Climate disclosures for year ending 31 March 2023

Produced by: The Trustee of the University of Oxford Staff Pension Scheme

Date: October 2023

Introduction

Climate change is affecting the planet, causing extreme weather events, impacting crop production and threatening Earth's ecosystems. Understanding the impact of climate change and the University of Oxford Staff Pension Scheme's vulnerability to climate-related risks will help us to mitigate the risks and take advantage of any opportunities.

UK regulations require trustees to meet climate governance requirements and publish an annual report on their pension scheme's climate-related risks. The regulations require trustees to report in a line with the recommendations of the Taskforce on Climate-related Financial Disclosure ("TCFD").

Better climate reporting should lead to better-informed decision-making on climate-related risks. And on top of that, greater transparency around climate-related risks should lead to more accountability and provide decision-useful information to investors and beneficiaries.

This report has been prepared in accordance with the regulations set out under The Occupational Pension Schemes (Climate Change Governance and Reporting) Regulations 2021 (the "Regulations"). It provides an update on how the Scheme aligns with each of the four elements set out in the regulations. The four elements covered in the statement are detailed below:

- **Governance:** The Scheme's governance around climate-related risks and opportunities.
- **Strategy:** The actual and potential impacts of climate-related risks and opportunities on the Scheme's strategy and financial planning.
- **Risk Management:** The processes used to identify, assess and manage climate-related risks.
- **Metrics and Targets:** The metrics and targets used to assess and manage relevant climate-related risks and opportunities.

This document is the annual TCFD report for the Scheme for the year ended 31 March 2023. It has been prepared by the Trustee (the "Trustee").

What is TCFD?

The Financial Stability Board created the Taskforce on Climate-related Financial Disclosure ("TCFD") to develop recommendations on the types of information that entities should disclose to support investors, to assess and price risks related to climate change.

The TCFD has developed a framework to help companies and other organisations, including pension schemes, more effectively disclose climate-related risks and opportunities through their existing reporting processes.

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Executive summary

To produce this TCFD-aligned report, we have worked with our investment adviser to consider carefully the potential impact climate change could have on the Scheme's investments and how we identify, manage, and mitigate those risks.

Overview of the Scheme

The Scheme is a hybrid scheme, which has two sections, a Defined Benefit ("DB") section and a Defined Contribution ("DC") section.

The DB section invests across a range of assets, and within this report we consider the impact of climate-related risks on those asset classes, the investment strategy and potential impact on the funding of the Scheme.

The DC section of the Scheme is relatively small compared to the DB section, and is invested in a range of equity, fixed income, property, alternative and multi-asset funds, through pooled fund platforms. Despite having less assets under management, relative to the DB section, the DC section is also subject to the climate reporting requirements because it is an Authorised DC Master Trust. As a result, we have included an appropriate level of detail in this report about the relevant assets held in the DC section.

As part of our commitment to managing climate-related risks, we have acknowledged climate change as a key concern of the Scheme within our Responsible Investment and Environmental, Social and Governance ("ESG") policy.

The Scheme's Responsible Investment and ESG Policy sets out our approach on these matters and was in effect during the year. The Policy sets out requirements for investment advisers and investment managers. We will disclose any actions taken with respect to these issues to the Scheme through Scheme documentation, such as within our Implementation Statement, where the key objectives of our RI and ESG policy are treated as stewardship priorities. Where these issues are not being taken into account, we will reflect this in our assessment of our advisers and managers.

Summary of findings

This report sets out the approach of the Trustee with regards to assessing, monitoring and mitigating climate-related risks in the context of the Trustee's broader regulatory and fiduciary responsibilities to their members.
The Trustee has considered carefully the recommendations set out by the Taskforce on Climate-Related Financial Disclosures ("TCFD") and the Trustee will use them to continue to assess, monitor and mitigate climate-related risks on behalf of its members. This is the Trustee's second disclosure under the framework and the reporting is expected to continue to evolve over time.

Governance

The Trustee has disclosed the Scheme's governance and oversight of climate-related risks and opportunities. This has been enhanced from the previous

TCFD report to include further details in relation to the Trustee's advisers, and the activity the Trustee has completed in relation to climate-related factors.

Strategy: The actual and potential impacts of climate-related risks and opportunities on the Scheme's strategy and financial planning. This has been enhanced from the previous TCFD report to include additional details on the DC section of the Scheme.

Risk Management

The Trustee has integrated climate-related risks into its policies and processes. For example, the Trustee has included a clear policy on stewardship, including the impact of climate change, in its Statement of Investment Principles. In addition to this, the Trustee reviews data on voting and engagement activities of its managers annually through its Implementation Statement.

The Trustee has enhanced the previous TCFD report by outlining a Climate Risk Management Framework, starting on page 28. This framework identifies the processes used to identify, assess and manage climate-related risks and opportunities. As part of this, the Trustee undertakes periodic training on responsible investment to understand how ESG factors, including climate change, may impact the Scheme's assets and liabilities. Details of training the Trustee has undertaken through the Scheme year are included in the Governance Section and Risk Management Section.

Metrics and Targets

The metrics and targets used to assess and manage relevant climate-related risks and opportunities. This section now includes an additional metric, the Portfolio Alignment Metric, and details on the Scope 3 emissions in relation to the assets held by the Scheme.

We hope you enjoy reading this report and understanding more about how we are managing climate-related risks and opportunities within the Scheme.

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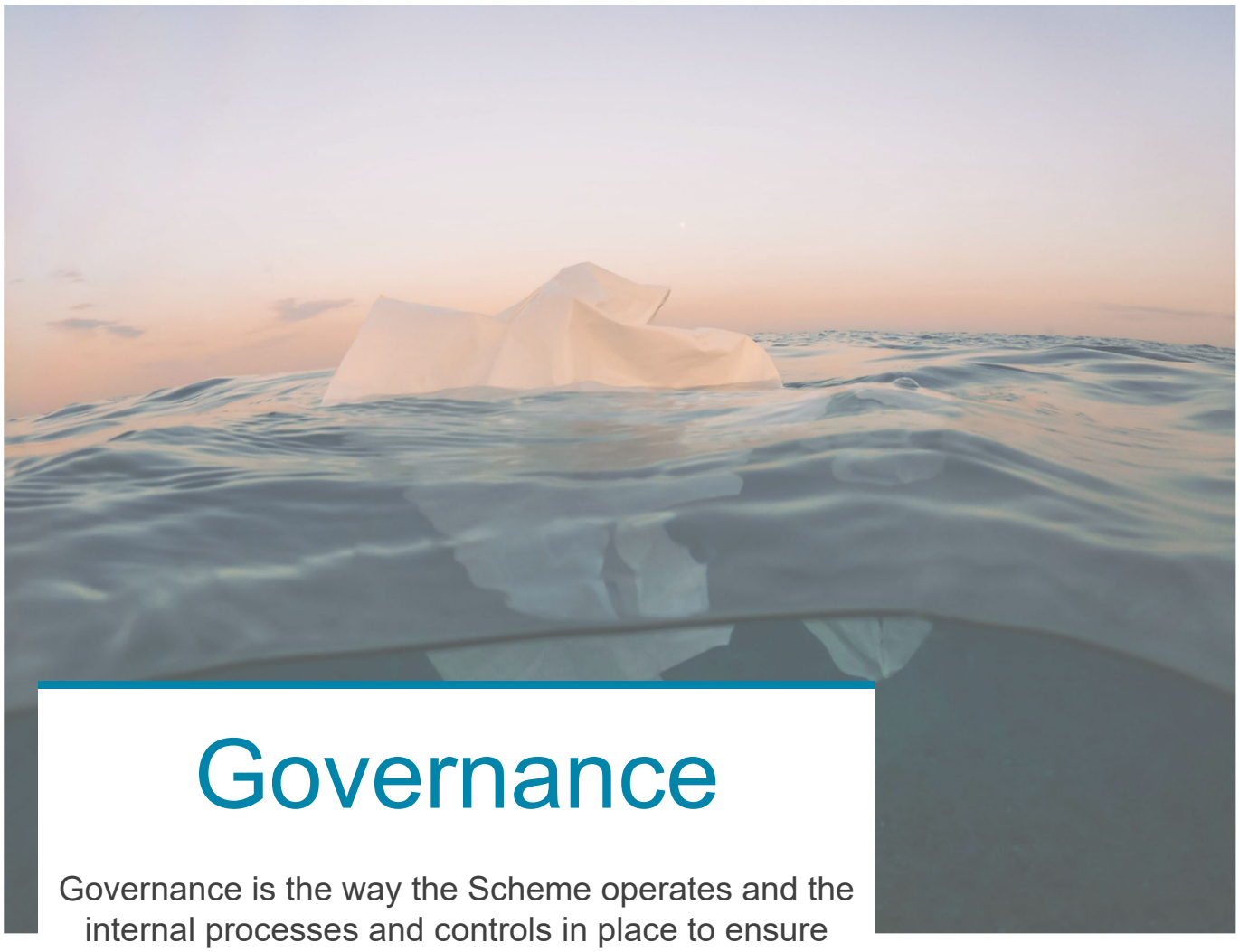
Chair of the Trustee

on behalf of the Trustee of University of Oxford Staff Pension Scheme



Governance

Governance is the way the Scheme operates and the internal processes and controls in place to ensure appropriate oversight. Those undertaking governance activities are responsible for managing climate-related risks and opportunities. This includes us, as the Trustee, and others making Scheme-wide decisions, such as those relating to the investment strategy or how it is implemented, funding, and the ability of the sponsoring employer to support the Scheme.

Our Scheme's governance

As the Trustee of the Scheme, we are responsible for overseeing all strategic matters related to the Scheme. This includes the governance and management frameworks relating to Environmental, Social and Governance ("ESG") considerations and climate-related risks and opportunities.

We agreed our climate-related beliefs and our approach to managing climate change risk. These are set out in the Scheme's Statement of Investment Principles ("SIP"), which is reviewed annually.

Our climate beliefs

The Trustee believes that climate change is one of the highest concern risks facing the world over the next 10 to 50 years and the Trustee recognises the significant weight of the scientific evidence underpinning this.

The Trustee believes that the risks associated with climate change could have a materially detrimental impact on the Scheme's investment returns within the timeframe that the Trustee is concerned about. Because of this risk, the Trustee seeks to integrate assessments of climate change risk into its investment risk management and strategy.

