WORCESTERSHIRE PENSION FUND CLIMATE-RELATED DISCLOSURES REPORT

MARCH 2023

Contents

Management Summary

Recognising that climate change is a risk to financial markets, the Financial Stability Board (FSB) felt that it would be desirable to have clear, comprehensive, high-quality information on its impact and created the Task force on Climate-related Financial Disclosures (TCFD) to improve and increase the reporting of climate-related financial information.

The TCFD came up with recommended disclosures in the four thematic areas that it felt represent the core elements of how organisations operate:

• **Governance**: Disclose the organisation's governance around climate-related risks and opportunities.

• **Strategy**: Disclose the actual and potential impacts of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning where such information is material.

• **Risk management**: Disclose how the organisation identifies, assesses, and manages climate-related risks.

• **Metrics and targets**: Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.

The Fund believes that:

1. Better disclosure of the risks and opportunities presented by rising temperatures, climate related policy, and emerging technologies in our changing world is in our interests as we will be able to:

   a. More effectively evaluate climate-related risks to us and our employers.

   b. Make better-informed decisions on where and when to allocate our assets.

2. The TCFD's recommendations provide the optimal framework to describe and communicate the steps that pension funds are taking to manage climate-related risks and to incorporate climate risk management into their investment processes.

3. TCFD-aligned disclosure from asset owners, asset managers, and corporates is in the best interest of our stakeholders.

Further background to the TCFD's recommendations is also provided in Appendix 1 and 2.

Governance

TCFD Recommended Disclosure
a) Describe the board's oversight of climate-related risks and opportunities

Roles and responsibilities at the Fund are set out clearly in the Fund's Governance Policy Statement and our annual reports include a Governance Compliance Statement. Overall responsibility for managing the Fund lies with Worcestershire County Council which has delegated the management and administration of the Fund to the Worcestershire Pension Fund Pensions Committee.

The Pension Committee ('the Committee') is responsible for the oversight of climate-related risks and the Fund's Climate Change Risk Strategy. The Committee meet four times a year, or otherwise as necessary and includes quarterly engagement and voting reports (including climate change) from the Fund's investment managers as a standing item on the agendas. Quarterly engagement reports are made available by the Fund on their website. The Committee also approve the Investment Strategy Statement (ISS), which includes the Fund's approach to responsible investment and a specific section on climate change. The ISS includes a set of responsible investment beliefs, including a formal investment belief on climate change, recognising it as a factor that could materially impact financial markets. The Climate Change Risk Strategy is premised on five foundational evidence-based beliefs about climate risk, considering climate science, the energy transition, and climate stewardship. The Climate Change Risk Strategy is reviewed at least every two years by the Committee.

The Pension Investment Sub Committee are responsible for identifying and approving investment in climate related opportunities. The Committee is currently exploring the potential for additional allocations to sustainable and/or low carbon equities.

The Committee, Pension Investment Sub-Committee and Pension Board receive focused training and workshops on responsible investment topics (including climate change).

In late 2020 the Fund undertook an external Environmental, Social and Governance (ESG) audit of the Funds' investments and at the same time sought to map all the Fund's investments to the United Nations Sustainable Development Goals (SDGs) including SDG13 Climate action. This was to establish a baseline for the Fund as to where we are and help formulate future strategic actions required for the Fund's investment approach.

In order to support good decision-making, the Fund is fully committed to the new enhanced UK Stewardship Code which was introduced in 2020 and the Fund has been a successful Tier 1 signatory of the Financial Reporting Council's UK stewardship code since 2020. See section 10 of the Fund's Investment Strategy Statement).

In January 2023 the Committee received its third Climate Risk Report which is being used to implement the Fund's Climate Change Risk Strategy.

The Pensions Board has an oversight role in ensuring the effective and efficient governance and administration of the Fund, including securing compliance with the LGPS Regulations and any other legislation relating to the governance and administration of the LGPS.

TCFD Recommended Disclosure
b) Describe management's role in assessing and managing climate-related risks and opportunities.

The Chief Financial Officer and the Pensions Investment & Treasury Management Manager have primary day-to-day responsibility for the way in which climate-related investment risks are currently managed. As a primarily externally managed fund, the implementation of much of the management of climate-related risk is delegated onwards to portfolio managers. Each manager's approach to ESG factors and how these are integrated into their investment process is assessed as part of the manager selection process. The manager selection guidelines on impact criteria and TCFD Compliance further strengthens this process. External portfolio managers are monitored on a regular basis by the Pension Investment Sub-Committee.

Fund Officers have received a Climate Risk Report annually for the last 3 years and in 2021 the Fund also conducted an ESG Audit which mapped the Fund's Investment to the SDGs. Both of these enabled the consideration of climate change within strategy setting, including asset allocation and asset selection. Receipt of a Climate Risk Report is expected to occur annually. Completion of an SDG mapping is expected to occur every two to three years

As detailed in the Climate Change Risk Strategy, the Fund leverages partnerships and initiatives – including the Institutional Investors Group on Climate Change (IIGCC) – to identify and manage climate risk.

Strategy

TCFD Recommended Disclosure
a) Describe the climate-related risks and opportunities the organisation has identified over the short, medium and long term.

As a diversified asset owner, the range of climate-related risks and opportunities are multifarious and constantly evolving. A subset of risk factors is presented in Table 1.

Table 1: Example Short, Medium & Long-Term Risks

	Short & Medium Term	Long Term
Risks	Carbon prices Technological change Policy tightening Consumer preferences	Resource scarcity Extreme weather events Sea level rise
Asset class	Listed equities Growth assets Energy-intensive industry Oil-dependent sovereign issuers Carbon-intensive corporate issuers	Infrastructure Property Agriculture Commodities Insurance

Short-term risks include stock price movements resulting from increased regulation to address climate change. Medium-term risks include policy and technology leading to changes in consumer behaviour and therefore purchasing decisions – the uptake in electric vehicles is an example of this. Long-term risks include physical damages to real assets and resource availability. Examples would include increased sea level rise for coastal infrastructure assets or supply chain impacts for companies as a result of severe weather events.

