by the end of 2030;**
- **targets relating to the physical Listed Equity holdings, seeking a reduction in greenhouse gas emissions of 36% by 2025 and 68% by 2030.**

The ultimate target of achieving net zero across all of the portfolio will take time and be dependent on future developments which are uncertain. For example, outside of listed equities, greenhouse gas emission data quality is less robust. The Fund accepts it will take time to improve data quality to enable all assets to be incorporated and so the focus of this report is on the listed equity portfolio (target three above).

Progression against key metrics

The charts below highlight the changes in the three main carbon metrics year on year for listed equities, starting from the 31 March 2021 (baseline date) up to 31 March 2023. Additionally, the green bar represents the post transition position of the Fund having divested from the WPP Global Opportunities Fund and invested into the WPP Sustainable Active Equity Fund in June 2023.



Source: MSCI ESG Research LLC (reproduced by permission). Mercer Limited.

From March 2022 to March 2023, the carbon footprint of the wider market increased due to the relatively strong performance of the energy sector, following the Russian invasion of Ukraine.

Over the same period, **the absolute emissions of the Fund's listed equity portfolio decreased by 11.1%**, **Carbon Footprint increased by 2.7% (as seen across global benchmarks),** whilst the **Weighted Average Carbon Intensity (WACI) decreased over the same period by 6.4%.**

Taking into account an updated position allowing for the WPP Sustainable Active Equity Fund, the movement from March 2022 to July 2023 has resulted in a **32.9% reduction in Absolute Emissions, 22.5% reduction in Carbon Footprint and a 33.4% reduction in WACI.**

WACI analysis continues to show improvement year-on-year; this demonstrates that the companies the Fund ultimately invests in are less carbon intensive now than they were a year ago and **substantially less intensive than they were in March 2021 (c.37%).**

Post transition analysis shows that the **Fund has improved across all three metrics since its baseline in 2021.** This is a positive step towards the Fund achieving its ultimate goal of reducing emissions and achieving net zero by 2045. The Committee continues to look to identify appropriate opportunities to make further progress in this area.

Progress to date

The Fund has already taken actions to support the targets and initiatives that were previously agreed, including:

- Helping develop a sustainable equity mandate with the WPP, and since allocating to this mandate;
- Introducing more sustainable / ESG focused funds, where possible, into the Tactical Asset Allocation Portfolio when implementing new positions;
- Implementing a fossil fuel Exclusions Policy in relation to its listed equity holdings (post March 2023), full details of this policy are provided within Appendix B;
- Engaging with managers on matters pertaining to ESG within private markets, including looking at ways to improve climate metric data capture;
- Supporting investments with strong sustainability/ impact focus by allocating 6% of the total portfolio to local/ impact focused investments within private markets;
- Endeavouring to make sustainable-focused allocations within other private market asset classes (Private Equity, Private Debt, Infrastructure and Real Estate) where possible;

Actions to achieve targets going forward

A number or areas have been identified to consider going forward to help the Fund move closer towards achieving its targets, including but not limited to:

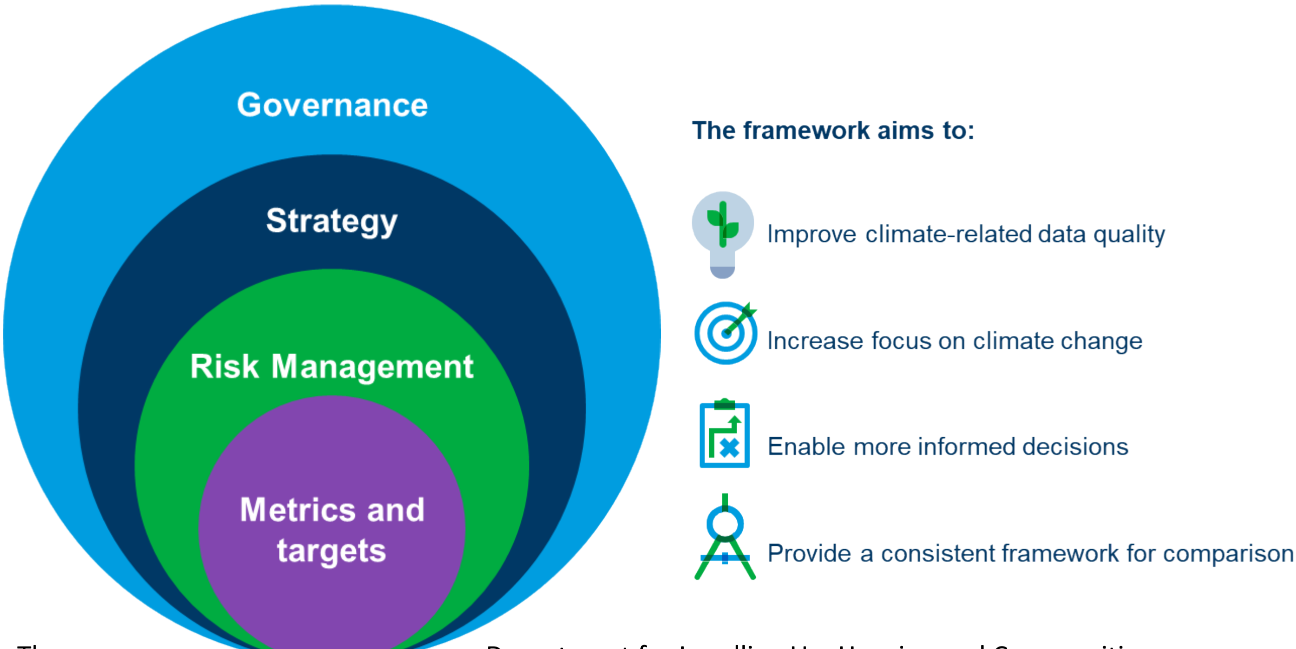
- Reducing ongoing Greenhouse Gas emissions, to meet agreed targets;
- Monitoring exposure versus the agreed fossil fuel exclusions policy;
- Continuing to commit to investments that support the energy transition;
- Increasing the analysis coverage of the Fund's investments (i.e. private markets – subject to data availability and quality).

Further information including expanded areas of consideration are detailed at the end of Section 7 of this report.

Section 3
The TCFD Framework

The Financial Stability Board created the TCFD framework in 2015. TCFD was created to improve and increase reporting of climate-related financial information that can promote more climate-informed investments. In 2017, the TCFD recommended a framework for disclosing how climate-related risks and opportunities are measured, monitored and managed by companies, asset managers and asset owners.

The recommendations are in four key areas:



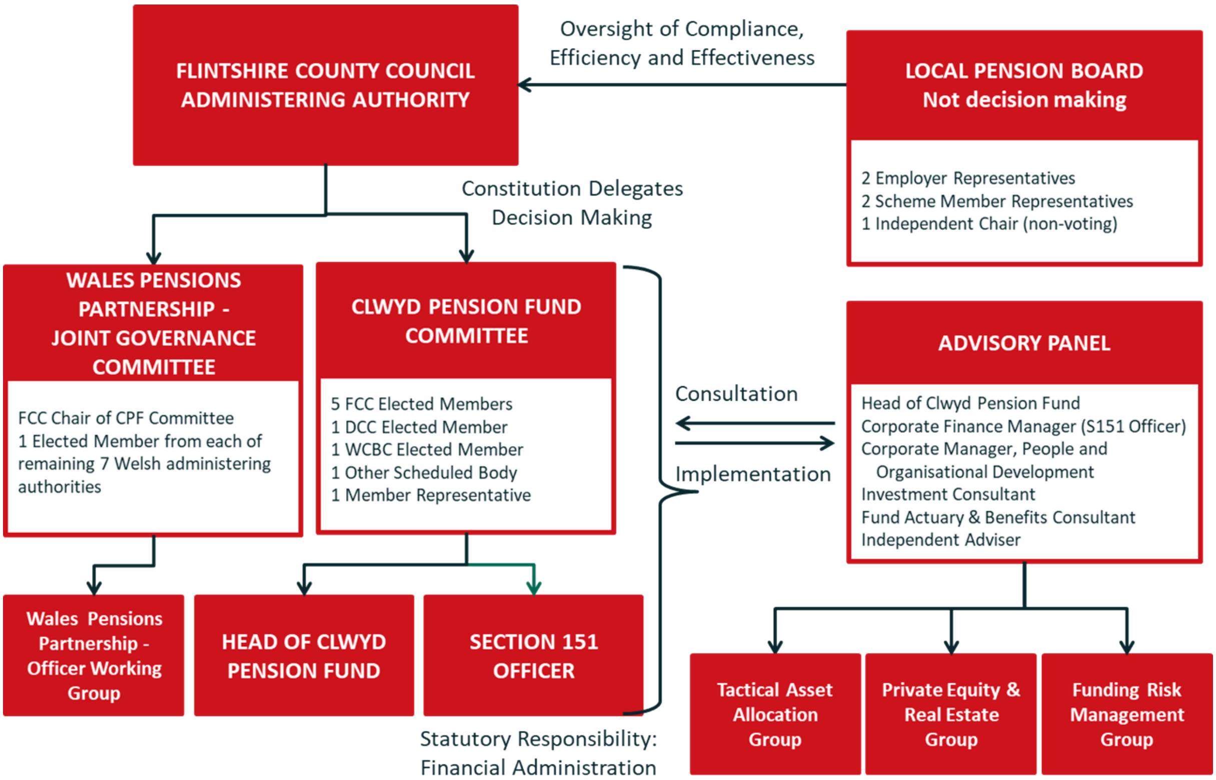
The Department for Levelling Up, Housing and Communities (DLUHC) consulted on proposals for new requirements on LGPS ("Local Government Pension Schemes") administering authorities in 2022 and 2023. The Fund responded to the consultations and will continue to engage on this vitally important topic, along with Flintshire County Council (as administering authority for the Fund).