Furthermore, we believe that climate-related factors are likely to create investment opportunities. Where possible, and where appropriately aligned with our strategic objectives and fiduciary duty, we will seek to capture such opportunities through our investment portfolio.

In seeking to mitigate the impacts of climate change risks on the Scheme, we expect that our managers, advisers, and other service providers have themselves assessed the impact of climate change risk on their organisations and are taking steps to identify, mitigate and manage these risks. We also expect our managers, advisers, and other service providers to seek to capture potential climate-related opportunities where appropriate.

We also aim to support progress towards net zero emissions, drawing on Oxford University's leadership on the science, economics, and finance of the transition, and informed by the 2021 United Nations Climate Change Conference ("COP26") and research from leading global organisations such as the Intergovernmental Panel on Climate Change ("IPCC").

We acknowledge that there are both long- and short-term risks associated with climate change, and so consider the following time horizons to be appropriate for the DB and DC sections of the Scheme:

- short-term: 1 to 3 years.
- Medium-term: 4 to 10 years.
- Long-term: 11 to 30 years.

Climate-related risks and opportunities are assessed over the above time horizons, with the medium and long-term being of most concern to us, given the long-dated nature of the Scheme's DB liabilities and the extent to which future scientific analysis of the global climate is expected to evolve over that timescale. Where appropriate, we seek to consider transition and physical risks separately.

Role of the Trustee Board

The Trustee Board is ultimately collectively responsible for oversight of all strategic matters related to the Scheme. This includes approval of the governance and management framework relating to ESG considerations and climate-related risks and opportunities. Given its importance, we have not identified one individual specifically to be responsible for our response to climate risks and opportunities. Rather, the Trustee Board has collective responsibility for setting the Scheme's climate change risk framework.

We have discussed and agreed our climate-related beliefs and overarching approach to managing climate change risk. Details are set out in the Statement of Investment Principles ("SIP") for the DB and DC Sections, which are reviewed and (re)approved annually (or sooner in the event of a significant change in investment policy) by the Trustee Board.

The Trustee Board receives regular training on climate-related issues as and when required, to ensure that it has the appropriate degree of knowledge and understanding on these issues to support good decision-making. We expect our advisers to bring important and relevant climate-related issues and developments to our attention in a timely manner.

The Trustee Board regularly monitors and reviews progress against the Scheme's climate change risk management approach.

The Trustee Board has delegated implementation and day-to-day oversight of the Scheme's climate change risk management framework to the Funding and Investment Committee ("FIC", formerly Investment Committee ("IC")), which is a sub-committee of the Trustee Board.

Role of the Funding & Investment Committee

The Trustee Board has delegated the ongoing monitoring of the Scheme's integrated climate risk management framework to the FIC where they relate to investment matters.

The key activities undertaken by the FIC, with the support of the Trustee's advisers, are:

- Seeking to ensure that any investment decisions appropriately consider climate-related risks and opportunities within the context of the Scheme's wider risk and return requirements and are consistent with the climate change policy as set out in the SIP, and Responsible Investment and ESG policy.
- Regularly monitoring and reviewing progress against the Scheme's climate change risk management approach.
- Keeping the Trustee Board appraised of any material climate-related developments through regular updates, as and when required.

Trustee's update

Over the reporting period, the Trustee completed further training on climate-related risks and additional metric requirements under Year 2 TCFD statutory guidance.

Training was received in relation to the regulatory changes occurring in 2022, and how this would impact the Scheme. This included the industry feedback published by the Pensions Regulator following its review of the TCFD reports published by occupational pension schemes.

The purpose of this training session was to better equip the Trustee ahead of the preparation of its second TCFD report and to consider further actions to help protect the Scheme against potential financial impacts of climate change.

The FIC meets regularly to carry out the above activities. The FIC keeps the Trustee updated on any material climate-related developments through regular (at least annual) updates at Trustee meetings.

The Trustee Board originally set up a temporary TCFD Working Group in early 2021, which comprised of three Trustee Directors, to recommend an appropriate climate risk framework to the Trustee Board. The TCFD Working Group was disbanded following publication of the first TCFD report of the Scheme, after which responsibility for monitoring of the Scheme's climate risk approach was taken up as described above.

How we work with our advisers

We expect our advisers and investment managers to bring important climate-related issues and developments to our attention in a timely manner. We also expect our advisers and investment managers to have the appropriate knowledge on climate-related matters.

We annually review the quality of our advisers' provision of advice and support on climate-related issues. For our investment adviser this is part of the annual review of investment consultant objectives.

Investment consultant - the Trustee's investment consultant, Aon, provides strategic and practical support to the Trustee and the FIC in respect of the management of climate-related risks and opportunities, and ensuring compliance with the recommendations set out by the TCFD.

This includes provision of regular training and updates on climate-related issues and climate change scenario modelling to enable the FIC and Trustee to assess the Scheme's exposure to climate-related risks.

Scheme Actuary - the Scheme Actuary, Aon, will help the Trustee assess the potential impact of climate change risk on the Scheme's funding assumptions.

As part of its assessment of its advisers' climate-related competence, the Trustee will seek to understand how climate-related factors affect the assumptions used for the Scheme, and which sources of expertise the Scheme Actuary has used in determining the appropriate assumptions to use.

Covenant adviser - the Scheme's covenant adviser, Ernst & Young, will help the Trustee understand the potential impact of climate change risk on the sponsor covenant of the participating and principal employers of the Scheme.

As part of covenant advice sought, the Trustee will seek to understand how climate-related factors could affect the sponsoring employer's strategy over time. In doing so, the Trustee will seek information from the covenant adviser regarding their credentials in assessing climate-related factors.

Legal adviser: the Scheme's legal adviser, Burges Salmon, will help the Trustee understand their regulatory requirements in relation to climate-related factors.

As part of legal advice sought, the Trustee will seek information from the legal adviser regarding their credentials in advising on climate-related factors.

Trustee's update

Through the year the Trustee has received regular updates from the FIC. This has included a summary of recommendations and clear direction in relation to the framework for managing climate-related risks.

The FIC, and the Trustee, have received training and information from its investment consultant in relation to the regulations, and any key changes to the regulations. This includes training on the climate metrics to be reported on, and the change to the regulations from 1 October 2022 to include a Portfolio Alignment metric.

Role of Oxford University

As set out in its Responsible Investment and ESG policy, the Trustee acknowledges the evolving nature of University and College policies and practices in relation to climate change. Recognising that investment decisions in connection with the Scheme are primarily matters for the Trustee, the Trustee will have regard to Council's policy including when consulting the University on behalf of the sponsoring employers on investment strategy.

Activity over the year

The Scheme's Responsible Investment and ESG Policy, agreed by the Trustee, sets out the Trustee's approach on these matters and was in effect during the year. The Policy sets out requirements for investment advisers and investment managers.

The Trustee expects investment advisers and investment managers to take into account the long-term issues set out in the Trustee's RI and ESG Policy, including those which specifically relate to climate risks, and will communicate any actions taken with respect to these issues to the Scheme through their relevant representatives. Where these issues are not being taken into account, the Trustee will reflect this in its assessment of its advisers and managers.

The Trustee received quarterly monitoring reports from its investment adviser, which includes an ESG rating for equity and fixed income managers where available, produced by Aon's manager research team.

The Trustee also received an annual implementation statement reporting on the monitoring and engagement activities carried out by its investment managers.

On an ad hoc basis, the Trustee invites investment managers to present at Trustee meetings and engage on matters of interest such as performance and ESG. During the reporting year, this included Threadneedle, which presented at the March 2023 meeting.

Strategy

It is crucial to think strategically about the climate-related risks and opportunities that will impact the Scheme if we are to stand a chance of mitigating the effects of climate change.

Assessing the climate-related risks and opportunities the Scheme is exposed to is key to understanding the impact climate change could have on the Scheme in the future.

What climate-related risks are most likely to impact the Scheme?

Each year we carry out a qualitative risk assessment of the asset classes in which the Scheme is invested. From this we identify which climate-related risks could have a material impact on the Scheme. We also consider what climate-related opportunities might be relevant for the Scheme.

Given the number of asset classes used in the Scheme, we completed this exercise to the best of our ability. To help us with our assessment, we surveyed our ten investment managers, asking them to rate the climate-related risks and opportunities they believe their funds are exposed to. At the time of writing seven managers have been able to provide information for the risk assessment; three managers were unable to provide information. The Trustee will continue to engage with the managers that did not provide information to encourage best practice reporting in the future.

Our investments

The DB Section's investment portfolio is diversified across a range of different asset classes including equities, credit, infrastructure, and property.

As at 31 March 2023, the DB Section's strategic asset allocation was as follows:

DB Section:

Asset Class	Index-Linked Gilts	Equities	Credit	Property	Illiquids
Strategic Allocation	27.5%	25%	20%	10%	17.5%

Post Scheme year end, a new investment strategy was formally agreed upon. The above relates to the previous strategy.

The assets held within the DC Section are diversified across a range of equity, fixed income, property, alternative and multi-asset funds, through pooled fund platforms. The Trustee has focused its analysis on the default funds (the Legal & General target date funds), which are entirely multi-asset arrangements. The select funds have been excluded from this analysis as only a small number of members, and a small amount of assets, are invested in the select funds.

How the risk assessment works

Risk categories

In the analysis, the climate-related risks have been categorised into physical and transitional risks.

Transition risks are associated with the transition towards a low-carbon economy.

Physical risks are associated with the physical impacts of climate change on companies' operations.

Ratings

The analysis uses a RAG rating system where:

Red denotes a high level of financial exposure to a risk.

Amber denotes a medium level of financial exposure to a risk.

Green denotes a low level of financial exposure to a risk.

Time horizons

The Trustee assessed the climate-related risks and opportunities over multiple time horizons. The Trustee has decided the most appropriate time horizons for the Scheme are:

- short-term: 1-3 years
- medium-term: 4-10 years
- long-term: 11-30 years

We asked our investment managers to provide their own assessments of climate-related risks and opportunities associated with the mandates they manage on behalf of the Scheme over the short-, medium- and long-term, together with their reasoning and rationale for each risk. The table overleaf summarises the responses. The assessment excluded any investments in gilts, or cash, due to the limited materiality of climate risk to those asset classes. It also allowed for investment strategy changes made over the reporting year.