TCFD Recommended Disclosure
b) Describe the impact of climate-related risks and opportunities on the organisation's business, strategy and financial planning.

The Fund believes that diversification across asset classes, regions, and sectors is an important investment risk management tool to reduce risk. The Fund recognises that climate risk is systemic and is unlikely to be eliminated through diversification alone. The Fund is continually exploring options to further embed climate-related risks and opportunities into its investment strategy, including reviewing potential investments in sustainable and / or low carbon equities where this supports the Fund's investment and funding objectives.

The Fund aims to target investments in global companies that are sustainable in financial, environmental, social and governance terms and, where appropriate, providing solutions to sustainability challenges. Furthermore, the Fund has invested in several renewable energy opportunities and more recently Forestry. The Fund continues to actively assess and explore additional opportunities. Research commissioned by LGPSC from Mercers (presented below) suggests that these allocations could lead to a positive return impact on the Fund's investment portfolio in a 2°C scenario.

As well as the significant investment activity detailed in last year's TCFD report to reduce its climate-related risks, the Fund has invested £150m into a Forestry Growth and Sustainability Fund and £200m into a global sustainable active equity fund in 2022. The Fund will continue to explore options to further embed climate-related risks and opportunities into its investment strategy, where this supports the Fund's investment and funding objectives.

The Fund will also use the analysis of the SDG Mapping exercise which shows £1.4bn of its £2bn of listed assets had exposure to SDG13 Climate Action through some of the most influential global companies contained within the World Benchmarking Alliance's SDG2000 benchmark. The analysis will help the Fund in

➢ Tackling the 'weaker' areas in the Fund's investments by having a **proactive identification and engagement** approach with 7 Classified as Confidential

➢ The **lowest-rated Fund SDG2000 holdings**, and

➢ Those **other Fund investments** deemed as being **SDG-detracting thus** creating a **more rigorous approach** towards future manager **appointments** / real asset investments

TCFD Recommended Disclosure
c) Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.

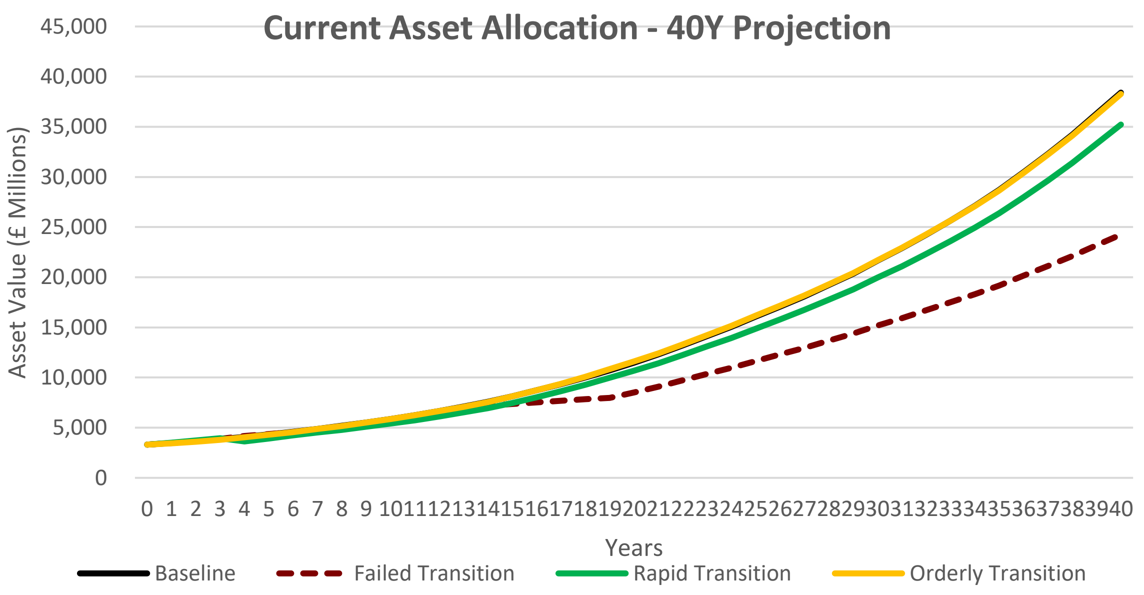
In 2022 the Fund engaged the expertise of an external contractor, Mercer LLC[1], to understand the extent to which the Fund's risk and return characteristics could come to be affected by a set of plausible climate scenarios. This includes an estimation of the annual climate-related impact on returns (at the fund and asset-class level). All asset classes are included in this analysis. The climate scenarios considered are Rapid Transition, Orderly

[1] Via LGPS Central Limited

Transition and Failed Transition. This analysis is carried out every 2 to 3 years and the results of the 2022 analysis are provided below.

The scenarios are defined according to the change since pre-industrial times in mean global surface temperatures. A rapid transition scenario leads to a 1.5°C temperature increase by 2100 and is characterised by sudden divestments on a global scale in 2025 in order to align society to the Paris Agreement goals. An early and smooth transition is represented by a 1.6°C temperature increase by 2100, with the markets pricing-in dynamics occur gradually over four years. A failed transition is represented by a temperature increase of 4.3°C by 2100, with severe physical and extreme weather events and the markets pricing in these risks.

Graph 1: Cumulative Return Projections by Climate Change Scenario.[2]



The analysis shows that over medium- to long-term, a successful transition is imperative for the Fund as its asset allocation fare better under Rapid and Orderly transition scenarios versus the Failed transition. Over the long term for nearly all investors a successful transition leads to enhanced projected returns when compared to scenarios associated with higher temperature outcomes due to lower physical damages.

Translating Climate Scenario Analysis into an investment strategy is a challenge because there is a wide range of plausible climate scenarios; the probability of any given scenario is hard to determine, and; the best performing sectors and asset classes in an orderly scenario tend to be the worst performers in a failed scenario and vice versa. Despite the challenges, the Fund believes in seeking out the best available climate-related research in order to make its portfolio as robust as possible.