The latest information for the LGPS is that individual funds will be expected to report on climate-related risks and opportunities within annual 'Climate Risk' reports. The timing of such report is yet to be confirmed by the government. The Fund is well prepared for future potential requirements on TCFD reporting given the extensive regular monitoring and actions already being taken by the Committee.

Section 4
Governance

Governance Approach

The Committee has ultimate responsibility for ensuring effective governance of climate-related risks and opportunities. The structure of the Fund's governance arrangements is illustrated below:



Pension Fund Committee (the "Committee")

The Fund is governed by the Committee who have the responsibility for all Fund matters including governance, investment and funding strategies, accounting, employer and scheme member engagement, communications, and administration. The Committee delegates the day-to-day running of the Fund to Officers. The Head of Clwyd Pension Fund has overall delegated powers for the management of the Fund on a day-to-day basis.

The Committee's principal aim is to carry out the functions of Flintshire County Council as the Scheme Manager and Administering Authority for the Clwyd Pension Fund in accordance with LGPS legislation.

The Committee, amongst other responsibilities, is responsible for approving the Fund's Investment Strategy Statement including setting the Responsible Investment policy and climate targets as recommended under TCFD. Further details on the roles and functions of the Committee are set out in the Fund's Governance Policy & Compliance Statement.

The members of the Committee have fiduciary and public law duties to the Fund's scheme members and employers, which is analogous to the responsibilities of trustees in the private sector.

The Committee may also delegate a limited range of its functions to one or more Officers of Flintshire County Council, which it does so under a formal Scheme of Delegation, which ensures timely decision making at an appropriate level.

No matters relating to Flintshire County Council's responsibilities as an employer participating within the Clwyd Pension Fund are delegated to the Committee, ensuring a clear separation of responsibility.

Pension Board (the "Pension Board")

The Pension Board ensures the effective and efficient governance and administration of the Pension Fund and assists the Fund in securing compliance with the LGPS Regulations and any other legislation relating to the governance and administration of the Fund, including TCFD recommendations. The Pension Board is not a decision making body in relation to the management of the Fund.

The Pension Board operates independently of the Committee.

LGPS Asset Pooling – Wales Pension Partnership (WPP)

The Wales Pension Partnership (WPP), is the pooling partner for the Clwyd Pension Fund. The Fund looks to invest with the WPP where appropriate investment solutions (sub-funds) are available that fit the Committee's investment strategy requirements. Investment of non-pooled assets is overseen by the Fund's Officers (and the Committee).

The WPP's Joint Governance Committee (JGC), which is comprised of Committee Chairs of each of the underlying constituent authorities (i.e. the participating pension funds), has approved a responsible investment policy and a climate risk policy for the WPP. The policies represent a broad range of investment beliefs within the Pool and show the desire of the WPP to be a leader in responsible investment. The WPP are a signatory of the UK Stewardship Code 2020.

The Fund has representation on the WPP's Officer Working Group and WPP's Responsible Investment Sub-Group, who are responsible for formulating and delivering WPP's Responsible Investment Workplan, as well as liaising with the WPP's Voting and Engagement Provider (Robeco).

The WPP Responsible Investment Sub Group has worked to develop reporting on the ESG and climate risk characteristics of WPP's sub-funds. This reporting is being prepared independently of the investment manager's reporting, so provides independent verification, and will be shared with constituent authorities in due course. Robeco also provide quarterly reporting on Voting and Engagement activity, which has been shared with the constituent authorities.

Overall, in relation to climate change the WPP is responsible for:

- Appointing the voting and engagement provider (Robeco)
- Creating new sub-funds available for the constituent authority members of the WPP, within which they invest; and therefore there is a requirement to provide adequate sustainable funds available for investment
- Reporting and monitoring on climate exposures within the WPP sub-funds

Responsible Investment Overview

The Fund maintains an Investment Strategy Statement (ISS), which details the key objectives, risks and approach to considering Environmental, Social and Governance ("ESG") factors, such as climate change, as part of its investment decision making. The document is reviewed on at least a triennial basis.

The Fund recognises the importance of its role as steward of capital; the need to ensure the highest standards of governance and promote corporate responsibility in the underlying companies in which it invests. It also recognises that ultimately this protects the financial interests of the Fund and its beneficiaries. The Fund is committed to actively exercise the ownership rights attached to its investments. This reflects the Fund's conviction that responsible asset owners should maintain oversight of the companies in which they ultimately invest and recognise that companies' activities impact upon not only their customers and clients, but more broadly upon their employees, other stakeholders and wider society.

The Fund defines a Responsible Investment (RI) as:

"Incorporating sustainability considerations within the investment process, including environmental, social and governance (ESG) factors for a broader perspective on risk and return opportunities."

In developing its approach to RI, the Fund seeks to understand and manage the ESG and reputational risks to which it is exposed. This Fund's RI Policy sets out its approach to this.

The foundations of the Fund's approach to RI are its Principles which are set out below:

- The Fund's fiduciary duty is to act in the best interests of its members and employers. The Fund recognises that ESG issues create risk and opportunity to its financial performance, and will contribute to the risk and return characteristics. The Fund believes, therefore, that these factors should be taken into account in its Funding and Investment Strategies and throughout the decision making process.
- The Fund is a long-term investor, with pension promises for many years, and because of this, it seeks to deliver long-term sustainable returns.
- The Fund integrates ESG issues at all stages of the Fund's investment decision making process.
- The Fund seeks to apply an evidence based approach to the implementation of Responsible Investment.
- The Fund recognises that transparency and accountability are important aspects of being a Responsible Investor and will demonstrate this by publishing its RI policy and activity for the Fund.
- The Fund has a duty to exercise its stewardship responsibilities (voting and engagement) effectively by using its influence as a long-term investor to encourage corporate responsibility.

- The Fund recognises the significant financial risk of not being a Responsible Investor and it seeks to ensure that this risk is mitigated through its Investment Policy and implementation.
- The Fund recognises the importance of social/impact investments, which can make a positive social and environmental impact whilst meeting its financial objectives, and it will make selective investments to support this aim.

Oversight of climate change risks

The Fund recognises the importance of addressing the financial risks associated with climate change through its investment strategy, and believes that:

- Climate change presents a systemic risk to the overall stability of every economy and country, with the potential to impact on the members, employers and all of the holdings in the Fund's investment portfolio.
- Considering the impacts of climate change is not only the legal or fiduciary duty of the Fund, but is also consistent with the long term nature of the Fund. The Fund's investments need to be sustainable to be in the best interests of all key stakeholders.
- Engagement is the best approach to enabling the change required to address the Climate Emergency, however selective risk-based disinvestment is appropriate to facilitate the move to a low carbon economy.
- As well as creating risk, climate change also presents opportunities to make selective investments that achieve the required returns, whilst at the same time make a positive social and environmental impact, such as environmental infrastructure and clean energy.

Net Zero Commitment

As part of its commitment to RI, the Fund has undertaken to evaluate and manage the carbon exposure of its investments to assist in ensuring an effective transition to a low-carbon economy. As part of this work, on 10 November 2021 the Committee approved a strategy to achieve net-zero carbon emissions from its investment portfolio. This included carbon emissions analysis of the listed equity portfolio to provide a baseline for the Fund. **Specifically, the Committee agreed a target for the investments in the Clwyd Pension Fund, as a whole, to have net zero carbon emissions by 2045, with an interim target of carbon reduction of 50% by 2030.** Underlying this headline commitment, the plan also has a number of other key targets, which are outlined later in the report (Section 7).

The Fund monitors and reports against these targets annually, and may review and revise them as appropriate, particularly to ensure that targets and ambitions are in line with the latest science and national and international developments and initiatives.