More details in relation to transition and physical risks can be found in the Appendix.

Setting timeframes

When deciding the relevant timeframes for the entire Scheme, the Trustee has taken into account the liabilities of the DB section and its obligations to pay benefits. The Trustee has based the short-, medium- and long-term timeframes on its long-term journey plan.

The rationale for each timescale can be defined as follows:

- Short-term: 1-3 years. This has been considered relative to when the Trustee expects the Scheme to undertake its next de-risking step on its long-term journey plan.
- Medium-term: 4-10 years. This aligns to the next stage on the Trustee's journey plan and de-risking.
- Long-term: 11-30 years. This aligns to the final stage of the Trustee's journey plan when the Trustee expects the Scheme to be fully de-risked.

The Trustee has determined that these timeframes are also appropriate for the DC section, given the profile of its members.

Climate-related risk assessment - DB Section

		Baillie Gifford	Generation	BlackRock		M&G	DIF	Threadneedle	Liabilities	Covenant
	Asset class	Global equities	Global equities / Asia equities	UK corporate bonds	Illiquid credit	Inflation opportunities	Infrastructure	Property		
	% Actual asset allocation	8.8%	12.3%	4.0%	9.4%	7.7%	5.5%	7.4%	N/a	N/a
Physical risks	Short-term	Low	Medium	Low / Medium	Not applicable	Low	Low / N/A	Low	Low	Low / Medium
	Medium-term	Medium	High	Low / Medium	Not applicable	Medium	Low	Medium	Low/Medium	Medium
	Long-term	High	High	Low / Medium	Not applicable	Medium	Low / Medium	Medium	Medium	Medium
Transition risks	Short-term	Low / Medium	Medium / High	Medium / High	Medium / Low	Low	Low / N/A	Low / Medium	Low	Low/Medium
	Medium-term	Low / Medium	Medium / High	Medium / High	Medium / Low	Low	Low / Medium	Medium	Low / Medium	Medium
	Long-term	Medium	High	Medium / High	Not applicable	Low	Medium	Medium / High	Medium	Medium
	2022 Impact	Medium	High	Medium	Medium	Medium	Low	Medium	Low / Medium	Low/Medium
	2023 Impact	Medium	High	Medium	Medium	Low / Medium	Low	Medium	Low / Medium	Low/Medium

Source: Assets - Investment Managers / Aon; Liabilities

Observations

Sands was not contacted, following the Scheme's full redemption from their Emerging Market equity fund.

M&G's chronic, physical risk assessment for Inflation Opportunities Fund V in the short-term has improved to low (previously medium), due to the due diligence that is undertaken prior to acquisition of assets.

Copenhagen, newly added to the DB Section, did not complete the questionnaire, and instead pointed towards its 2022 ESG Report for information about the associated climate-related risks and opportunities.

Whilst Baillie Gifford did provide helpful narrative about the short-, medium- and long-term risks of the portfolio, it did not complete an updated 'RAG' assessment of the risks identified. The Trustee, with the support of its investment consultant, will engage with the manager to understand why it did not provide this.

As it stands, Threadneedle is not in a position to quantify climate-risks for its property funds. This is, in part, due to differences in engagement relating to public listed entities / issuers and engagement within property funds where the holdings are directly in real estate. The Trustee, with the support of its investment consultant, will engage with the manager to understand if it will be able to provide this in the future.

Ares requested that our investment consultant hold a call with the manager, to discuss the information request on climate-related risks and opportunities in more detail.

State Street Global Advisors ("SSGA") responded that the invested funds (index-linked gilts) are not in scope for TCFD reporting, noting that "TCFD reporting does not yet cover sovereign bonds". Given the DWP regulations state that "all assets are within scope", this highlights the challenges in obtaining climate-related data about the Scheme's assets. The Trustee, with the support of its investment consultant, will engage further with the manager to understand its position in more detail.

There have been no other changes in the responses from the managers that have provided data in respect of climate-related risks and opportunities.

Climate-related risk assessment – DC Section

LGIM Multi Asset

Physical Risks

	Acute	Chronic
Short	G	G
Medium	A	G
Long	A	A

Chronic risks are long-term in nature and not expected to have material financial impact in the short-term. In the medium-term, acute physical risk exposure is expected to increase. This is independent of the global climate pathway, as much of the additional warming to 2030 is already "committed" given historical emissions.

In the long-term, heat stress, rising sea levels and changes to weather patterns are likely to affect companies' profitability and countries' economic output through impacts on labour productivity and availability and potential impacts on supply chains and physical infrastructure.

Transitional Risks

	Regulatory	Technology	Market	Reputation
Short	G	G	G	G
Medium	A	A	A	A
Long	R	A	R	A

Technology change is accelerating, and companies should already be preparing for the medium- and long-term impacts of this shift. In the short-term it is unlikely that those lagging would lose significant value as a result, regardless of scenario trajectory. The medium-term is a crucial period for the climate transition, as time is running out to stay within global carbon budgets for limiting global warming to well-below 2°C.

Over the longer term, a large drop in demand for fossil fuels is envisaged for both orderly and disorderly transition pathways, especially coal and oil – with potentially large financial repercussions at a global multi-asset portfolio level depending on companies' and countries' mitigation actions.

Key conclusions for DB and DC

Based on the analysis completed, the Trustee identified that:

- The managers who did engage provided insightful commentary on, and assessment of, climate risks.
- There were no mandates where significant concerns were raised, needing immediate action.
- There were significant differences in the way manager assessed climate risk, which may represent methodological rather than real differences in risk exposure.
- The Trustee's investment consultant agreed that the investment managers' views were appropriate for the Scheme and its members.
- The Trustee is conscious that its equity holdings are the most exposed to climate-related risks and will continue to monitor the preparedness of its equity managers to ensure that they have effective processes in place to manage these risks.

Climate-related opportunities

The Trustee's investment managers have identified a range of potential investment opportunities across the assets that the Scheme invests in. This includes investing in companies and industries that are set to profit from the transition to a low carbon economy. These are as follows:

Equity

Arguably, climate-related investment opportunities are most readily accessible to equity investors and an equity index-based implementation is a good first step for investors who are seeking to consider the risks associated with climate change whilst supporting the transition to a low carbon economy.

Historically, climate-aware indices have been focused on exclusions (e.g., oil and gas, thermal coal, tar sands) but the market has evolved and there is a proliferation towards more sophisticated index products – a trend that is likely to continue over the coming years.

Property

In most developed economies, only a small proportion of buildings are built new each year, with over 95% constituting existing stock. This creates substantial investment opportunity for investors –through their fund managers –to engage actively with tenants (be that commercial or residential) to improve building performance.

The Scheme can engage, through its property investment manager, to promote more efficient building management by working with its property managers and related parties, such as tenants, to reduce overall energy use across a portfolio and gather information to target the most cost-efficient mechanism for achieving this goal.

Such engagement can help mitigate the transition risk associated with property investments, wherein more stringent energy efficiency standards by governments are likely to be a key policy lever to aid the transition.

Engagements can aim to encourage integration of energy efficient technologies into building operating systems or even to press for adoption of low-cost operations strategies (e.g., encouraging tenants to switch off the lights when empty).

UK Corporate Bonds

With respect to fixed income more broadly, long-term, large capital investments by business and governments require upfront capital. For example, while the initial development of innovative alternative energy technologies that can compete on price with fossil fuels can be harnessed within a private equity portfolio, when it comes to bringing these technologies to scale, massive investments in capital will be necessary – the kind of investments that such companies have traditionally turned to the fixed income markets for. Such investments can be accessed through, for example, an impact fixed income mandate.

Green bonds, which are debt instruments issued to finance environmentally friendly projects, are also gaining traction with investors. With the UK Government having begun to issue its own green gilts and an increased focus on standards for green bond issues, the green bond market looks set to continue to grow in size over the coming years.

Illiquids

Private debt includes a wide range of assets that offer sustainable outcomes, and many more 'pure play' impact opportunities than public bond markets. This is because finance is often dedicated to discrete projects rather than broad corporate loans.

Private debt also involves lending to smaller companies that are more likely to be focused on a narrower range of business activities than public markets, which also contributes to the great number of pure-play impact investment opportunities in private markets.

One manager believes this means the fund is well placed to take advantage of private climate-related investment opportunities that benefit from the transition to a greener economy.
In particular the fund has exposure to assets in renewable energy.

Given changing investor preferences as well as regulation, these assets are well placed to provide climate opportunities in the future. This is further underpinned by the decreasing costs associated with renewable energy and the transition to a low carbon economy.

Infrastructure

Climate-related investment opportunities in infrastructure are well-known, and can include:

- Green power generation assets (solar, wind, other clean power).
- Clean technologies (e.g., carbon capture and storage).
- Natural assets (e.g., forestry and farmland).

On the debt side, proceeds for green bonds are earmarked for infrastructure projects.

DC Multi Asset

The Scheme's DC investment manager has identified opportunities in relation to the transition to low carbon economy, principally through electric vehicles, alternative fuels and innovative technologies.

The manager also noted that volume growth and investment returns are not intrinsically correlated and so thematic focus on constraints will be required to protect returns.

The manager noted that investors should focus on three areas to evaluate opportunities and produce targeted investment strategies, which in the manager's view are: geological scarcity; technological innovation; and regulatory change.

How resilient is the Scheme to climate change?

Last year we carried out climate change scenario analysis to better understand the impact climate change could have on the Scheme's assets and liabilities.

Under TCFD, scenario analysis must be carried out at least every 3 years, or sooner if there have been significant changes which could impact the Scheme.

Although the Scheme has undergone recent investment strategy changes, additional changes to the strategy are expected over the coming year. As a result, we do not believe it would be significantly beneficial to conduct analysis whilst strategy changes are ongoing and instead think that it would be appropriate to undertake revised analysis at a more suitable time. For now, we have included the analysis carried out last year, which we believe remains appropriate.

The analysis considers a range of climate change scenarios. Each scenario considers what may happen to the Scheme when transitioning to a low carbon economy under different temperature-related environmental conditions. These scenarios were developed by Aon and are based on detailed assumptions. They are only illustrative and are subject to considerable uncertainty.

The climate scenarios intend to illustrate the climate-related risks to which the Scheme is currently exposed, highlighting areas where risk mitigation could be achieved through changing the investment portfolio.