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[2] Extract above from Mercer Limited's (Mercer) report "Climate Change Scenario Analysis" dated December 2022 prepared for and issued to LGPS Central Limited for the sole purpose of undertaking climate change scenario analysis for Shropshire Pension Fund. Other third parties may not rely on this information without Mercer's prior written permission. The findings and opinions expressed are the intellectual property of Mercer and are not intended to convey any guarantees as to the future performance of the investment strategy. Information contained herein has been obtained from a range of third party sources. Mercer makes no representations or warranties as to the accuracy of the information and is not responsible for the data supplied by any third party.

Risk Management

TCFD Recommended Disclosure
a) Describe the organisation’s process for identifying and assessing climate-related risks.

The Fund seeks to identify and assess climate-related risks at the total Fund level and at the individual asset level. The Fund has received a Climate Risk Report to assess financially material risks in support of the Fund’s Climate Change Risk Strategy which includes both top-down and bottom-up analyses of its listed holdings and a Sustainable Development Goals Audit to support this endeavour. The Fund recognises that the tools and techniques for assessing climate-related risks in investment portfolios are an imperfect but evolving discipline. The Fund aims to use the best available information to assess climate-related threats to investment performance.

As far as possible climate risks are assessed in units of investment return, in order to compare with other investment risk factors.

As a primarily externally managed pension fund, the identification and assessment of climate related risks is also the responsibility of individual fund managers appointed by the Fund. Existing fund managers are monitored on a regular basis and the Fund’s monitoring process will be more focussed in future to review the integration of climate risks into the managers portfolio management approaches, and to understand their engagement activities.

Engagement activity is conducted with investee companies through selected stewardship partners including LGPSC, EOS at Federated Hermes, and LAPFF (see below). The Fund is, based on a Climate Risk Report, devising a Climate Stewardship Plan in order to focus engagement resources on the investments most relevant to the Fund.

TCFD Recommended Disclosure
b) Describe the organisation’s process for managing climate-related risks.

The prioritisation of risks is determined on the level of perceived threat to the Fund which, for climate-related risk, will likely depend on analyses including Climate Scenario Analysis and Carbon Risk Metrics. As set out in the Fund’s Climate Change Risk Strategy, the main management techniques are utilising the best possible tools and techniques for assessing climate-related risks; accessing the best possible climate change data available; and working collaboratively with other investors.

Although the Fund’s Climate Change Risk Strategy involves more than just engagement and shareholder voting, stewardship activities will remain an important aspect of the Fund’s approach to managing climate risk. The Fund expects all investee companies to manage material risks, including climate change, and the Fund believes that climate risk management can be meaningfully improved through focussed stewardship activities by investors.

The Fund supports the engagement objectives of the Climate Action 100+ initiative, namely that companies: adopt the appropriate governance structures to effectively manage climate risk; decarbonise in line with a 1.5°C and disclose effectively using the TCFD recommendations.

Either through its own membership or through LGPSC membership, the Fund has several engagement partners that engage investee companies on climate risk.

Table 3: The Fund's Stewardship Partners

Organisation	Remit
LGPS Central Limited	The Fund is a 1/8th owner of LGPS Central Limited. Climate change is one of LGPS Central's stewardship themes, with quarterly progress reporting available on the website. The Responsible Investment Team at LGPS Central engages companies on the Fund's behalf, including via the Climate Action 100+ initiative.
Federated Hermes	EOS at Federated Hermes is engaged by LGPS Central to expand the scope of the engagement programme, especially to reach non-UK companies.
Local Authority Pension Fund Forum	The Fund is a member of the Local Authority Pension Fund Forum (LAPFF). LAPFF conducts engagements with companies on behalf of local authority pension funds.

The use of shareholder voting opportunities is an important part of climate stewardship. The Fund's approach to shareholder voting is to appoint high quality asset managers whose voting policies support the long-term economic objectives of shareholders. Voting rights attached to securities in portfolios managed by LGPSC are instructed according to LGPSC's Voting Principles, to which the Fund contributes during the annual review process. LGPSC's Voting Principles incorporate climate change, for example by voting against companies that do not meet certain thresholds in the Transition Pathway Initiative (TPI) scoring system. LGPSC has co-filed shareholder resolutions that relate to climate change.

Legal & General Investment Management (LGIM) currently manage a sizeable proportion of the Fund's assets on a passive basis. The votes in respect of these assets are cast by LGIM. LGIM has a robust approach to incorporating climate change factors in its voting decisions, including on specific climate-related shareholder resolutions.

The results of engagement and voting activities are reviewed by the Committee and Pension Investment Sub-Committee. LGPSC's activities are reported in Quarterly Stewardship Updates which are available on the LGPSC website.

Based on its first Climate Risk Report, the Fund has developed a Climate Stewardship Plan which, alongside the widescale engagement activity undertaken by LGPS Central, EOS at Federated Hermes, and LAPFF, includes targeted engagement with eight investee companies of particular significance to the Fund’s portfolio. The Fund believes that all companies should align their business activities with the Paris Agreement on climate change.

Table 3: Companies included in the Climate Stewardship Plan

Company	Sector
BHP Group	Materials
BP	Energy
Cemex	Cement
CRH	Materials
Glencore	Materials
Rio Tinto	Mining
Royal Dutch Shell	Energy
Taiwan Semiconductor Manufacturing Co	Info Tech

TCFD Recommended Disclosure

c) Describe how processes for identifying, assessing and managing climate-related risks are integrated into the organisation’s overall risk management.

The Committee discusses both ‘mainstream’ risks and climate-related risks. While specific macro-economic risks are not usually included in isolation, the Fund has included climate risk on the Fund’s Risk Register.

Climate risk is further managed through the Fund’s Climate Stewardship Plan.

Metrics and Targets

TCFD Recommended Disclosure
a) Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process.

The Fund has recently received a report from LGPSC on carbon risk metrics for its listed equities portfolios, which represent 71% of the Fund's total assets. The poor availability of data in asset classes other than listed equities prevents a more complete analysis at this time.