Fund's Advisors

Investment Consultant

The Committee of the Fund have appointed Mercer Limited (Mercer) as Investment Consultant to the Fund. Mercer's role is to provide ongoing advice on investment strategy and manager appointments (where relevant). This includes advice on managing and monitoring investment-related risks, such as climate change and is considered at quarterly meetings. Mercer will assist in the production of the Fund's TCFD report on an annual basis. As Investment Consultant, Mercer also acts as a member of the Clwyd Pension Fund Pension Advisory Panel.

Actuarial Advisor

The Committee has appointed Mercer as the Fund's actuary, whose role and responsibilities include:

- Acting as a member of the Clwyd Pension Fund Pension Advisory Panel and the Funding and Risk Management Group
- Preparing actuarial valuations including the setting of employers' contribution rates at a level to ensure fund solvency and long-term cost efficiency, including the review of contributions between valuations where appropriate
- Helping the Fund to understand the potential funding impact of climate change (including the impact on financial and demographic assumptions and providing input into the climate risk analysis driving strategic asset allocation decisions).

Independent Advisor

The Committee has appointed Aon as the Independent Advisor to the Fund. Aon carries out an annual review of the governance of the Fund as a whole, against Aon's best practice governance framework. By seeking external assurance from an independent third party, the Fund and its stakeholders can be confident of an unbiased and unprejudiced view of the effectiveness of the Fund's governance processes. The Independent Advisor also acts as a member of the Clwyd Pension Fund Pension Advisory Panel.

Annual assessment of advisors

On an annual basis the Head of the Clwyd Pension Fund, Philip Latham completes review meetings with all service providers.

Training and engagement

During the year to 31 March 2023, the Committee received training from the Fund's Investment Consultant, Mercer, covering climate-related investment risks and reporting requirements in line with the TCFD recommendations. In addition, WPP ran training on responsible investment, the Stewardship Code, TCFD reporting as well as areas such as sustainable equities which was made available to all Committee (and Board) members.

Climate change forms an explicit agenda item on a regular basis for the Committee. The Committee allocates a considerable amount of time to climate change considerations at meetings and will allocate further time at future meetings if any analysis or wider industry research requires additional review and consideration.

Day-to-day implementation

The implementation of the management of climate change-related risk with respect to specific securities held through WPP is delegated to WPP and third party portfolio managers. Each manager's approach to ESG issues and how these are integrated into their investment process is assessed as part of the manager selection and monitoring process.

Section 5
Strategy

The effects of climate change are already present and will emerge at different times in the future and to different extents. The Committee believe it is important to understand how the Fund's exposure to climate-related 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 Fund.

To help with this assessment, the Fund has defined short, medium and long-term time horizons for the scenario analysis of climate related risks. The scenario analysis conducted was done on the whole of the Fund's assets and liabilities. The climate-related risks and opportunities that are relevant to the Fund vary over these periods. The Committee expects to revisit the relevance of these time periods on a regular basis.

Period	Scenario Description
Short Term (5 years)	Over the short term transition risk dominates with a Rapid Transition having the biggest impact. An initial fall in asset returns (relative to baseline) is driven by a transition shock impacting the economy and investment markets causing losses. This could be driven by unprecedented policy action, with markets initially overreacting before partially recovering. The actual timing of any shock or recovery is uncertain.
Medium Term (20 years)	Over the medium term, transition risk and physical risk are both important factors. The impact of transition risks under a Rapid Transition and physical risks under a Failed Transition are broadly similar. 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.
Long Term (40 years)	Over the long term, physical impacts become significant, with a Failed Transition resulting in significant falls in asset value relative to the baseline. 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.

Climate Change Scenario Analysis

In 2022, the Committee commissioned strategic scenario analysis on the Fund's strategic asset allocation to assess the potential implications of climate change. This was the second commissioned scenario analysis carried out for the Fund, with the first analysis carried out in 2020.

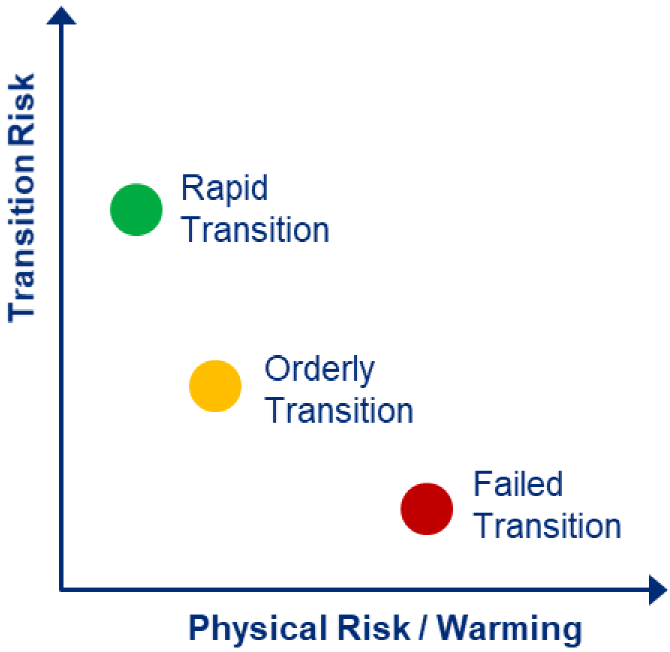
The analysis covers the Fund's whole portfolio, modelling three forward looking climate change scenarios constructed to explore a range of plausible figures over 5 to 40 years. The analysis models the climate shock impacts over these periods and includes funding level projection scenarios (from the analysis date of 31 March 2022), from a rapid transition that limits warming to 1.5°C to a failed transition with warming above 4°C. The impact is shown on a relative basis, which is the critical metric. Each of the scenarios reflect different climate change policy ambitions that result in varying CO2 emissions pathways and levels of economic damages related to climate change. These have been developed in partnership with Ortec Finance using existing climate change models (Cambridge Econometrics' E3ME model) and through an extensive literature review. This collaboration enables the Fund to better understand the strategic risks and opportunities presented by climate change.

A key strength of the scenarios is that it allows for climate impacts to be "priced-in" before they happen. This reflects likely market dynamics and means climate impacts are more likely to exhibit within investment timeframes.

The three scenarios used in the modelling are outlined below.

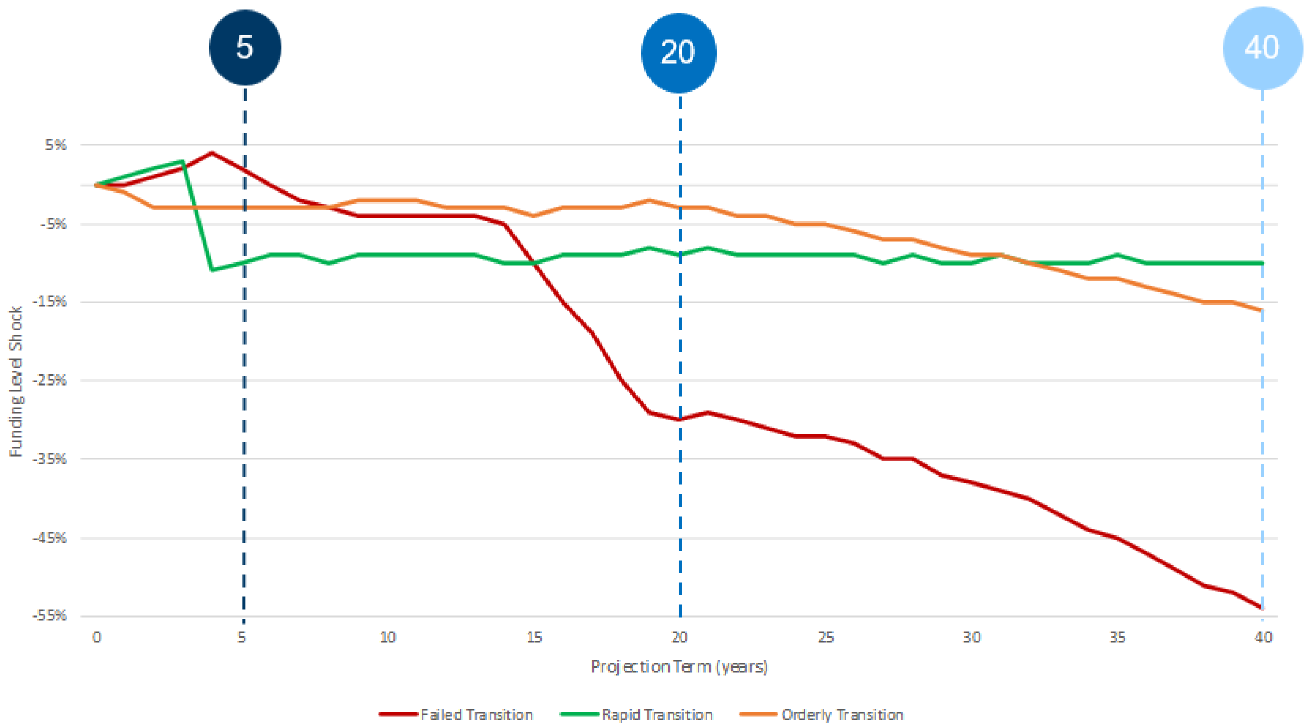
- **1.5^{o}C Rapid Transition scenario:** Average temperature increase of 1.5 C by 2100 in line with the Paris Agreement. This scenario assumes sudden large scale downward re pricing across multiple securities in 2025. This could be driven by a change in policy or realisation that policy change is inevitable, consideration of stranded assets or expected cost. To a degree the shock is sentiment driven and is therefore followed by a partial recovery across markets. The physical damages are most limited under this scenario.