Other relevant issues such as governance, costs, and implementation (including manager selection and due diligence) must be considered when making changes to the investment strategy.

Investment risk is captured in the deviance from the Base Case, but this is not the only risk that the Scheme faces.

Other risks, particularly for the DB Section, include covenant risk, longevity risk, impact on member options, basis risks and operational risks.

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We chose the following scenarios because we believe they provide a reasonable range of possible climate change outcomes.

	Base case	No transition	Disorderly transition
	Emission reductions start now and continue in a measured way in line with the objectives of the Paris Agreement and the UK government's legally binding commitment to reduce emissions in the UK to net zero by 2050.	No further action is taken to reduce greenhouse gas ("GHG") emissions leading to significant global warming.	Limited action is taken, and insufficient consideration is given to sustainable long-term policies to manage global warming effectively.
Temperature rise by 2100	+2ºC – 2.5ºC	>4ºC	< 3ºC
Reach net-zero by	2050	After 2050	After 2050
Introduction of environmental regulation	Fragmented Coordination	None	Late and aggressive

	Abrupt transition	Orderly transition	Smooth transition
	Action on climate change is delayed for five years at which point we experience more frequent extreme weather events and governments must address GHG emissions.	Immediate and coordinated action to tackle climate change is taken using carbon taxes and environmental regulation.	Rapid advancement of green technology and government action on climate change which achieves a smooth transition to a low carbon economy.
Temperature rise by 2100	1.5ºC – 2ºC	1.3ºC – 2ºC	<1.5ºC
Reach net-zero by	2050	2050	2045
Introduction of environmental regulation	Aggressive	Coordinated	High coordination

Source: Aon

Impact Assessment as at 30 June 2021 – DB Section

Based on the analysis, the Trustee considers that the investment strategy is relatively resilient to climate change risk, acknowledging that there are scenarios that could lead to a material deterioration in the funding level. The high level of diversification across the Scheme's assets, alongside the current covenant strength, help mitigate the risk.

Of the scenarios, the Trustee believes a Disorderly Transition scenario to be of most concern, given the potential for this scenario to impact on the Scheme's funding level within the timeframe of the existing long-term funding plans. Under that scenario, the Scheme is projected to experience a significant deficit shock within the next decade.

The Trustee, supported by the FIC, should consider further opportunities to mitigate these potential shocks, such as more climate transition focused approaches, to provide further downside protection.

Temperature rise by 2100	>4ºC
Reach net-zero by	After 2050
Introduction of environmental regulation	None

In the short-term:
No action is taken to combat climate change.

In the medium-term:
No action is taken to combat climate change.

In the long term:
While some climate change policies are implemented, global efforts are insufficient to halt significant global warming. The physical effects of climate change become more severe. The headwinds facing the economy and markets grow.

Scheme impact:
The Scheme's funding position marginally improves in the short-term as no regulation comes into force that would impact the Scheme.

Funding level starts to deteriorate as a result of the increasing impact of climate change and the impact this has on risky assets and the wider economy. This may place a strain on the sponsoring employer should it be required to make up any funding shortfalls via contributions.

The Scheme's funding level starts to stabilise and recover slightly due to increased mortality offsetting the impact of climate change on the Scheme assets but stays in a deficit in the long-term.

Temperature rise by 2100	<3ºC
Reach net-zero by	After 2050

In the short-term:
No action is taken to combat climate change

In the medium-term:
Late but coordinated action is taken to tackle climate change. The late timing means it is less effective and more costly to implement.

Scheme impact:
The Scheme suffers a deterioration in its funding level, following a similar trajectory to the no-transition scenario.

Funding level starts to deteriorate and falls into a larger deficit as a result of the increasing impact of climate change and the impact this has on risky assets and the wider economy. This may place a strain on the sponsoring employer should it be required to make up any funding shortfalls via contributions.

Introduction of environmental regulation	Late and Aggressive	**In the long-term:** Adverse effects from climate change become progressively worse. There are high levels of economic damage and the irreversible loss of natural capital.	This is the worst-case scenario for the Scheme. The funding level starts to recover slightly but stays in a large deficit over the long-term. This may place a strain on the Sponsor, should they have to make up a shortfall through deficit contributions, or that the Scheme may have to consider re-risking to achieve its long-term goals.

Temperature rise by 2100 Reach net-zero by Introduction of environmental regulation	1.5ºC-2ºC 2050 Aggressive	**In the short-term:** No action is taken to combat climate change. **In the medium-term:** Due to more frequent weather events the Government introduces policies to address GHG emissions. **In the long-term:** The benefits from tackling climate change leads to higher growth and reduced corporate spreads.	**Scheme impact:** The Scheme's funding level deteriorates slightly in the short-term. The funding position deteriorates significantly as climate regulations crystalise transition risks to cause a funding strain. The funding position then begins to recover as assets aligned to government policies start to perform better. The initial funding level drop may place a strain on the sponsoring employer should it be required to make up any funding shortfalls via contributions. The Scheme's funding level regains the initial fall in funding level in the long-term.

Temperature rise by 2100 Reach net-zero by Introduction of environmental regulation	1.3ºC-2ºC 2050 Coordinated	**In the short-term:** Immediate coordinated action is taken to tackle climate change. Risky assets perform poorly. **In the medium-term:** The rapid transition to clean technologies and green regulation begins to boost economic growth. **In the long-term:** The rapid transition to cleaner technologies and green regulation begins to boost economic growth.	**Scheme impact:** The Scheme suffers a deterioration in its funding level and falls into deficit. This may place a strain on the sponsoring employer should it be required to make up any funding shortfalls via contributions. The funding position begins to recover as risky assets perform well, benefiting from the economic growth. The Scheme is expected to return to a surplus in funding. The funding position recovers long term and continues to improve over time.

Temperature rise by 2100	<1.5ºC
Reach net-zero by	2045
Introduction of environmental regulation	High coordination

In the short-term:
The core issues of climate change are collectively tackled which creates some economic upheaval. However, high government funding helps drive the transition in a balanced way.

Scheme impact:
Scheme funding levels remain relatively stable and government funding improves portfolio performance.

In the medium-term:
The global economy is placed on a stronger footing and enjoys robust growth driven by the successful restructuring towards a low carbon economy.

The Scheme's funding level improves significantly driven by strong performance of its assets due to high levels of economic growth.

In the long-term:
The economy continues to grow.

Economic growth continues to boost asset performance thereby improving Scheme funding level.

Source: Aon. Effective date of the impact assessment is 30 June 2021.

Modelling limitations

The purpose of the model is to consider the long-term exposure of the Scheme to the climate-related risks and the pattern of the asset returns over the long term. Thus, the model is subject to limitations.

The model intends to illustrate the climate-related risks to which the Scheme is currently exposed, highlighting areas where risk mitigation could be achieved through changing the portfolio allocation. Other relevant issues such as governance, costs and implementation (including manager selection and due diligence) must be considered when making changes to the investment strategy.

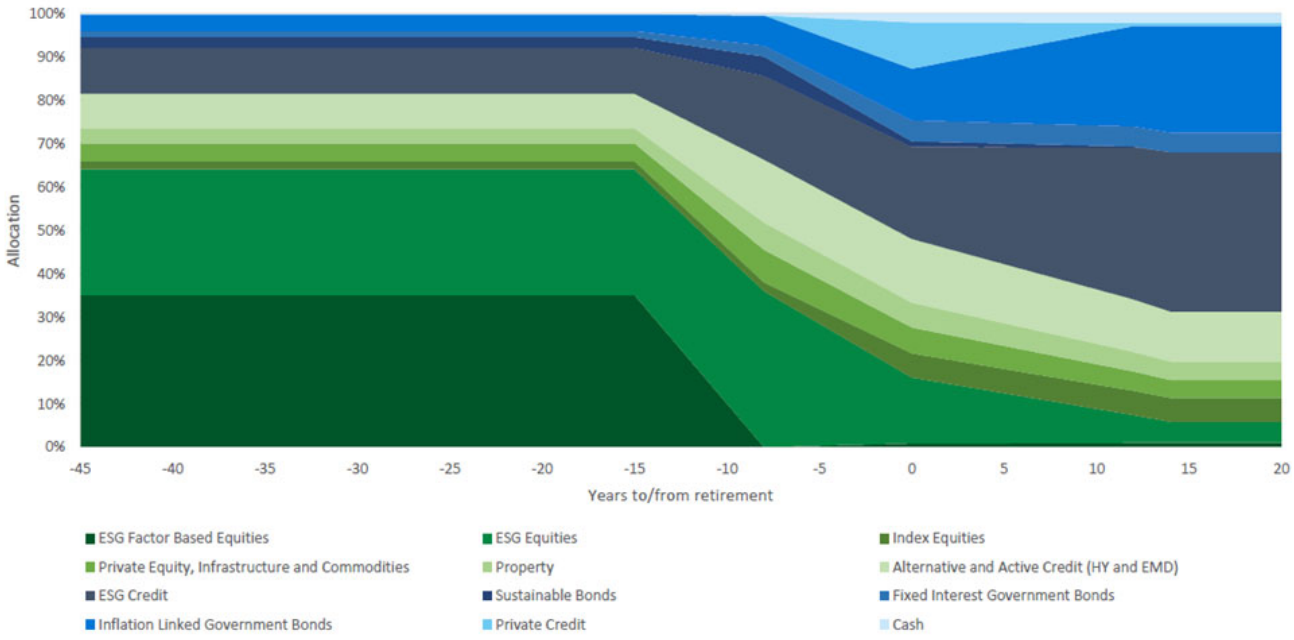
The model only considers investment risk, measured in the form of deviance from the Base Case. The Scheme will also face covenant risk, longevity risk, basis risks and operational risks which are not captured in the model.

Impact Assessment - DC Section

For the DC Section, the Trustee carried out a qualitative analysis under some of the same scenarios. The DC assets within the Scheme's default fund are managed by Legal & General.

Investment strategy

The investment strategy adopted by the default investment arrangement is shown in the chart below.



Source: Legal & General. Chart shows illustrative asset allocation for Legal & General Target Date Fund 2065-70 (Default)

The strategy is implemented via 'target date funds', with the asset allocation being managed according to members' terms to retirement. The default strategy, as shown, is the Legal & General Target Date Fund to drawdown. This default has been selected as it allows for flexibility in how members may take their benefits.