The carbon risk metrics analysis include:

- portfolio carbon footprints[3]
- weight of portfolios invested in companies with fossil fuel reserves
- weight of portfolios invested in companies with thermal coal reserves
- weight of portfolios invested in companies whose products and services include clean technology
- metrics assessing the management of climate risk by portfolio companies

Carbon risk metrics aid the Fund in assessing the potential climate-related risks to which the Fund is exposed, and identifying areas for further risk management, including company engagement and fund manager monitoring. The Fund additionally monitors stewardship data (see above).

In considering its carbon risk metrics, the Fund remains aware of the limitations of the available metrics and the underlying datasets. There are certain data gaps caused by companies failing to report GHG data, or by companies reporting unreliable GHG data. In such cases the GHG data must be estimated, and different suppliers of GHG datasets might have different methodologies for making such estimations, leading to potentially different values for the same company or portfolio of companies. The results should, therefore, be treated with some degree of caution. Despite the potential pitfalls, the Fund has resolved to integrate the consideration of carbon risk metrics within the Fund's overall framework of risk management, whilst remaining conscious that the results are primarily useful in enabling the Fund to reach broad conclusions, to enable risk management measures to be prioritised and to enable broad direction of travel and progress to be assessed.

In 2020 the Fund undertook an external ESG audit of the Funds' investments to the SDGs. This was to establish a baseline of the Fund's current position and to help formulate future strategic actions for the Fund's investment approach.

This involved examining the existing Investment Portfolio holdings and their relationship (positive/ negative) to the 17 SDGs, specifically highlighting a number of specific SDGs one of these being SDG13 Climate Action that will be used to identify the risks and opportunities associated with the analysis.

[3] Following TCFD guidance we use weighted average portfolio carbon footprints.

TCFD Recommended Disclosure
b) Disclose Scope 1, Scope 2, and if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks. TCFD Guidance: *Asset owners should provide the weighted average carbon intensity, where data are available or can be reasonably estimated, for each fund or investment strategy.*

In line with the TCFD guidance and following receipt of a report from LGPS Central Limited we provide below the carbon footprints of our equity portfolio[4]:

Figure 4: Total Equities Carbon Footprint[5]

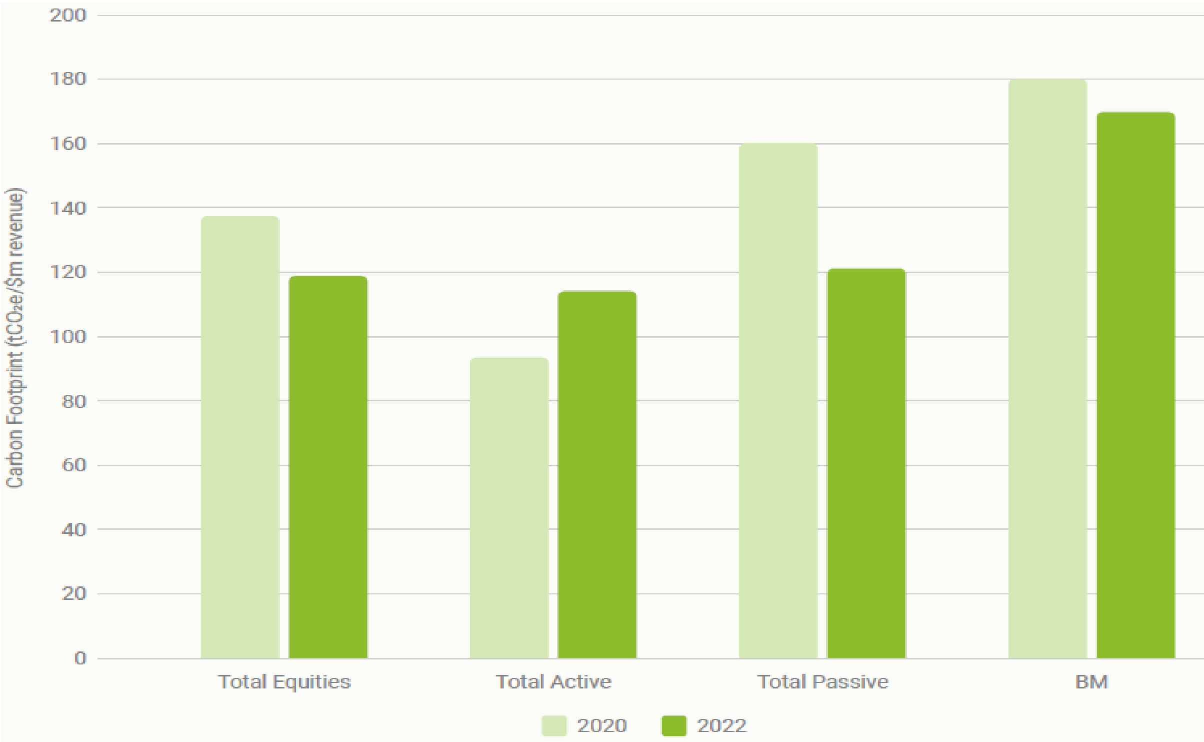

Figure 4 above shows that from 2020 the carbon intensity of the Total Equities portfolio decreased by 13.63%, which is driven by the 24.46% decrease in the carbon intensity of the passive portfolio, which in turn is driven by the portfolios changes which occurred between 2020 and 2022, exiting of the FTSE RAFI Development fund and the MSCI World Min Vol TR and transitioning into the LGPS Central Climate Multi Factor Fund. The decrease in carbon intensity of Total Equities is mitigated by the 17.12% increase in carbon intensity of the active portfolio.