- **<2^{o}C Orderly Transition scenario:** Average temperature increase of less than 2.0 C by 2100. This scenario assumes political and social organisations act in a coordinated way to implement the recommendations of the Paris Agreement to limit global warming to well below 2 C. Transition impacts do occur but are relatively muted across the broad market.



- **4^{o}C Failed Transition scenario:** Average temperature increase above 4.0 C by 2100. This scenario assumes the world fails to coordinate 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.

Summary Climate Change Scenario Analysis
Funding Level Projection – Relative Impact



Key points at different time frames :

5 — 5 Years – Over this time period, transition risk dominates. The Rapid Transition is the most impactful scenario. Under this scenario there is a shock which reduces the funding level by about 10% relative to baseline. The Failed Transition is marginally positive relative to the baseline due to transition costs not materialising.

20 — 20 Years – As longer term physical damages begin to be priced in, the Failed Transition becomes the most impactful scenario. Failed Transition reduces the funding position to c.30% lower than the baseline projection.

40 — 40 years – Over the long term, physical damages are the dominant driver and the Failed Transition is by far the worst scenario. Failed Transition reduces the funding position to c.54% lower than the baseline projection. In addition, we see the additional warming and hence damage in the Orderly Transition (compared to the Rapid Transition) meaning it becomes a more negative scenario after 31 years.

Source: Mercer Limited.

Details on climate change scenario analysis assumptions are provided within Appendix A. In particular, the Committee recognises that modelling the impact of climate change, especially the physical impacts, and the potential knock-on impact to the value of the Fund's assets, is extremely complex and will evolve over time. As such, climate scenario modelling is one of multiple sources of information and analysis that is considered to help in the Committee's decision-making.

Section 6
Risk Management

A key part of the Committee's role is to understand and manage risks that could have a financially material impact on both the Fund's investments and the wider funding position. Climate change is one of the risks that the Fund consider alongside other financially material risks. These risks could impact the Fund's ability to achieve the require investment returns to ensure that the Fund remains affordable for employers and members.

This section summarises the primary climate-related risk management processes and activities of the Fund. These help the Committee understand the materiality of climate-related risks, both in absolute terms and relative to other risks that the Fund is exposed to. The Fund prioritises the management of risks primarily based on its potential impact on the financial stability of the Fund and contribution rates.

Governance

- The Fund's Investment Strategy Statement is reviewed on a triennial basis and sets out how investment climate-related risks are managed and monitored.
- A risk register is maintained, which includes explicit climate risks, the risk register is reviewed quarterly by officers, advisors and the Committee.
- The Committee receive training at least annually on climate-related issues. The training allows the Committee 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 advisors to ensure the governance support and advice adequately covers the consideration of climate-related risks and opportunities.

Strategy

- Mercer take climate-related risks and opportunities into account as part of the wider strategic investment advice provided to the Fund.
- Climate scenario analysis for the Fund will be reviewed at least triennially, or more frequently if there has been a material change to the strategic asset allocation. A summary of the Fund's climate scenario analysis is included in the strategy section of this report.
- The Fund undertakes climate transition capacity analysis on the relevant assets using Mercer's Analytics for Climate Transition ("ACT") tool. Overall, the latest analysis covers c.40% of the total Fund. The aim of the analysis is to:
    - Monitor progress against the Fund's targets including decarbonisation, and explore the proportion of emissions within high impact sector that are currently under engagement or aligned with a low carbon future.
    - Understand the transition capacity of the Fund's assets.
    - Present an updated high level implementation plan for relevant assets and that incorporates further progress over time.

Reporting

- The Committee receives annual reports of climate-related metrics and progress against targets in respect of the assets held in the Fund. The Committee, through delegation to Officers, may use the information to engage with the investment managers.
- The Fund receives voting and engagement activity information on a quarterly basis and reports on an annual basis within the annual report and accounts and its annual Stewardship Code submission.
- The Fund has delegated all voting rights to the WPP, who in turn, have appointed Robeco to undertake engagement on its behalf. Robeco have a dedicated team of engagement specialists and voting analysts who work closely with the sustainable investment research analysts and portfolio managers on financially material ESG issues.
- Robeco provide the eight Constituent Authorities within the WPP voting and engagement information on a quarterly basis. In addition, the WPP Responsible Investment sub-group discuss engagement with Robeco at regular meetings.
- In addition, Officers and JGC also receive Responsible Investment & Climate Risk Reports from Hymans Robertson, who advise the WPP.

Manager Selection and Monitoring

- The Committee, with advice from Mercer, and the Officers, will consider an investment manager's firm-wide and strategy-specific approach to managing climate-related risks and opportunities when appointing a new manager and in the ongoing review of a manager's appointment.
- Mercer assesses investment managers on the extent of integration of ESG factors (including climate change) into their processes. A manager's stewardship process forms part of the rating assessment. This is considered at the firm level and at the investment strategy/fund level.
- WPP are now able to take on more of the Fund's commitments to Private Markets. However, the Fund still requires recommendations from Mercer in the allocation of Local/ Impact Private Market funds as this asset class is not currently covered by the WPP. The Fund has mandated that priority is given to impact and sustainable funds and/ or those with a high ESG rating (ESG1 and ESG2) assigned by the Mercer following the detailed due diligence process.
- The Fund, in collaboration with Mercer, has developed a monitoring template, which it will use to monitor all of its Private Market managers going forward. The template specially picks up information from managers on ESG and impact, including but not limited to:
    - Does the manager have a Sustainable Investment Policy?
    - Is the manager doing anything to contribute to net zero or a specified carbon emissions reduction target?
    - Impact/ ESG considerations that will help with TCFD and future Taskforce for Nature Related Financial Disclosures (TNFD) reporting

The Fund continued to utilise the template during 2023 for monitoring its Private Market managers and will continue to review and evolve the template as necessary.

Active Stewardship

Stewardship is the responsible allocation, management and oversight of capital to create long-term value for clients and beneficiaries leading to sustainable benefits for the economy, the environment and society. Stewardship activities can help hold companies to account and ensure they are taking a meaningful approach in this area.

The Financial Reporting Council (FRC) first published the UK Stewardship Code in 2010, and revised it in 2012. In October 2019, the FRC issued an updated and increasingly demanding version, the UK Stewardship Code 2020. The Code sets out a number of areas of good practice to which the FRC believes institutional investors should aspire too, and comprises a set of 12 ”apply and explain” principles to report on for the submission.

In practice the Fund continues to apply the requirements of the Code both through its arrangements with its asset managers and through membership of the Local Authority Pension Fund Forum (LAPFF).

The Fund is committed to reviewing its compliance against the latest code. The Fund was successful in its first submission in 2022 and has re-submitted for the year ending 31 March 2023.

The Fund expects both WPP and the underlying fund managers to comply with the Stewardship Code. WPP has appointed Robeco as its Voting and Engagement provider and they are assisting in maintaining a voting policy and engagement principles that are in keeping with the LAPFF. In addition, Robeco are responsible for implementing the voting policy and reporting on it.

Climate Risks and Opportunities

The effects of climate change will be felt over many decades. The Fund has considered two types of climate-related risks and opportunities:

Transition risks and opportunities

This covers the potential financial and economic risks and opportunities from the transition to a low carbon economy (i.e. one that has a 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 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.

Physical risks and opportunities

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, although the extent of the risks is highly dependent on whether global net zero greenhouse gas emissions are achieved by 2050.

There are investment opportunities, for example, in infrastructure and real estate assets that are designed to be resilient to the physical impacts of climate change, as well as being constructed and operated in a way that have low or no net carbon emissions. There are also opportunities for investment in those companies or industries that focus on energy conservation and resource efficiency.