The rationale for the default strategy is as follows:

- A focus on equity investment when members are a long time from retirement. At this stage of the strategy, c50% of the Fund is invested in funds with a climate / ESG focus.
- A reduction in risk through diversification into other asset classes, and diversification within asset classes (e.g., bonds) as members approach retirement.
- Further reduction in risk through further reduction in equities in favour of diversified assets, and a greater proportion of investment in fixed income securities, in the post-retirement phase.

The Trustee now selects the three most relevant climate change scenarios for comparison: Orderly transition, Disorderly transition, and No transition as described in more detail above. These scenarios have been selected as they best illustrate the impact of physical versus transition risks.

Young and mid-career members

The financial impact for these members is likely to be driven by the **long-term time horizon.** Specifically, the climate-related risks associated with investing in equities is expected to be greatest over the long term. Nevertheless, it is important for these members for the assets to be invested in growth assets (primarily equities) to help members achieve good retirement outcomes. Allocating to assets such as government bonds, which offer lower exposure to climate-related risks, is unlikely to be members' best interests over the long term.

Accordingly, the Trustee believes it is important to focus on managing the climate-related risks of the equity portfolio.

Within the equity portfolio, the investment strategy is climate-risk aware, through investment in ESG equity and credit, including a Factor-Based Equity portfolio. These investments aim to manage both the risks and opportunities of climate change to improve the overall risk / return characteristics of the portfolio.

A Disorderly Transition scenario is likely to be of most concern for this group of members, particularly to younger members. This reflects the long-time horizon for younger members and that climate-related risks associated with investing in equities to be greatest over the long term. Sitting alongside this, it is important to invest the majority of members' assets in growth assets during the early years, in order to help members, achieve good retirement outcomes. In particular, allocating to assets such as government bonds, that offer lower exposure to climate-related risks, to be in members' best interests over the long term.

Accordingly, the Trustee and its investment manager, Legal and General, should focus attention on managing climate-related risks within the equity portfolio.

Orderly	Disorderly	No transition
Short-term	**Short-term**	**Short-term**
Asset portfolios are expected to suffer an initial drop as a result of the costs of immediate coordinated action to tackle climate change.	There is not expected to be any initial impact on asset portfolios and performance is expected to follow the base case.	There is not expected to be any initial impact on asset portfolios and performance is expected to follow the base case. There is no action taken to combat climate change.
Medium-term	**Medium-term**	**Medium-term**
Asset portfolios are expected to recover from the initial shock of transition costs. Relative to the other scenarios, lower impact from physical risks (given action to tackle climate change) is beneficial for portfolios.	Asset portfolios deteriorate sharply as a result of delayed action required to tackle climate change.	Impacts from physical risks gradually become more severe over time leading to a drag on economic growth and risk asset returns. Asset portfolios begins to lag the base case.
Long-term	**Long-term**	**Long-term**
Members' asset portfolios are likely to perform strongest relative to the base case. This represents the fastest transition to a green economy, combined with limited physical impacts from climate change despite the large initial transition cost.	Whilst asset portfolios do start to recover from the medium-term shock, this scenario is likely to be of most concern for this group of members, which would leave them materially worse off in comparison to the base case.	Impacts from physical risks gradually become more severe over time leading to a drag on economic growth and risk asset returns. Asset portfolios lag the base case and continue a downward trend.

Older members (approaching and through retirement)

The financial impact for these members is expected to be driven by the **short- to medium-term time horizons.** Specifically, the climate-related risks associated with investing in equities is expected to have an impact on these members during this time period.

An increased level of diversification will help mitigate this risk, as members' allocation to equities is reduced as they approach and are at-retirement. Should members continue to invest post-retirement, the impact they experience will be more likely to include the 'long-term' effects below, albeit mitigated relative to younger members by their lower allocation to equities.

Relative to younger members, the climate risk from asset portfolios is reduced because of the lower allocation to equities and the relatively shorter investment time horizon. However, for this group of members, the timing of the impact of climate risk on assets may mean there is limited time (in terms of remaining working life) to make up any shortfall in expected retirement benefits.

Orderly	Disorderly	No transition
Short-term Asset portfolios are expected to suffer an initial drop as a result of the costs of immediate coordinated action to tackle climate change.	**Short-term** There is not expected to be any initial impact on asset portfolios and performance is expected to follow the base case.	**Short-term** There is not expected to be any initial impact on asset portfolios and performance is expected to follow the base case. There is no action taken to combat climate change.
Medium-term Asset portfolios are expected to recover from the initial shock of transition costs. Relative to the other scenarios, relatively lower impact from physical risks (given action to tackle climate change) is beneficial for portfolios.	**Medium-term** Asset portfolios deteriorate sharply as a result of delayed action required to tackle climate change. For this group of members, the timing of a Disorderly transition may mean there is little time (in terms of remaining working life) to make up pensions shortfall.	**Medium-term** Impacts from physical risks gradually become more severe over time leading to a drag on economic growth and risk asset returns. Asset portfolios begins to lag the base case.
Long-term Members' asset portfolios are likely to perform strongest relative to the base case. This represents the fastest transition to a green economy, combined with limited physical impacts from climate change despite the large initial transition cost.	**Long-term** Whilst asset portfolios do start to recover from the medium-term shock, this scenario is likely to be of concern for this group of members, which would leave them materially worse off in comparison to the base case.	**Long-term** Impacts from physical risks gradually become more severe over time leading to a drag on economic growth and risk asset returns. Asset portfolios lag the base case and continue a downward trend.

Risk management

We must have processes to identify, assess and manage the climate-related risks that are relevant to the Scheme, and these must be integrated into the overall risk management of the Scheme.

Reporting on our risk management processes provides context for how we think about and address the most significant risks to our efforts to achieve appropriate outcomes for members.

Our process for identifying and assessing climate-related risks

We have established a process to identify, assess and manage the climate-related risks that are relevant to the Scheme. This is part of the Scheme's wider risk management framework and is how we monitor the most significant risks to the Scheme in our efforts to achieve appropriate outcomes for members.

Qualitative assessment

The first element is a qualitative assessment of climate-related risks and opportunities which is prepared by our investment adviser and reviewed by us.

Quantitative analysis

The second element is quantitative in nature and is delivered by means of climate change scenario analysis, which is provided by our investment adviser and reviewed by us.

Trustee update

This process of identifying and assessing climate related risks has been reviewed in the process of producing this TCFD report and is deemed to be continually suitable.

The Trustee has included quantitative analysis when preparing its report.

Together these elements give us a clear picture of the climate-related risks that the Scheme is exposed to. Where appropriate, we distinguish between transition and physical risks. And all risks and opportunities are assessed with reference to the time horizons that we have identified as relevant to the Scheme.

When prioritising the management of risks, we assess the materiality of climate-related risks relative to the impact and likelihood of other risks to the Scheme. This helps us focus on the risks that pose the most significant impact.

We recognise the long-term risks posed by climate change and have taken steps to integrate climate-related risks into the Scheme's risk management framework.

We have developed a risk management framework to manage climate-related risk and opportunities. The risk management framework clearly sets out who is involved, what is done and how often. We have delegated a number of key tasks to the FIC but retain the final responsibility. The processes for managing climate-related risks and opportunities are summarised in the tables below.

Governance

Activity	Owner	Adviser / supplier support	Frequency of review
Publish TCFD report	Trustee	FIC	Annual
Receive training on climate-related issues	Trustee	Advisers	Annual
Review adviser objectives to ensure advisers have appropriate climate capability, and bring important, relevant and timely climate-related issues to the Trustee's attention	Trustee	Advisers	Annual
Ensure investment proposals explicitly consider the impact of climate risks and opportunities and seek investment opportunities.	FIC	Investment consultant	Ongoing
Ensure that actuarial and covenant advice adequately incorporate climate-related risk factors where they are relevant and material.	Trustee	Scheme Actuary, Covenant adviser	Triennial
Engage with the investment managers to understand how climate risks are considered in their investment approach, and stewardship activities are being undertaken appropriately	FIC	Investment managers, Investment consultant	Annual

Trustee update

The Trustee monitors the above activities as part of its management of climate-related risks and opportunities. The Trustee has delegated responsibility of several activities in this pillar to the FIC. The FIC received several training sessions through the year on climate-related issues, including new reporting metrics and net zero. The Trustee has monitored progress of the FIC and its respective implementation of the climate change governance framework through the year, receiving regular updates from the FIC and querying information as and when required.

Strategy

Activity	Owner	Adviser / supplier support	Frequency of review
Undertake quantitative scenario analysis to understand the impact of climate related risks	FIC	Investment consultant	First year, Triennial (with annual review)
Identify the climate-related risks and opportunities for investment & funding strategy and assess their likelihood and impact.	FIC	Advisers	Annual

Trustee update

The FIC refreshed its risks and opportunities analysis, asking each material manager for details how these are assessed. The conclusion of this is included in the Strategy pillar.

The Trustee also considered the appropriateness of the climate change scenario analysis, carried out within the Scheme's initial TCFD disclosures, and is comfortable that the analysis remains relevant for the current reporting period.

Risk management

Activity	Owner	Adviser / supplier support	Frequency of review
Consider the prioritisation of those climate-related risks, and the management of the most significant in terms of potential loss and likelihood.	FIC	Advisers	Annual
Include consideration of climate-related risks in the Scheme's other risk processes and documents, such as the risk register and the SIP, and regularly review these.	FIC	Advisers	Ongoing
Seek to understand the climate-related risks to the employer over the short-, medium-, and long-term.	Trustee	Covenant adviser	Triennial

Trustee update

The Trustee reviews its process of identifying and assessing climate-related risks as part of the annual TCFD process to evaluate its continued suitability. This is integrated into the ongoing activities of the Scheme.

The Trustee delegates to its advisers the review of the underlying investment managers and how ESG is integrated within their decision-making processes, including climate change. The Trustee also asks for details on how these have been implemented in practice, including key themes for engagement, such as climate change.