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[4] Analysis undertaken on the listed equities portfolios with holdings data as of 30th November 2021 unless otherwise stated. The information in Figure 4, 5, 6, 7 & 8 was provided to the Fund in a report authored by LGPS Central Limited. In LGPS Central Limited's Reports the Total Equities portfolio comprises the Nomura Asia-Pacific, LGPS Central Emerging Equity Active Multi-Manager Fund, LGIM UK Equity, LGIM North America Equity, LGIM Europe Ex-UK Equity, LGIM Global Fund. The Total Active Equities portfolio comprises the Nomura Asia-Pacific and LGPSC Emerging Equity Active Multi Manager portfolio. The Total Passive Equities comprises the LGIM UK Equity, LGIM North America Equity, LGIM Europe Ex-UK Equity and LGIM Global fund. The LGPSC Emerging Market Equity Active Multi-Manager fund contains 3 underlying strategies: BMO, UBS and Vontobel.

[5] Certain information ©2021 MSCI ESG Research LLC. Reproduced by permission.

The effect of the decrease in carbon intensity is compounded by the greater increase in the AUM of the Passive Equities in comparison to the AUM increase of the Active Equites. The carbon intensity of the total portfolio is 30.10% lower than that of the benchmark.

Figure 5 below shows the portfolio's allocation to companies with fossil fuel reserves has increased by 0.86%, while exposure to thermal coal reserves and coal power has decreased by 0.25% and 0.48% respectively between 2020 and 2022. These values are all below their respective benchmarks

.Figure 5: Total Equities fossil fuel exposure[6]

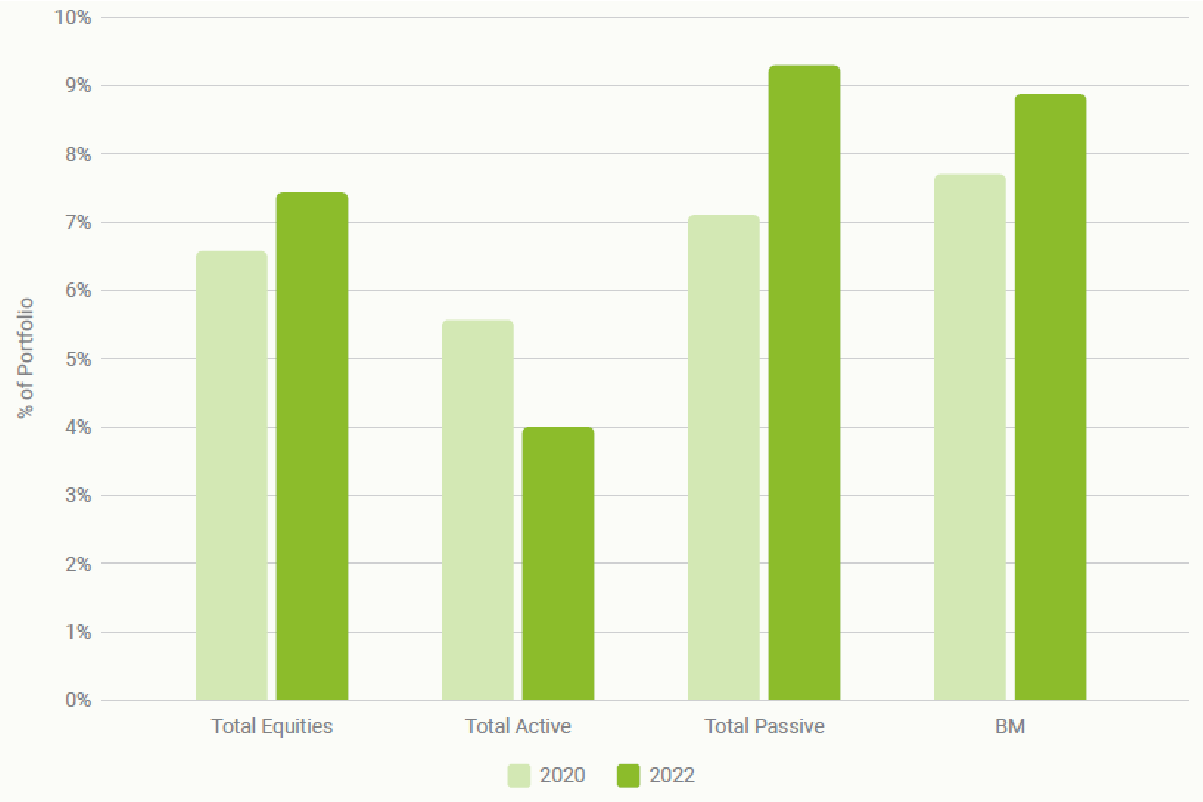

Figure 6 below shows the exposure of Total Equities to clean technology has marginally decreased by 0.1% between 2020 and 2022. Apportioned by revenue, the portfolio has 3.93% exposure to clean technology solutions, suggesting the majority of companies are not pure-play clean technology companies (i.e., they do not derive a significant proportion of their revenue from clean tech).