Section 7
Metrics and Targets

Metrics and targets used to assess and manage relevant climate change-related risks and opportunities, in line with strategy and risk management

Key Metrics

The report includes three climate-related metrics. These metrics help the Committee and wider reader understand the climate-related risk exposures and opportunities in the Fund's investment portfolios and identify areas for further risk management, including investment manager portfolio monitoring, and voting and engagement activity and priorities. The metrics in this report are:

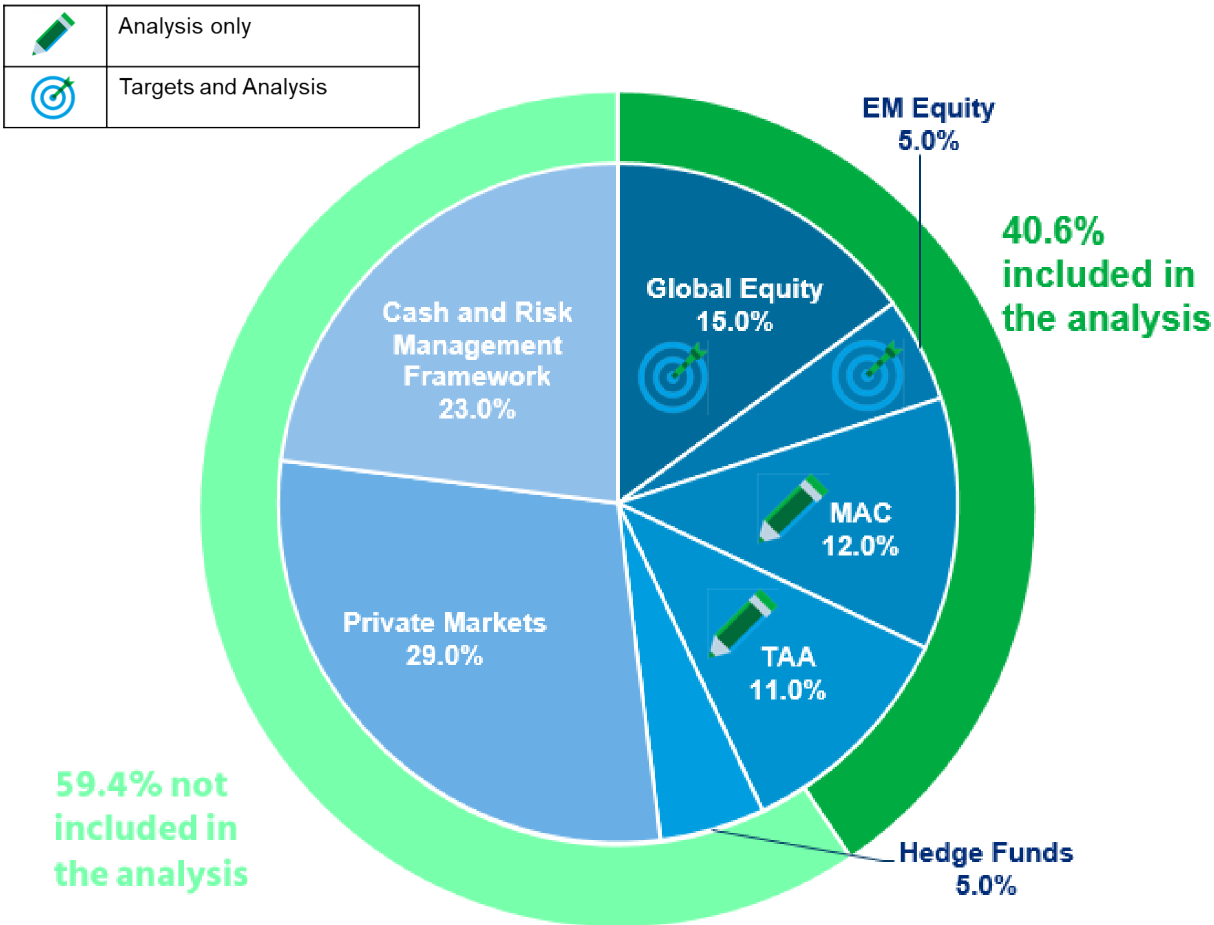
1. **Absolute emissions metric**
2. **Emissions intensity metric: Carbon Footprint**
3. **Emissions intensity metric: Weighted Average Carbon Intensity (WACI)**

The Fund has agreed to use carbon footprinting metric as the primary metric for monitoring decarbonisation progress, whilst also monitoring progress against absolute emissions and weighted average carbon intensity.

The metrics presented in this report are as at 31 March 2023 and are based on the strategic asset allocation at that date. The Fund adopted a baseline date of 31 March 2021, from which all reduction targets are monitored against annually, unless otherwise stated.

Please see appendix for an overview and description of each metric identified above and analysed for the Fund.

Fund strategic asset allocation as at 31 March 2023



Carbon metrics have been provided on c.40% of the Fund's Strategic Asset Allocation (SAA), consistent with the previous year's analysis. The analysis was carried out on the Fund's global equities, MAC and TAA holdings. Further asset classes will be incorporated in future analysis as and when accurate and robust data becomes available. The Fund is taking into account the practicalities of data availability and sourcing metrics for its private market holdings and the governance costs associated with potentially setting targets for these asset classes, due to the high number of underlying funds.

As the Tactical Asset Allocation (TAA) portion of the SAA is tactical and short term by its very nature, this portion of the portfolio was excluded from the baseline analysis and assessment of progress versus listed equities portfolio targets. Whilst the majority of the TAA portfolio was analysed from a metrics perspective, some of the underlying components were not able to be analysed owing to data availability.

In 2022, the Fund undertook an exercise to gather carbon metrics data on the property holdings for the private market mandate. The exercise uncovered significant challenges, as the data received lacked comprehensiveness and accuracy, or in some cases, the managers were simply unable to provide the relevant information. It is to be expected that as the property managers become more attuned to the reporting requirements for carbon data, the availability and quality of the information should improve. It is important to note though that the process of undertaking such requests can prove to carry an additional governance burden on the Fund, which can be both time-consuming and costly.

Over time as consensus around methodology for less conventional asset classes grows, the carbon metric analysis will cover a greater proportion of the Fund.

The Fund recognises the challenges with various metrics, tools and modelling techniques used to assess climate change risks. The Committee with its Officers aim to work with the investment advisor and investment managers to continuously improve the approach to assessing and managing risks over time as more data becomes available.

Key highlights to note over the period

The Fund has already taken actions to support the targets and initiatives that the Fund has previously agreed, including:

- Helping develop a sustainable equity mandate with the WPP, and since allocating to this mandate;
- Introducing more sustainable / ESG focused funds, where possible, into the Tactical Asset Allocation Portfolio when implementing new positions;
- Implementing a fossil fuel Exclusions Policy in relation to its listed equity holdings (post March 2023), full details of this policy are provided within Appendix B;
- Engaging with managers on matters pertaining to ESG within private markets, including looking at ways to improve climate metric data capture;
- Supporting investments with strong sustainability/ impact focus by allocating 6% of the total portfolio to local/ impact focused investments within private markets;
- Endeavouring to make sustainable-focused allocations within other private market asset classes (Private Equity, Private Debt, Infrastructure and Real Estate) where possible;
- Substantially increasing commitments to impact focused portfolios within Private Markets, including investments with a focus on clean energy and energy transition. Including commitments such as :
  - Capital Dynamics –Clean Energy Wales (£50m)
  - Copenhagen Infrastructure –Energy Transition I (£17m)
  - Activate Partners –Activate Capital II (£11m)
  - Sandbrook Capital –Climate Infrastructure Fund I (£17m)