Metrics and Targets

Activity	Owner	Adviser / supplier support	Frequency of review
Obtain data for metrics	FIC	Investment consultant, Investment managers	Annual
Review continued appropriateness of metrics	FIC	Investment consultant	Annual

Trustee update

The Trustee, supported by its investment consultant, collects metrics data on an annual basis, to understand the current state of the portfolio regarding its emissions, data quality and portfolio alignment. This data is evaluated to produce a climate-related target, whereby in this instance the Trustee has elected to improve the data quality for the Scheme.

Metrics have been collected in line with industry practice and supported by the FIC and its advisers. The Trustee also agreed an additional metric for reporting, as per changes to the Regulations. In addition, the Trustee has reviewed its target, which was set previously, and considered any refinements required to this. More details can be found in the metrics and targets section.

Assessing our managers

To assess the Scheme's investment managers, we asked them "top" questions designed by the Pensions Climate Risk Industry Group[1] to help trustees to assess their investment managers' capabilities to manage climate-related risks. The questions cover a range of issues including the manager's approach to climate management, whether they produce their own TCFD reporting, their ability to conduct climate scenario analysis, their engagement policies, and their ability to provide GHG emissions data.

Following improvements to the funding level especially over 2022, the FIC with ratification from the Trustee, implemented steps to de-risk the Scheme.

This de-risking significantly reduced the proportion of assets held in the growth portfolio and increased the proportion of assets in the matching portfolio.

During the reporting year, these changes included:

- Full redemption from SSGA equities to SSGA index-linked gilts; and
- A full redemption from Sands Emerging Market equity to SSGA index-linked gilts.

These changes had an impact on the climate-related risk profile of the Scheme.

[1] Aligning your pension scheme with the Taskforce on Climate-Related Financial Disclosures recommendations - GOV.UK (www.gov.uk)

Over the Scheme year, the Trustee also reviewed the corporate bonds allocation and agreed to replace the BlackRock corporate bonds mandate with Robeco, due in part to the greater integration of ESG considerations into this manager's investment approach. Onboarding of Robeco is expected to finalise over 2023, after the reporting period for this set of TCFD disclosures. The following was taken into consideration when making these decisions:

- Utilisation of the investment adviser's manager research team to conduct necessary due diligence.
- The return and overall risk of the investments.
- ESG credentials of the asset classes and the managers.

Covenant Assessment[2]

The University's investments are managed by Oxford University Endowment Management ("OUEM"). These investments are estimated to have a material impact on the strength of the Scheme covenant, given these investments are a significant income stream and make a material contribution to the flexibility and strength of the University's balance sheet.

ESG considerations appear to be well embedded within OUEM's investment process, with investment screening subject to robust ethical restrictions (in relation to weapons, tobacco and fossil fuel exploration and extraction). OUEM have also introduced TCFD reporting from 2020 onwards as part of its wider integration of climate analysis into its operations and investments.

The TCFD report produced by OUEM demonstrates a strong awareness of climate-related risks and opportunities, and the Trustee feels that the covenant strength being rated as 'strong' remains consistent with respect to climate-related risks.

Key Conclusions

All the managers that responded showed awareness of climate-related risks and opportunities, to varying degrees. The investment managers overall, have shown willingness to engage in relation to the questions asked in relation to climate risks and opportunities.

We believe that most of the managers may be able to provide some carbon data to support the Scheme in completing its TCFD disclosures reporting, although expect varying degrees of data quality.

We do expect that some of the illiquid holdings will face challenges collecting the data and may not be able to provide carbon metrics data at this time.

Compared to last year, there have been clear overall improvements in the quality of the managers' responses. We will engage with the managers to obtain the outstanding responses and we hope further improvements will follow, and that the managers continue to progress in the future.

[2] Potential climate-related impacts to covenant, provided by the Scheme's covenant adviser

Metrics & Targets

Metrics help to inform our understanding and monitoring of the Scheme's climate-related risks. Quantitative measures of the Scheme's climate-related risks, in the form of both greenhouse gas emissions and non-emissions-based metrics, help us to identify, manage and track the Scheme's exposure to the financial risks and opportunities climate change will bring.

Our climate-related metrics

The Trustee uses some quantitative measures to help it understand and monitor the Scheme's exposure to climate-related risks. Measuring the greenhouse gas emissions related to the Scheme's assets is a way for the Trustee to assess the Scheme's exposure to climate change.

Greenhouse gases ("GHG") are produced by burning fossil fuels, meat and dairy farming, and some industrial processes. When greenhouse gases are released into the atmosphere, they trap heat in the atmosphere causing global warming, contributing to climate change.

Greenhouse gas emissions are categorised into three types or 'scopes' by the Greenhouse Gas Protocol, the world's most-used greenhouse gas accounting standard.

Scope 1

All direct emissions from the activities of an organisation which are under their control; these typically include emissions from their own buildings, facilities and vehicles

Scope 2

These are the indirect emissions from the generation of electricity purchased and used by an organisation

Scope 3

All other indirect emissions linked to the wider supply chain and activities of the organisation from outside its own operations – from the goods it purchases to the disposal of the products it sells

Last year, the Trustee reported on Scope 1 and 2 emissions only. This year the Trustee is also required to report Scope 3 emissions. Scope 3 emissions are often the largest proportion of an organisation's emissions, but they are also the hardest to measure. The complexity and global nature of an organisation's value chain make it hard to collect accurate data.

For more explanation about GHG emissions, please see the Appendix.

Our climate-related metrics

In the first year of TCFD reporting, the Trustee decided what metrics to report on annually. As part of its second TCFD report, the Trustee is required to report on a fourth metric, which is the portion of the investments with net zero, or Paris-aligned targets.

The metrics are described below. This year the Trustee reviewed these metrics and believes that they continue to be suitable for the Trustee to report against.

Total Greenhouse Gas emissions

The total greenhouse gas ("GHG") emissions associated with the portfolio is an absolute measure of carbon output from the Scheme's investments and is measured in tonnes of carbon dioxide equivalent ("tCO2e").

Where possible, the Trustee has obtained Scopes 1 & 2 and Scope 3 emissions from the managers separately.

Carbon footprint

Carbon footprint is an intensity measure of emissions that takes the total GHG emissions and weights it to take account of the size of the investment made. It is measured in tonnes of carbon dioxide equivalent per million pounds invested ("tCO2e/£m").

Where possible, the Trustee has obtained Scopes 1 & 2 and Scope 3 emissions from the managers separately.

Data quality

A measure of the proportion of the portfolio for which the Trustee has high quality data (i.e., data which is based on verified, reported, or reasonably estimated emissions, versus that which is unavailable).

This has been selected on the basis that it provides a consistent and comparable measure of the level of confidence in the data.

The Trustee has not made any estimates where data is unavailable.

Binary Target Measurement ("BTM")

A metric which shows how much of the Scheme's assets are aligned with a climate change goal of limiting the increase in the global average temperature to 1.5˚C above pre-industrial levels.

It is measured as the percentage of underlying portfolio investments with a declared net-zero or Paris-aligned target, or which are already net-zero or Paris-aligned.

DB Section

In the table below are the climate-related metrics for the assets within the DB section of the Scheme.

The carbon metrics

	Material asset proportion		Data Quality (%)		Total GHG emissions (tCO_2e)		Carbon footprint (tCO_2e/£m)		Binary Target Measurement
Asset class	%	Year	Scopes 1 & 2	Scope 3	Scopes 1 & 2	Scope 3	Scopes 1 & 2	Scope 3	Portion of portfolio with net zero, or Paris-aligned targets
Equities	21%	2022	96.3%	96.3%	993	20,501	6.0	123.8	31.8%
	50%	*2021*	*95.9%*	-	*41,627*	-	*88.1*	-	-
Property	8%	2022	100.0%	100.0%	164	1,221	2.5	18.5	100.0%
	8%	*2021*	*100.0%*	-	*1,789*	-	*24.7*	-	-
Illiquid Credit	15%	2022	19.9%	0.0%	2,190	N/R	90.6	N/R	N/R
	11%	*2021*	*46.0%*	-	*8,036*	-	*95.3*	-	-
Other Illiquids	10%	2022	52.0%	22.6%	2,856	9,085	69.1	505.3	N/R
	6%	*2021*	*71.0%*	-	*3,652*	-	*43.5*	-	-
Credit	13%	2022	32.3%	0.0%	3,410	N/R	103.7	N/R	8.6%
	14%	*2021*	*63.5%*	-	*6,935*	-	*51.6*	-	-
Total (exc. Matching)	**67%**	**2022**	**61.1%**	**46.2%**	**9,612**	**30,807**	**29.1**	**123.5**	**23.9%**
	89%	***2021***	***83.5%***	**-**	***62,039***	**-**	***74.7***	**-**	**-**
Matching	33%	2022	100.0%	0.0%	44,157	N/R	165.8	-	100%
	11%	*2021*	*100.0%*	-	*369*	-	*3.4*	-	-

Source: Investment managers / UK Government / Aon. Data as at 31/12/2022 unless specified otherwise. These metrics have been aggregated for assets where we have received emissions data only. There may be differing approaches / assumptions followed by the underlying managers. 'N/R' denotes data that is 'not reported' i.e., that no investment managers were able to provide data, and that no emissions have been approximated.

Additional notes:

- *The reduction in Scope 1 & 2 emissions in respect of Property, noted above, is driven by changes in reporting on the underlying data. The emissions data previously included Scope 1, 2 and 3 emissions, however this has now been split out and shows that the majority of these emissions is in respect of Scope 3 emissions.*
- *Methodology for calculation of emissions and data quality in relation to gilts have evolved and there is now a more industry-wide accepted methodology for the calculation of the carbon footprint of gilts. The data quality of 100% is not based on figures were not directly reported by the manager; these were calculated in line with the methodology set out in the 'How are matching asset emission calculated?' section below.*
- *The methodology underlying the data quality figures noted in the table above has been updated from 2021 to 2022. The figures reported in 2021 included data quality only for funds where emissions data was provided, the figures reported for 2022 now includes all assets within each asset class, and for the Scheme overall.*

- *The BTM metric quoted above looks at the alignment of underlying investment assets to net-zero goals. Where relevant, we have asked asset managers for to use the Science Based Targets initiative ("SBTi") as a validation mechanism but note that this initiative primarily applies to corporate entities, and so would only apply to equity and corporate bond holdings. For other asset classes, we have relied on any validation undertaken by the investment managers.*
- *In 2022, the Scheme experienced a notable fall in absolute GHG emissions. This fall was largely driven by the sale of the equity assets held in SSGA's World Developed Equities and Fundamental Equities funds, which contributed 39,493 tCO2e under Scopes 1 & 2 in 2021 (i.e., within the first year of disclosures). This was counteracted by a notable increase in the absolute GHG emissions for the matching assets, driven by an evolution in the methodology for calculating the footprint of gilts. The proceeds of the sale of SSGA equities were invested into index-linked gilts with the manager, leading to an increased exposure in this asset class. Aon calculated the emissions using publicly available information. More detail on this methodology follows in the next section of the report.*

How are emissions calculated for 'matching' assets?