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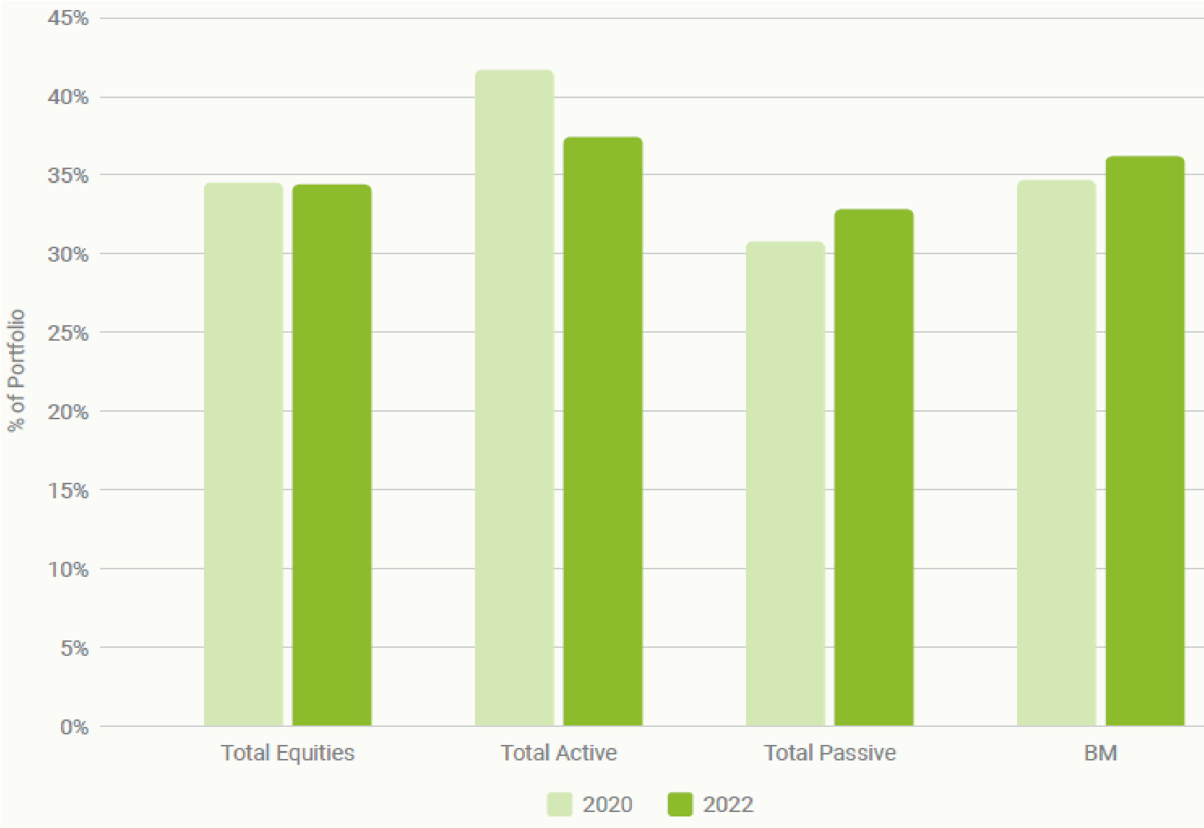
[6] Certain information ©2021 MSCI ESG Research LLC. Reproduced by permission.

Figure 6: Total Equities clean technology exposure[7]



Whilst the Fund's carbon risk metrics results show the Fund already 'outperforms' its benchmarks, the Fund is proactively exploring ways to further embed climate risk management in its investment decision making. The Fund expects to update its carbon risk metrics data on an annual basis.

SDG Mapping to the Fund's portfolio undertaken by Minerva

At the end of September 2020, the Fund's listed equity investment managers collectively held 1,007 (50.4%) of the 2,000 companies in the SDG2000. Minerva used the World Benchmarking Alliance (WBA) SDG2000 to measure the alignment between the Fund's investments and the SDGs. The WBA SDG 2000 measures and ranks 2000 of the world's most influential companies in respect of SDGs.

These are seen as global companies that are deemed likely by the WBA to have the greatest potential to help deliver the SDGs, if managed in a sustainable manner.

The Fund had a total of **£1.33bn invested** in these 1,007 companies' equities and corporate bonds, **representing 66% of the total value of the in-scope assets** as at end September 2020.

The Fund also assessed the number of its portfolio companies referencing TCFD disclosures. This found that almost 47% of the Fund's in scope equities under coverage have made some material reference to TCFD in their latest Annual Report and Accounts. The Fund aims to request that managers present their TCFD report in future.

The Fund will look to complete the SDG Mapping of its overall portfolio every 2 to 3 years.

[7] Certain information ©2021 MSCI ESG Research LLC. Reproduced by permission.

TCFD Recommended Disclosure
c) Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets.

The ability for diversified investors (such as pension funds) to set meaningful climate targets is inhibited by the paucity of credible methodologies and data currently available. Like most investors, the Fund is supportive of the development of target-setting methodologies, and the increasing completeness of carbon datasets. The Fund wishes to set meaningful and challenging climate targets

The Fund has reviewed the use of targets. As per the Climate Change Risk Strategy, the Fund has set the following targets:

No.	Target
1	Reduce further the carbon footprint (Scope 1 & 2) of the Fund's listed equity portfolio compared to its weighted benchmark in 2022 by the end of 2023
2	Set an internal decarbonisation annual reduction target up to 2025 at which point it will be further reviewed
3	Continue to look to invest a proportion of the Fund's portfolio in low carbon & sustainable investments by the end of 2023.
4	Use the Climate Scenario Analysis to track and better understand the portfolio's capacity to transition into a low carbon economy