Emissions Analysis – Physical Listed Equities

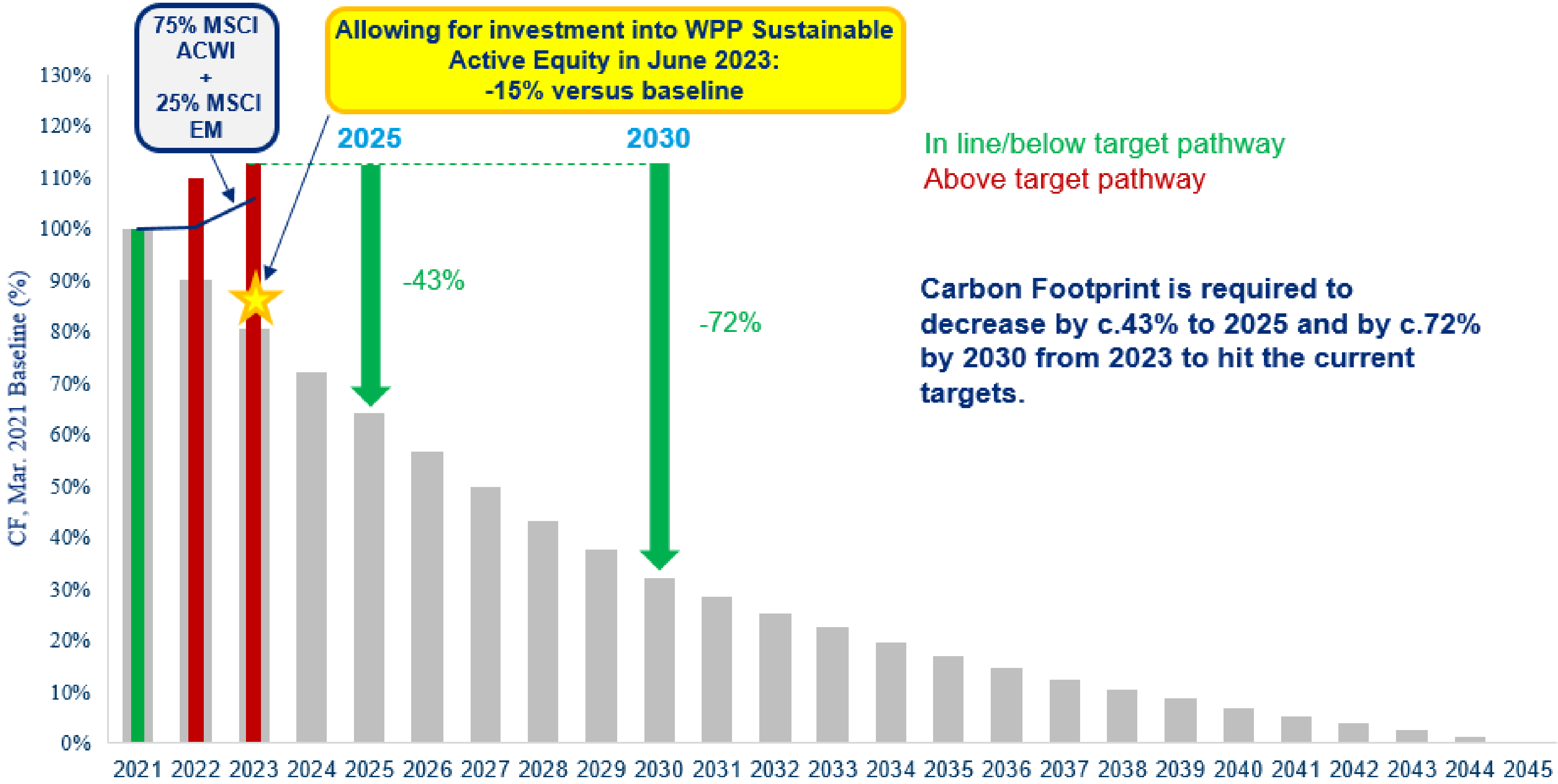
It is important that the Committee understands the position of the Fund, in terms of its ongoing greenhouse gas emissions. In order to understand this the Fund monitors the following metrics: (1) absolute emissions, (2) carbon footprint, and (3) weighted average carbon intensity ("WACI").

- Absolute Emissions, is the total equivalent amount of CO2 that the Fund's invested asset release into the atmosphere every year. Absolute emissions are significantly influenced by the level of assets invested, the more assets the higher the absolute emissions.
- Carbon Footprint takes the total absolute carbon emissions of the portfolio and divides it by the current value of the portfolio to measure the tonnes of CO2 equivalent per $million invested. This allows comparison between Funds of different sizes, as well as a fair comparison through time as the Fund's own assets will fluctuate year on year.

- WACI takes each underlying company's absolute emissions and divides it by the company's revenue (tonnes of CO2 equivalent per $million revenue). This provides the Committee with an indication of whether the underlying companies are decarbonising over time and shows how sensitive the underlying investments are to climate transition risk.

Decarbonisation Path – 2021 Baseline (Scope 1 and 2)

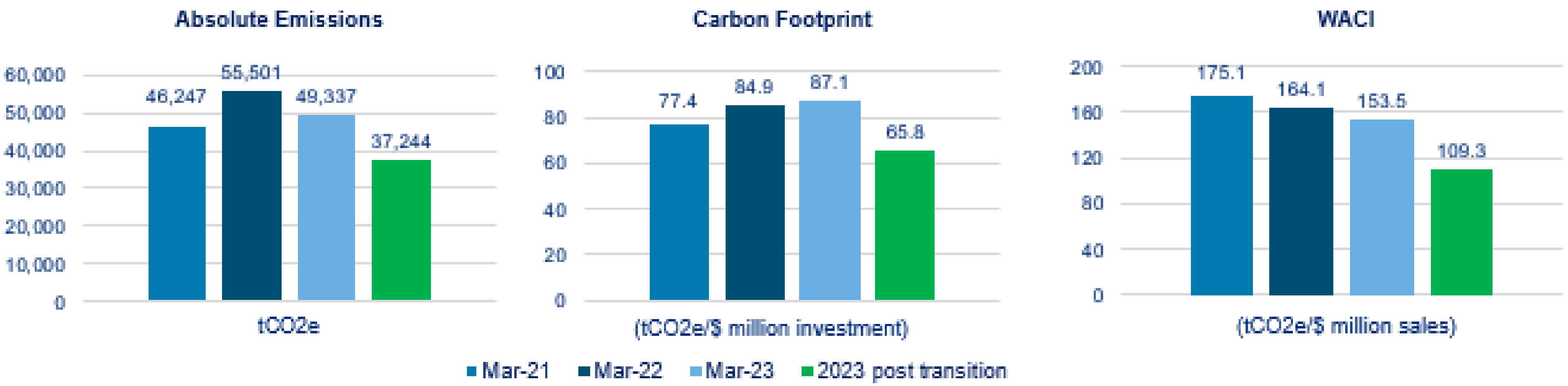
Physical Listed Equities – Carbon Footprint



Source: Mercer Limited.

Summary of Emissions Analysis – Physical Listed Equities

Post Transition from WPP Global Opportunities to Sustainable Active Equity



Source: MSCI ESG Research LLC (reproduced by permission). Mercer Limited.

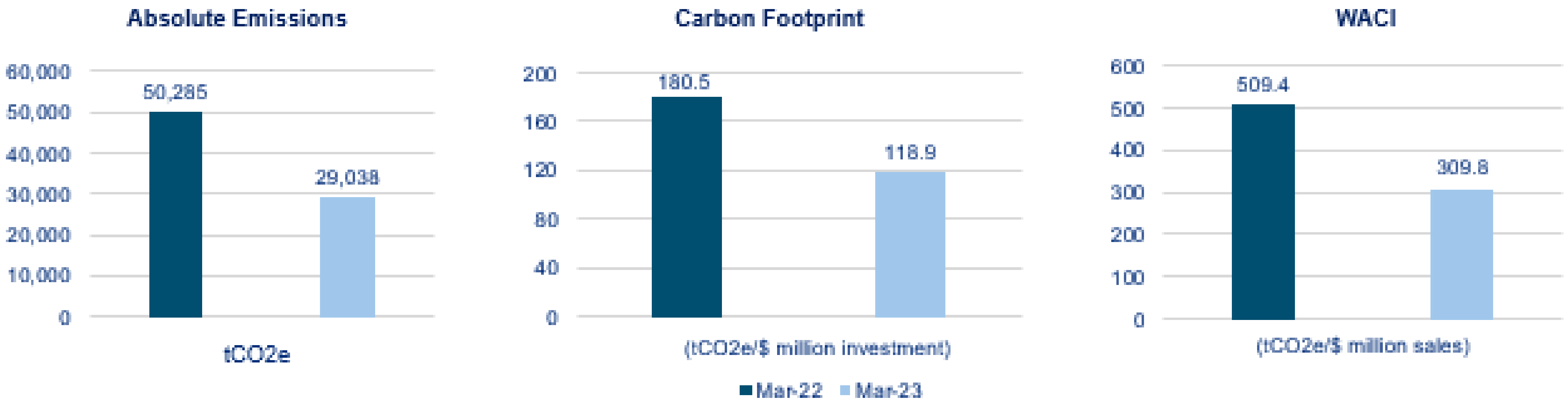
The **absolute emissions of the Fund's listed equity portfolio has decreased by 11.1%** over the one year period from 31 March 2022 to 31 March 2023. The **Carbon Footprint increased by 2.7%** over the same time period, whilst the **Weighted Average Carbon Intensity (WACI) decreased over the same period by 6.4%.**

Further analysis was carried out post 31 March 2023 to show the impact of the Fund's strategic switch from WPP Global Opportunities Fund into the newly developed WPP Sustainable Active Equity Fund, which the Fund helped develop with the WPP.

As a result of the switch, movement from 2022 to 2023 has resulted in a **32.9% reduction in Absolute Emissions, 22.5% reduction in Carbon Footprint and a 33.4% reduction in WACI.**

The figures post transition demonstrate the positive steps the Fund has taken to reduce its overall emissions to reach its net zero target over time. The Committee continues to look to identify appropriate opportunities to make further progress in this area.

Summary of Emissions Analysis – Tactical Asset Allocation (TAA)



Source: MSCI ESG Research LLC (reproduced by permission). Mercer Limited.