The emissions for the matching assets are a material portion of the Scheme's total GHG emissions. This is mainly down to the method used to calculate the emissions, which is different to other asset classes.

The matching portfolio contains mainly index-linked UK government bonds, also known as "gilts". Carbon metrics for UK government bonds are based on the total GHG emissions for the whole of the UK, which are high. By contrast, carbon emissions for equities, for example, are based on the emissions associated with the underlying companies invested in, which are lower. Hence, the carbon metrics for matching assets are higher than many other asset classes.

The carbon emissions for the index-linked gilts (i.e., the matching assets held by the Scheme) are driven by the total UK greenhouse gas emissions and the total amount of UK public debt. This uses publicly available information, published by the UK Government:

– The Annual UK greenhouse gas emissions data (Scopes 1 & 2) for 2022, published as a provisional figure by the UK government, of 417.1m tCO_2e, divided by total UK government debt at 31 December 2022 of £2,516.0Bn.

=165.8tCO_2/£M

Given this difference in methodology to the other emissions figures reported, the matching assets have been split out from the other emissions figures.

DC Section

In the table below are the climate-related metrics for the assets within the DC section of the Scheme.

The carbon metrics

Asset class	Material asset proportion %	Material asset proportion Year	Data Quality (%) Scopes 1 & 2	Data Quality (%) Scope 3	Total GHG emissions (tCO_2e) Scopes 1 & 2	Total GHG emissions (tCO_2e) Scope 3	Carbon footprint (tCO_2e/£m) Scopes 1 & 2	Carbon footprint (tCO_2e/£m) Scope 3	Binary Target Measurement Portion of portfolio with net zero, or Paris-aligned targets
Multi Asset	100%	2022	90.7%	N/R	2,308	N/R	90.9	N/R	39.1%
	100%	*2021*	*88.1%*	-	*1,923*	-	*62.8*	-	-
Total	**100%**	**2022**	**90.7%**	**N/R**	**2,308**	**N/R**	**90.9**	**N/R**	**39.1%**
	100%	*2021*	*88.1%*	-	*1,923*	-	*62.8*	-	-

Source: Investment manager / Aon. Data as at 31/12/2022 unless specified otherwise. These metrics have been aggregated for assets where we have received emissions data only. 'N/R' denotes data that is 'not reported'.

Additional notes:

- *Given the limited number of members and assets in the Select funds of the DC section, we have conducted the analysis of carbon metrics on the target-date funds only.*
- *The Scheme's manager, Legal & General Investment Management ("LGIM"), provided data on Scope 1, 2 & 3 emissions. However, the manager did not provide Scope 3 coverage and so it was not possible to draw meaningful insights from the Scope 3 data that was provided. We have therefore recorded Scope 3 data as 'not available' in the table above and have engaged with LGIM for provision of this information in future.*

Notes on the metrics data

Our investment consultant, Aon, requested information from all the Scheme's investment managers on their greenhouse gas emissions. Aon collated this information to calculate the relevant climate-related metrics for the Scheme's portfolio of assets.

Availability of data

DB Section

- Threadneedle was unable to provide data for the carbon footprint therefore, this was calculated manually by Aon using the available information. 100.0% of its property portfolio is aligned with net-zero targets.
- M&G provided Scope 1 & 2 data for both the credit and illiquid credit funds it manages on behalf of the Trustee. However, it was unable to provide Scope 3 information. The manager is currently engaging with investee companies in an effort to improve disclosure and target settings. The manager is also currently unable to track the portion of the portfolio with net zero, or Paris-aligned targets, however, plans to engage with third-party providers to facilitate this in future.
- Ares was unable to provide any data. Our investment consultant, Aon, has engaged with the manager via a virtual meeting, to improve its disclosures in future.
- Macquarie did not provide any data, as the manager stated that the single outstanding asset was in liquidation. Copenhagen stated that the provision of carbon metrics was not relevant, as their investments typically exhibit zero Scope 1 and negligible Scope 2 emissions.
- SSGA responded to requests for metrics data by stating that 'reporting does not yet cover sovereign bonds or cash funds' and so was unable to provide carbon data. Regulations expect trustees to report on all assets within the DB section therefore, Aon has calculated the index-linked gilts held by the Scheme. The Trustee, with the support of its investment consultant, will continue to engage with the manager to support TCFD requirements.

DC Section

- As noted earlier, within the 'additional notes' of the carbon metrics table, LGIM provided data on Scope 1, 2 & 3 emissions. This included Scope 3 carbon footprint and total GHG emissions but omitted Scope 3 coverage. Given this omission, it was not possible to manually calculate the coverage and instead recorded Scope 3 data as 'not available' in the table. This is partly due to the considerable uncertainty of Scope 3 emissions data across the industry. With the support of our investment consultant, we engaged with LGIM via email for provision of this information, however, the manager was unable to do so. Through this engagement, manager has confirmed that it will be able to report on Scope 3 coverage going forwards.

How we collected the data

Our investment consultant, Aon, collected the carbon emissions data from our managers on our behalf using the industry standard Carbon Emissions Template ("CET"). The CET was developed by a joint industry initiative of the Pension and Life Savings Association, the Association of British Insurers and Investment Association Working Group. The CET provides a standardised set of data to help pension schemes meet their obligations under the Climate Change Governance and Reporting Regulations, and associated DWP Statutory Guidance.

Notes on the metrics calculations

The carbon metrics

Aon calculated the carbon metrics for the Scheme based on available information provided by the investment managers.

Binary target measurement

Aon calculated the binary target measurement for the Scheme based on the information provided by the investment managers. Aon requested the portion of the portfolio with Net-Zero or Paris-aligned targets for each mandate from the Scheme's investment managers and aggregated the results based on the portion of assets invested in each mandate.

Aon did not make any estimates for missing data. The Scheme's BTM only represents the portion of the portfolio for which the Trustee has data.

Looking to the future
Our climate-related target

Climate-related targets help the Trustee track its efforts to manage the Scheme's climate-change risk exposure.

Last year, the Trustee set a target for improving the data quality metric. Without meaningful data from the investment managers, it is very hard for the Trustee to measure accurately its carbon emissions. So, it is important to set a target to improve the quality of GHG emissions data from the managers.

The Scheme's performance against the target will be measured and reported on every year. Over time, this will show the Scheme's progress against the target.

2022 Target

Based on the observation of data quality in the first TCFD report, the Trustee agreed to set the following data quality target for the Scheme's assets over the next five years (using data as at 31 December 2021 as the baseline):

In 5 years' time, achieve above 80% coverage of carbon emission data across all asset classes split across Scopes 1, 2 and 3 in the DB section, and above 95% coverage across classes in the DC section.

2023 Update

In the second year of reporting, there has been an improvement in the quality of data provided by the Scheme's managers, primarily driven by evolution in the methodology for calculating emissions measures of gilts. Based on the observation of data quality summarised in the previous section, the Trustee has summarised its progress against its target within the tables below.

DB Section

Asset Class	Coverage (as at 31 Dec 2021) Scopes 1 & 2	Coverage (as at 31 Dec 2022) Scopes 1 & 2	Coverage (as at 31 Dec 2022) Scope 3	Coverage Target (as at 31 Dec 2026) Scopes 1, 2 & 3
Equities	95.9%	96.3%	96.3%	>80.0%
Property	100.0%	100.0%	100.0%	>80.0%
Illiquid Credit	46.0%	19.9%	0.0%	>80.0%
Other Illiquids	71.0%	52.0%	22.6%	>80.0%
Credit	63.5%	32.3%	0.0%	>80.0%
Matching	N/A	100.0%*	N/A	>80.0%

Additional notes:

- *(*) We have assumed that the coverage for the index-linked gilts is 100.0% as part of our calculations. The methodology for this approach is set out above in the 'additional notes' of the carbon metrics.*

DC Section

Asset Class	Coverage (as at 31 Dec 2021) Scopes 1 & 2	Coverage (as at 31 Dec 2022) Scopes 1 & 2	Coverage (as at 31 Dec 2022) Scope 3	Coverage Target (as at 31 Dec 2026) Scopes 1, 2 & 3
Multi-asset	88.1%	90.7%	N/A	>95.0%

Additional notes:

- *As noted earlier in the report, LGIM was unable to confirm the Scope 3 coverage for the assets considered within the DC section of the Scheme. We have engaged with the manager on this manager and intend to continue doing so, to drive improvements in the disclosures.*

Observations

As a result of the collection of data for the second-year reporting period, data was available for most of the Scheme's assets, with coverage varying across the asset classes in which the Scheme invests.

In particular, within the DB section, Scope 3 coverage was low overall, however, reporting on Scope 3 emissions is a new requirement and we expect to see significant improvements in the coverage of Scope 3 emissions as the industry adapts to this reporting requirement.

As this is the first year in which reporting Scope 3 emissions data is mandatory, we anticipated there would be limitations in what our investment managers would be able to provide. This is an industry-wide challenge. However, we expect improvements in the reporting capabilities of our investment managers over time.

Scope 1 & 2 data was available for most of the assets considered within the DC section and has improved since last year.

Suitability of target

The Trustee believes the original target, which focuses on improving the data quality metric for carbon emissions data across Scopes 1, 2 and 3 by 2026, remains suitable.

What is the Trustee doing to reach the target?