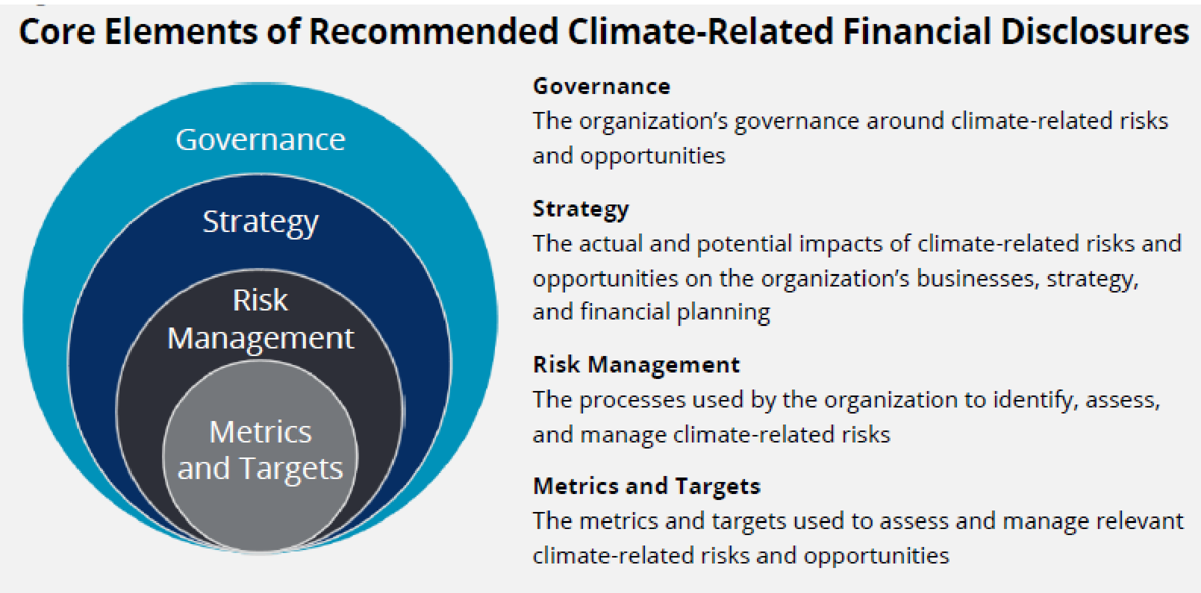
APPENDIX 1

Introduction to the TCFD

The Taskforce on Climate-related Financial Disclosures (TCFD) was commissioned in 2015 by Mark Carney in his remit as Chair of the Financial Stability Board. In 2017 the TCFD released its recommendations for improved transparency by companies, asset managers, asset owners, banks, and insurance companies with respect to how climate-related risks and opportunities are being managed. Official supporters of the TCFD total 930 organisations representing a market capitalisation of over $11 trillion. Disclosure that aligns with the TCFD recommendations currently represents best practice.

The recommendations are based on the financial materiality of climate change. The four elements of recommended disclosures (see Figure 1 below) are designed so as to make TCFD-aligned disclosures comparable, but with sufficient flexibility to account for local circumstances. Examples of pension funds that have been early adopters of the TCFD recommendations include AP2, NEST, PGGM, RPMI Railpen, The Pensions Trust, and Environment Agency Pension Fund.

Figure 1: TCFD Disclosure Pillars



The Fund supports the TCFD recommendations as the optimal framework to describe and communicate the steps the Fund is taking to manage climate-related risks and incorporate climate risk management into investment processes. As a pension fund, we are long-term investors and are diversified across asset classes, regions and sectors, making us “universal owners”. It is in our interest that the market is able to effectively price climate-related risks and that policymakers are able to address market failure. We believe TCFD-aligned disclosure from asset owners, asset managers, and corporates, is in the best interest of our beneficiaries.

About this report

This report is Worcestershire Pension Fund's (WPF or 'the Fund') second climate-related disclosure report. It describes the way in which climate-related risks are currently managed within the Fund.

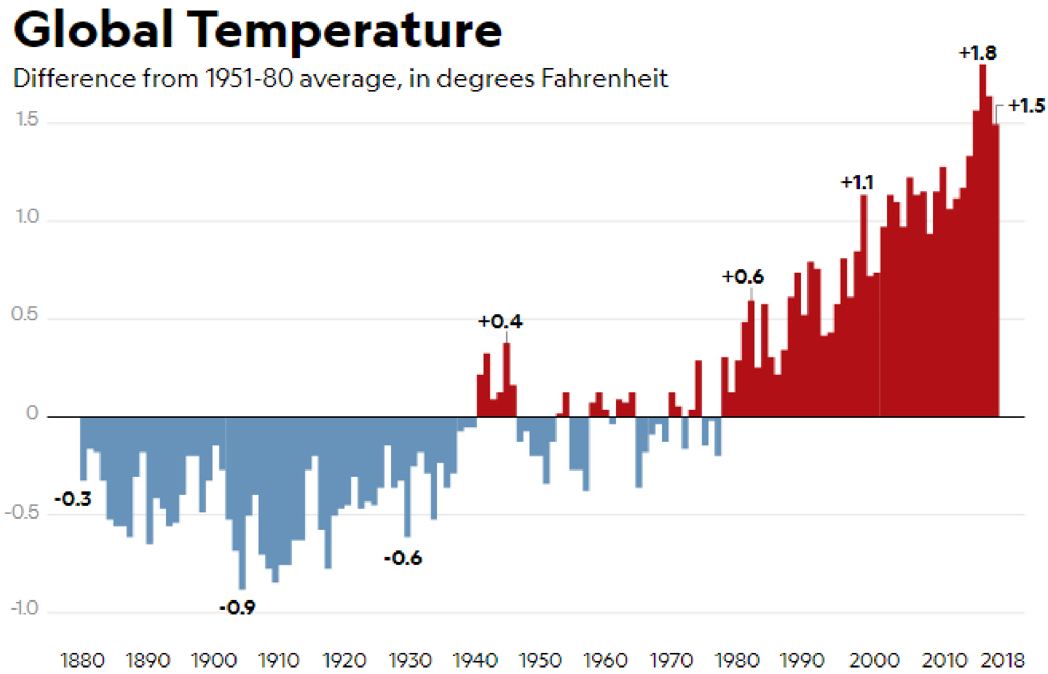
Since September 2020, WPF has received three Climate Risk Reports from the Fund's pooling company, LGPS Central Ltd. These reports have provided an in-depth review of the Fund's climate risks under different climate change scenarios across all asset classes. The Fund is currently using the findings of these reports to develop a more detailed Climate Strategy.

In the interests of being transparent with the Fund's beneficiaries and broader stakeholder base, this report discloses the most recent Carbon Risk Metrics Analysis and Climate Scenario Analysis undertaken on the Fund's assets. We expect to update our Carbon Risk Metrics on an annual basis.

Climate-related risks

Human activities are estimated to have caused approximately 1.0°C of global warming above pre-industrial levels. Most of this warming has occurred in the past 35 years, with the five warmest years on record taking place since 2010. Between the years 2006-2015, the observed global mean surface temperature was 0.87°C higher than the average over the 1850-1990 period. The overwhelming scientific consensus is that the observed climactic changes are the result primarily of human activities including electricity and heat production, agriculture and land use change, industry, and transport.

Figure 1 Graph showing Global Temperature Difference from 1951-80 average. Source: NASA



In order to mitigate the worst economic impacts of climate change, there must be a large, swift, and globally co-ordinated policy response. Despite this, the majority of climate scientists anticipate that given the current level of climate action, by 2100 the world will be between 2°C and 4°C warmer, with significant regional variations. This is substantially higher than the Paris Climate Change Agreement, which reflects a collective goal to hold the increase in the climate's mean global surface temperature to well below 2°C above preindustrial levels and to pursue efforts to limit the temperature increase to 1.5°C.