The Fund's TAA portfolio **decreased by 42.3% on an Absolute Emissions basis** from 2022 to 2023. **Carbon Footprint decreased by 34.1%** whilst the **Weighted Average Carbon Intensity (WACI) decreased by 39.2%.**

Targets

Net Zero Commitment

The Committee has agreed a target for the investments in the Clwyd Pension Fund, as a whole, to have net zero carbon emissions by 2045, with an interim target of carbon reduction of 50% by 2030. Underlying this headline commitment, the plan also has a number of other key targets as outlined below:

a) for the Fund as a whole:

- to have at least 30% of the Fund's assets allocated to sustainable investments by 2030.
- to expand the measurement of the carbon emissions of the Fund's investments to include as many components of the assets as possible, based on the availability of reliable and accurate data.

b) within the Listed Equity portfolio:

- to achieve a reduction in carbon emissions of 36% by 2025 and 68% by 2030.
- to target all of the Listed Equity portfolio being invested in sustainable mandates by 2030.
- to engage with the biggest polluters within the Fund's Listed Equity portfolio as part of an overarching stewardship and engagement strategy, to achieve:
    - by 2025, at least 70% of companies, as measured by value invested and emissions exposure, in carbon-intensive sectors have clearly articulated and credible strategies to attain net zero or are subject to engagement to achieve this objective.
    - by 2030, at least 90% of companies, as measured by value invested and emissions exposure, in carbon-intensive sectors have clearly articulated and credible strategies to attain net zero or are subject to engagement to achieve this objective.

The Fund will monitor and report against these targets at least annually, and may review and revise them as appropriate, particularly to ensure that targets and ambitions are in line with national and international developments and initiatives.

Suitability of additional metrics

The Committee have undertaken education on the proposed climate change metrics forming part of the upcoming regulations. They will assess the suitability of these metrics and incorporate them into next year's report.

Actions to achieve targets going forward

The Fund has now invested into the WPP Sustainable Active Equity Fund, and is targeting a total commitment of 15% of the total Fund.

The Fund remains firmly committed to allocation to local/ impact funds within private markets and will continue to do so and report on progress with the support of "The Good Economy".

Additionally, the Fund will focus its attentions over the next 12 to 18 months on:

- Investment Strategy Review – a review of the Fund's investment strategy will be carried out which, considering will consider the Fund's climate ambitions
- Emerging Market Equity –engage with the WPP on the feasibility of investing in Emerging Market equities in a more sustainable way.
- Multi-Asset Credit – engaging with WPP with respect to the underlying managers of the mandates to see what commitments have made in respect of decarbonisation.
- Tactical Asset Allocation (TAA) – following the updated terms of reference, continue to allocate to sustainable versions/ ESG titled funds when implementing tactical positions where possible.
- Private Markets – this area is more challenging given the scale and data quality/ availability. Continue to use findings from existing engagements and look to request further data in line with frameworks such as IIGCC net zero framework for Private Equity and Infrastructure.
- Synthetic Equity –switch to Paris Aligned equity benchmark exposure within the Synthetic equity allocations within the Cash and Risk Management Framework
- Fossil Fuel exposure – the Fund will engage with WPP on its newly established exclusion policy and monitor holdings within WPP mandates that fail the Fund's exclusion policy criteria.
- Consider connections to biodiversity / natural capital.

Appendix A

Climate Scenario Modelling Assumptions

	Failed transition	Rapid transition	Orderly transition
Summary	**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.**	**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.**
Temperature change	Average temperature increase of >4°C by 2100.	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.
Cumulative emissions	5,127 GtCO_2 (2020-2100)	416 GtCO_2 (2020-2100)	The additional damage under this scenario could be associated with further human emissions (810GtCO_2) or greater impacts from feedback loops and tipping points.
Key policy & assumptions	Existing policy regimes are continued with the same level of ambition.	An ambitious policy regime is pursued to encourage greater decarbonization 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. This is earlier and more effective under a Rapid Transition than the Orderly Transition, which allows for less investment in energy efficiency and bioenergy with carbon capture and storage.	
Financial climate modelling	Physical risks are priced in two different periods: 2026-2030 (risks of first 40 years) and 2036-2040 (risks of 40-80 years).	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 associated with 1.5°C up to 2050 takes place over the first 4 years. The additional damage, beyond 1.5°C, impacts asset performance on a year-by-year basis with no advance pricing in.
Physical risks considered	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).		

Source: Mercer Limited.

Limitations associated with climate scenario modelling

Climate scenario modelling is a complex process. The Committee is 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 by either 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.

Appendix B
Exclusions Policy

The Fund has developed an exclusions policy assessment framework and will be looking to develop a plan to implement the following exclusions:

The policy is to exclude companies which breach the following thresholds	**Minimum Objective**	**Fund's Ambition**
The % of or more of revenues from exploration, mining, extraction, distribution and / or refining of hard coal and lignite	1%	Same
The % of or more of revenues from Oil: companies involved in exploration, extraction, refining and / or distribution of oil fuels.	10%	1%
The % of or more of revenues from Gas: companies involved in exploration, extraction, manufacturing or distribution of hydrocarbons, hydrogen and carbon monoxide mixtures present in gaseous state.	50%	1%

The above policy applies to the physical listed equity assets initially. This is because this part of the portfolio has the most comprehensive and accurate data on which the policy can be analysed and monitored in a robust and cost efficient way. The ambition of the Fund is to consider the application of the exclusions policy to all parts of the portfolio over time, based on the availability of robust data and implementation practicalities.

The Fund is seeking to implement the above "Fund's Ambition" exclusion policy. It is recognised that, at present, there are limited implementation options for this policy. As a result, the Fund has established a "Minimum Objective" exclusion policy, which is aligned with the Paris Aligned Benchmark and as such believes is practically more implementable.

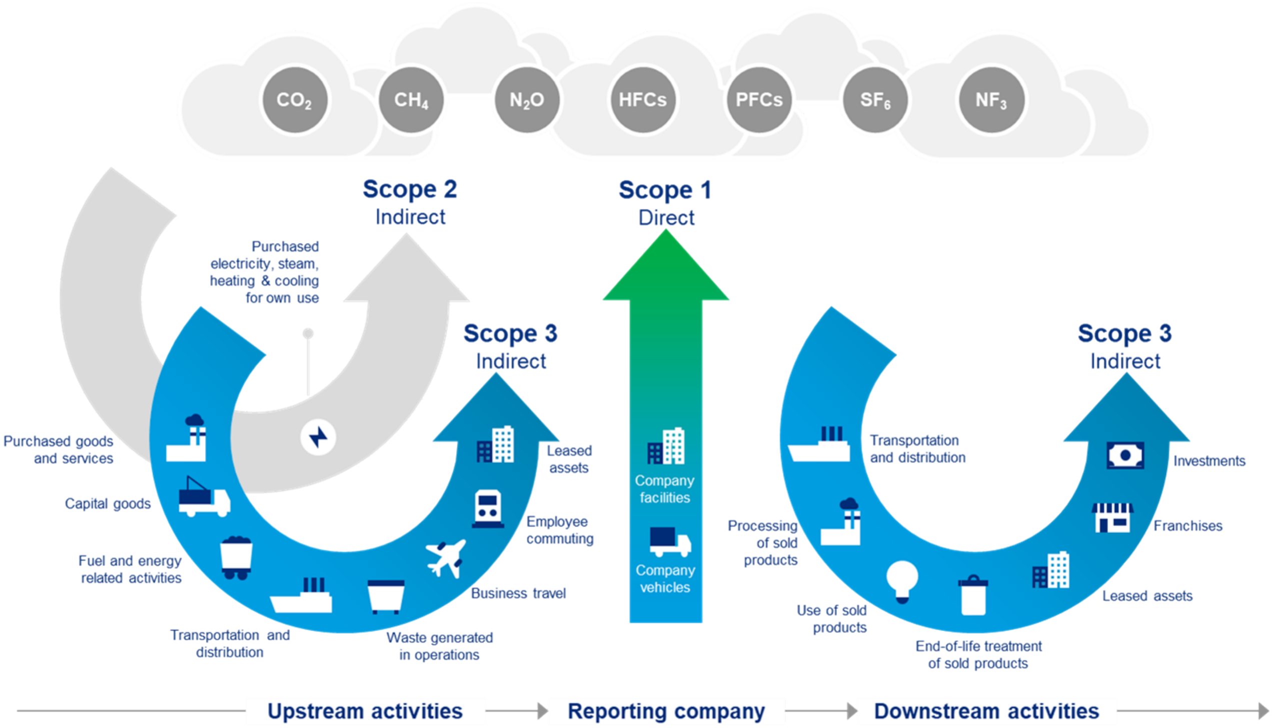
The Fund recognises that in order to implement the exclusions policy it will need to work with the WPP. Given the pooled fund nature of the investments, the Fund will take a best efforts approach and acknowledges that this could result in companies being held which are not consistent with the above exclusion policy. This will be monitored on an annual basis with an explanation sought, if companies are held in breach of the exclusions criteria.

Source: Clwyd Pension Fund Investment Strategy Statement.

Appendix C
Overview of Climate Metrics

Absolute Emissions

This metric represents the underlying investee company's or issuer's reported or estimated greenhouse gas emissions, where available. It includes various scopes of emissions, which are summarised in the following diagram.



Source: MSCI ESG Research LLC. Reproduced by permission.

There are seven recognised greenhouse gases, as defined by the GHG Protocol. In order to simplify reporting, each greenhouse gas is calibrated relative to carbon dioxide and is reported as 'carbon dioxide equivalent' emissions (CO2e).

For the purpose of this report, only scope 1 and 2 emissions have been reported, although in the annual analysis reviewed by Committee Scope 3 data is considered. The absolute emission metric is a proxy for the share of GHG emissions that are 'owned' by the Fund through investing in the underlying companies and issuers, including countries (referred to as 'sovereign exposure' through government debt).

Emissions intensity metric: Carbon Footprint and Weighted Average Carbon Intensity (WACI)

Carbon Footprint takes the total absolute carbon emissions of the portfolio and divides it by the current value of the portfolio to measure the tonnes of CO2 equivalent per $million invested. This allows comparison between Funds of different sizes, as well as a fair comparison through time as the Fund's own assets will fluctuate year on year.

Weighted Average Carbon Intensity takes each underlying company's absolute emissions and divides it by the company's revenue (tonnes of CO_2 equivalent per $million revenue). This provides the Committee with an indication of whether the underlying companies are decarbonising over time and shows how sensitive the underlying investments are to climate transition risk.

Appendix D
Climate Metric Analysis Approach

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.

Note no proxy data has been used in this analysis.

Scope of emissions

Scope 1, 2 and 3 emissions data has been included in this report. The data coverage for Scope 3 emissions data is improving but the assessment of an invested company's 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.

Appendix E
Climate Change Glossary

Administering Authority or Scheme Manager: Flintshire County Council is the administering authority and scheme manager for the Clwyd Pension Fund, which means it is responsible for the management and stewardship of the Fund.

Carbon footprint: The amount of carbon dioxide (or other greenhouse gasses) released into the atmosphere as a result of the activities of a particular individual, organization or community. Carbon footprint is calculated for each company as (Scope 1 and 2 carbon emissions / $m investments). See also Scope 1, 2, 3 emissions and Weighted Average Carbon Intensity (WACI).

Carbon intensity: The amount of emissions of carbon dioxide (or other greenhouse gasses) released per unit of another variable such as revenue, gross domestic product (GDP), per $1million invested etc. See also Weighted Average Carbon Intensity (WACI).

Carbon price: The price for avoided or released carbon dioxide (CO2) or CO2-equivalent emissions. This may refer to the rate of a carbon tax, or the price of emission permits. In many models that are used to assess the economic costs of mitigation, carbon prices are used as a proxy to represent the level of effort in mitigation policies.

Carbon neutrality: Achieved by offsetting emissions by paying for credits (usually certified via new forestry equivalents that provide carbon removal). Carbon neutrality is similar to net zero targeting – the latter requires actual emissions reductions to meet targets though (rather than purchasing offsets). See also Net Zero CO2 emissions.

Clwyd Pension Fund (the "Fund"): The Pension Fund managed by Flintshire County Council for local authority employees in the region and employees of other employers with links to local government in the region.

Clwyd Pension Fund Committee (the "Committee"): The Flintshire County Council committee responsible for the majority of decisions relating to the management of the Clwyd Pension Fund.

Decarbonisation: The process by which countries, individuals or other entities aim to achieve zero fossil carbon existence. Typically refers to a reduction of the carbon emissions associated with electricity, industry and transport.

Financial Stability Board: an international body established by the G20 that monitors and makes recommendations about the global financial system

Global warming: The estimated increase in global mean surface temperature expressed relative to pre-industrial levels unless otherwise specified. See also Pre-industrial.

Greenhouse gases: Gases in the planet's atmosphere that trap heat. They let sunlight pass through the atmosphere but prevent heat from leaving the atmosphere. Greenhouse gases include: Carbon Dioxide (CO2), Methane (CH4), Nitrous Oxide (N2O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), Sulphur Hexafluoride (SF6), Nitrogen Trifluoride (NF3).

Investment Strategy Statement (ISS): The main document that outlines our strategy in relation to the investment of assets in the Clwyd Pension Fund.

Inevitable policy response: A scenario that expects an acceleration of climate-related policy announcements in 2023−2025, which has been supported by the Principles for Responsible Investment (PRI).

Local Authority Pension Form Forum (LAPFF): Is both an engagement partner and forum for member funds to share insights and best practice and to identify opportunities. Promoting specific investment interests of local authority pension funds as asset owners.

Local Government Pension Scheme (LGPS): The national scheme, which Clwyd Pension Fund is a part of.

Mitigation (of climate change): A human intervention to reduce emissions or enhance the sinks of greenhouse gases.

Mitigation strategies: In climate policy, mitigation strategies are technologies, processes or practices that contribute to mitigation, for example, renewable energy (RE) technologies, waste minimization processes and public transport commuting practices.

Net zero CO2 emissions: Net zero carbon dioxide (CO2) emissions are achieved when CO2 emissions are balanced globally by CO2 removals over a specified period. The term "net zero" is also typically associated with the 2050 date or earlier, as this is aligned with the scientific recommendations to achieve a 1.5°C scenario. See also Carbon neutrality (which differs slightly).

Paris Agreement: The Paris Agreement under the United Nations Framework Convention on Climate Change (UNFCCC) was adopted on December 2015 in Paris, at the 21st session of the Conference of the Parties (COP) to the UNFCCC. The agreement, adopted by 196 Parties to the UNFCCC, entered into force on 4 November 2016 and as of May 2018 had 195 Signatories and was ratified by 177 Parties. One of the goals of the Paris Agreement is "Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels", recognising that this would significantly reduce the risks and impacts of climate change. Additionally, the Agreement aims to strengthen the ability of countries to deal with the impacts of climate change.

Physical risks: Dangers or perils related to the physical or natural environment that pose a threat to physical assets e.g. buildings, equipment and people. Mercer's scenario analysis grouped these into the impact of natural catastrophes (for instance sea level rise, flooding, wildfires, and hurricanes) and resource availability (particularly water). See also Transition risks.

Pre-industrial: The multi-century period prior to the onset of large-scale industrial activity around 1750. The reference period 1850–1900 is used to approximate pre-industrial global mean surface temperature.

Principles for Responsible Investment (PRI): Non-profit organisation that encourages investors to use responsible investment to enhance returns and better manage risks. It engages with global policymakers and is supported by, not but part of, the United Nations. It has six Principles for Responsible Investment that offer a menu of possible actions for incorporating ESG issues into investment practice.

Private Market Investments: Commitments to Private Equity / Debt, Property, Infrastructure, Timber, Agriculture and other Opportunistic Investments.

Resilience: The capacity of social, economic and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganising in ways that maintain their essential function, identity and structure while also maintaining the capacity for adaptation, learning and transformation.

Scheme Actuary: A professional advisor, specialising in financial risk, who is appointed by pension Funds to provide advice on financial related matters. In the LGPS, one of the Actuary's primary responsibilities is the setting of contribution rates payable by all participating employers as part of the actuarial valuation exercise.

Scope 1, 2, 3 emissions: Scope 1 emissions are direct emissions from owned or controlled sources. Scope 2 emissions are indirect emissions from the generation of purchased energy. Scope 3 emissions are all indirect emissions (not included in scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions.

Stranded assets: Assets exposed to devaluations or conversion to "liabilities" because of unanticipated changes in their initially expected revenues due to innovations and/or evolutions of the business context, including changes in public regulations at the domestic and international levels.

Stewardship: The responsible allocation, management and oversight of capital to create long-term value for clients and beneficiaries leading to sustainable benefits for the economy, the environment and society.

Task Force on Climate-related Financial Disclosures (TCFD): framework designed to improve and increase reporting of climate-related financial information

Taskforce on Nature-Related Financial Disclosures (TNFD): market-led, science-based TNFD framework enabling companies and financial institutions to integrate nature into decision making

Transition Alignment: the process of moving away from high-carbon intensive processes towards business models and assets aligned with a low carbon future and the Paris agreement. Different sectors will have different pathways to net zero.

Transition risks: Risks from policy changes, reputational impacts and shifts in market preferences, norms and technology as the economy moves to a low carbon approach. See also Physical risks.

Weighted average carbon intensity (WACI): The carbon intensity of a portfolio, weighted by the proportion of each constituent in the portfolio. Carbon intensity is calculated for each company as (Scope 1 and 2 carbon emissions / $m revenue). See also Carbon footprint.

Wales Pension Partnership (WPP): A collaboration of the eight LGPS funds (Constituent Authorities) covering the whole of Wales and is one of the eight national Local Government Pension pools. WPP was established in 2017.

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