Figure 2: Selected extracts from the Paris Agreement on climate change.[8]

Paris Agreement Article 2(1)a

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, recognizing that this would significantly reduce the risks and impacts of climate change;

Paris Agreement Article 2(1)c

Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.

Paris Agreement Article 4(1)

In order to achieve the long-term temperature goal set out in Article 2, Parties aim to reach global peaking of greenhouse gas emissions as soon as possible, recognizing that peaking will take longer for developing country Parties, and to undertake rapid reductions thereafter in accordance with best available science, so as to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century, on the basis of equity, and in the context of sustainable development and efforts to eradicate poverty.

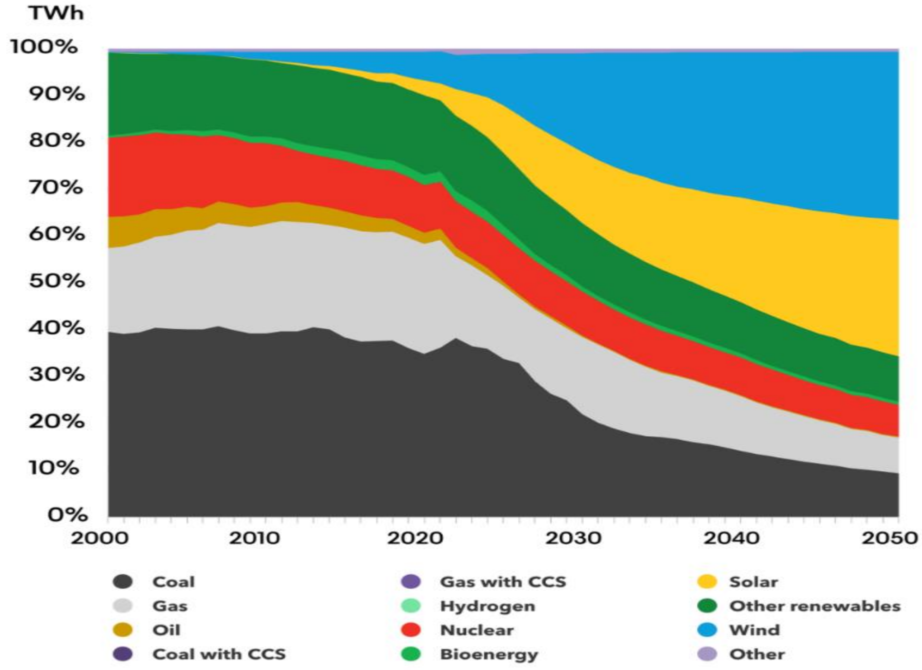
Given its contribution to global green-house gases (GHG) emissions, the energy sector is expected to play a significant role in the long-term decarbonisation of the economy. Figure 3 suggests that in one climate scenario the proportion of coal, oil, and gas in the global power generation mix will shrink to 31% of total by 2050. It is important to recognise however that not only is the supply of energy expected to be a factor in global decarbonisation, but the demand for energy plays a crucial role too. In addition, the behaviour of private and state-owned energy companies (not commonly invested in by UK pension funds) is as important as their publicly traded counterparts.

The issue faced by diversified investors (such as pension funds) is not limited to the oil & gas and power generation sectors, but also to downstream sectors. Investors focussing exclusively on primary energy suppliers could fail to identify material climate risks in other sectors. Research suggests that the oil & gas sector is not homogeneous with regards to climate risk: were climate policies to affect the oil price, those companies with assets lower down the cost curve are less likely to be financially compromised by those companies with higher cost assets. Investors that assume each fossil fuel company bears an equal magnitude of climate-related risk could be led towards sub-optimal decision-making.

The Fund recognises that climate-related risks can be financially material and that the consideration of climate risk falls within the scope of the Fund’s fiduciary duty. Given the Fund’s long-dated liabilities and the timeframe in which climate risks could materialise, a holistic approach to risk management covering all sectors and all relevant asset classes is warranted.

[8] Source: UNFCCC

Figure 3: The Bloomberg New Energy Outlook global power generation mix. Source: BloombergNEF.



APPENDIX 3

TCFD Recommendations for Asset Owners (source: TCFD)

Governance

Recommended Disclosure (a) Describe the board's oversight of climate-related risks and opportunities.

Recommended Disclosure (b) Describe management's role in assessing and managing climate-related risks and opportunities.

Strategy

Recommended Disclosure (a) Describe the climate-related risks and opportunities the organisation has identified over the short, medium, and long term.

Recommended Disclosure (b) Describe the impact of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning.

Recommended Disclosure (c) Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.

Risk Management

Recommended Disclosure (a) Describe the organisation's processes for identifying and assessing climate-related risks.

Recommended Disclosure (b) Describe the organisation's processes for managing climate-related risks.

Recommended Disclosure (c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organisation's overall risk management.

Metrics and Targets

Recommended Disclosure (a) Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process.

Recommended Disclosure (b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.

Recommended Disclosure (c) Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets.

APPENDIX 4

Important Information

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Glossary of Terms

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

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

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

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

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

Portfolio Carbon Footprint/ Carbon Footprint: A proxy for a portfolio's exposure to potential climate-related risks (especially the cost of carbon), often compared to a performance benchmark. It is calculated by working out the carbon intensity (Scope 1+2 Emissions / $M sales) for each portfolio company and calculating the weighted average by portfolio weight.

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

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

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

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

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

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

Abbreviations

Acronym	Meaning
CH_4	Methane
CO_2	Carbon Dioxide
ESG	Environmental, Social & Governance
GHG	Greenhouse Gas
LGIM	Legal & General Investment Management
LGPSC	LGPS Central Limited
NDC	Nationally Determined Contribution
TCFD	Task Force on Climate-related Financial Disclosures
WEF	World Economic Forum
WPF	Worcestershire Pension Fund