The Trustee is taking the following steps to reach the target:

Improving coverage of data	Making the reporting consistent
	
Observation **The coverage of data for equity and property funds is greater versus other assets held by the Scheme. For equity holdings, data available was in excess of 95%. The coverage of carbon data for credit and illiquid credit assets was much lower.** Data coverage for the matching assets (i.e., index-linked gilts) was assumed to be 100%, although this was not reported directly by the investment manager of the matching fund.	**Observation** There were some managers which did not complete the data request in the format of the industry best practice template.
Solution The Trustee will engage with its investment managers, supported by its investment consultant, to request higher data availability and coverage for credit and illiquid credit funds. Through engagement, the Trustee will identify opportunities to improve coverage, or investigate alternative sources of data. In addition to engagement undertaken, the Trustee expects that improvement in data availability and reporting will in part be dependent on improved industry methodologies to calculate carbon metrics, including increased regulatory requirements for reporting carbon metrics.	**Solution** The Trustee will engage with its investment managers, supported by its investment consultant, to encourage managers to adopt the Investment Associate's Carbon Emissions Reporting Template, and provide guidance on how to complete reporting in line with this data delivery framework to a high standard.

Appendices

Glossary

Governance refers to the system by which an organisation is directed and controlled in the interests of shareholders and other stakeholders.[3] Governance involves a set of relationships between an organisation's management, its board, its shareholders, and other stakeholders. Governance provides the structure and processes through which the objectives of the organisation are set, progress against performance is monitored, and results are evaluated.[4]

Strategy refers to an organisation's desired future state. An organisation's strategy establishes a foundation against which it can monitor and measure its progress in reaching that desired state. Strategy formulation generally involves establishing the purpose and scope of the organisation's activities and the nature of its businesses, taking into account the risks and opportunities it faces and the environment in which it operates.[5]

Risk management refers to a set of processes that are carried out by an organisation's board and management to support the achievement of the organisation's objectives by addressing its risks and managing the combined potential impact of those risks.[6]

Climate-related risk refers to the potential negative impacts of climate change on an organisation. Physical risks emanating from climate change can be event-driven (acute) such as increased severity of extreme weather events (e.g., cyclones, droughts, floods, and fires). They can also relate to longer-term shifts (chronic) in precipitation and temperature and increased variability in weather patterns (e.g., sea level rise). Climate-related risks can also be associated with the transition to a lower-carbon global economy, the most common of which relate to policy and legal actions, technology changes, market responses, and reputational considerations.[7]

Climate-related opportunity refers to the potential positive impacts related to climate change on an organisation. Efforts to mitigate and adapt to climate change can produce opportunities for organisations, such as through resource efficiency and cost savings, the adoption and utilization of low-emission energy sources, the development of new products and services, and building resilience along the supply chain. Climate-related opportunities will vary depending on the region, market, and industry in which an organisation operates.[8]

[3] A. Cadbury, Report of the Committee on the Financial Aspects of Corporate Governance, London, 1992.
[4] OECD, G20/OECD Principles of Corporate Governance, OECD Publishing, Paris, 2015.
[5] TCFD, Recommendations of the Task Force on Climate-related Financial Disclosures, 2017
[6] Please refer to the link in reference number 10.
[7] Please refer to the link in reference number 10.
[8] Please refer to the link in reference number 10.

Greenhouse gas emissions scope levels[9]	Greenhouse gases are categorised into three types or 'scopes' by the Greenhouse Gas Protocol, the world's most used greenhouse gas accounting standard. Scope 1 refers to all direct GHG emissions. Scope 2 refers to indirect GHG emissions from consumption of purchased electricity, heat, or steam. Scope 3 refers to other indirect emissions not covered in Scope 2 that occur in the value chain of the reporting company, including both upstream and downstream emissions. Scope 3 emissions could include: the extraction and production of purchased materials and fuels, transport-related activities in vehicles not owned or controlled by the reporting entity, electricity-related activities (e.g., transmission and distribution losses), outsourced activities, and waste disposal.[10]
Value chain	refers to the upstream and downstream life cycle of a product, process, or service, including material sourcing, production, consumption, and disposal/recycling. Upstream activities include operations that relate to the initial stages of producing a good or service (e.g., material sourcing, material processing, supplier activities). Downstream activities include operations that relate to processing the materials into a finished product and delivering it to the end user (e.g., transportation, distribution, and consumption).[11]
Climate scenario analysis	is a process for identifying and assessing a potential range of outcomes of future events under conditions of uncertainty. In the case of climate change, for example, scenarios allow an organisation to explore and develop an understanding of how the physical and transition risks of climate change may impact its businesses, strategies, and financial performance over time.[12]
Net zero	means achieving a balance between the greenhouse gases emitted into the atmosphere, and those removed from it. This balance – or net zero – will happen when the amount of greenhouse gases add to the atmosphere is no more than the amount removed.[13]

[9] World Resources Institute and World Business Council for Sustainable Development, The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition), March 2004.
[10] PCC, Climate Change 2014 Mitigation of Climate Change, Cambridge University Press, 2014.
[11] TCFD, Recommendations of the Task Force on Climate-related Financial Disclosures, 2017
[12] Please refer to the link in reference number 16.
[13] Energy Saving Trust, What is net zero and how can we get there? - Energy Saving Trust, October 2021

Appendix – Climate scenario modelling assumptions

The purpose of the climate scenario modelling is to consider the impact of climate-related risks on the Schemes assets and liabilities over the long-term.

The scenario modelling assumes a deterministic projection of assets and liabilities on the technical provisions basis, using standard actuarial techniques to discount and project the Scheme's expected future cashflows.

i. It models the full yield curve as this allows for a more accurate treatment of the liabilities and more realistic modelling of the future distribution of interest rates and inflation.
ii. The modelling parameters vary deterministically for each scenario.

The liability projections are approximate, but they are appropriate for this analysis. However, a full actuarial valuation carried out at the same date may produce a materially different result.

The scenario modelling focusses on the impact of climate change on the Scheme's assets and liabilities. It does not consider the impact climate change could have on the covenant risk or mortality risk.

The scenario modelling reflects market conditions and market views at the time of the analysis. The model may produce different results for the same strategy under different market conditions.

Key Assumptions

	Temperature risk by 2100	**Reach net zero by**	**Carbon price (2030/2050)**	**Introduction of environmental regulation**
No transition	>4C	After 2050	$40/$50	None
Disorderly transition	<3C	After 2050	$65/$340	Late and aggressive
Abrupt transition	1.5C – 2C	2050	$135/$280	Aggressive
Orderly transition	1.3C – 2C	2050	£100/$215	Coordinated
Smooth transition	<1.5C	2045	$80/$165	High coordination

Appendix – An explanation of climate risk categories

Climate-related risks are categorised into physical and transitional risks. Below are examples of transition and physical risks.

Transition risks

Transition risks are those related the ability of an organisation to adapt to the changes required to reduce greenhouse gas emissions and transition to renewable energy. Within transition risks, there are four key areas: policy and legal, technological innovation, market changes, and reputational risk.

Policy and legal

Examples

Increased pricing of GHG emissions

Enhanced emissions-reporting obligations

Regulation of existing products and services

Potential financial impacts

Increased operating costs (e.g. higher compliance costs, increased insurance premiums)

Write-offs, asset impairment and early retirement of existing assets due to policy changes

Technology

Examples

Cost to transition to lower emissions technology

Unsuccessful investments in new technologies

Potential financial impacts

Write-offs and early retirement of existing assets

Capital investments in technology development

Costs to adopt new practices and processes

Market

Examples

Changing customer behaviour

Uncertainty in market signals

Increased cost of raw materials

Potential financial impacts

Reduced demand for goods and services due to shift in consumer preferences.

Abrupt and unexpected increases in energy costs.

Re-pricing of assets (e.g., fossil fuel reserves, land valuations, securities valuations).

Reputational

Examples

Stigmatisation of sector

Increased stakeholder concern or negative stakeholder feedback

Potential financial impacts

Reduced revenue from decreased demand for goods and services.

Reduced revenue from decreased production capacity (e.g., delayed planning approvals, supply chain interruptions)

Reduced revenue from negative impacts on workforce management and planning

Physical Risks

Physical risks refer to the physical impacts of climate change on a firm's operations. They directly impact a firm's ability to perform its function due to climate disruption. They fall into two subcategories: acute and chronic; acute referring to extreme climate events such as flooding and wildfires, and chronic referring to trends over time such as an increase in temperature or ocean acidification.

Acute	Chronic
Examples	**Examples**
Extreme heat	Water stress
Extreme rainfall	Sea level rises
Floods	Land degradation
Droughts	Variability in temperature
Storms (e.g., hurricanes)	Variability in precipitation

Appendix – Greenhouse gas emissions in more detail

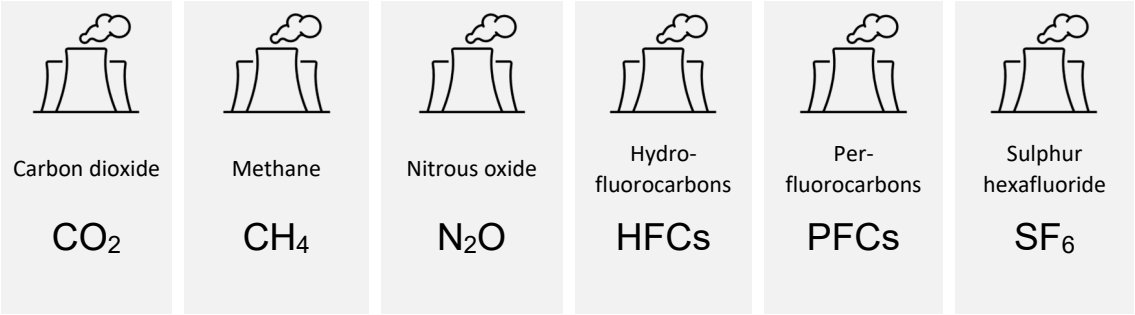
Greenhouse gases in the atmosphere, including water vapour, carbon dioxide, methane, and nitrous oxide, keep the Earth's surface and atmosphere warm because they absorb sunlight and re-emit it as heat in all directions including back down to Earth. Adding more greenhouse gases to the atmosphere makes it even more effective at preventing heat from leaving the Earth's atmosphere.

Greenhouse gases are vital because they act like a blanket around the Earth making it the climate habitable. The problem is that human activity is making the blanket "thicker". For example, when we burn coal, oil, and natural gas we send huge amounts of carbon dioxide into the air. When we destroy forests, the carbon stored in the trees escapes to the atmosphere. Other basic activities, such as raising cattle and planting rice, emit methane, nitrous oxide, and other greenhouse gases.

The amount of greenhouse gases in the atmosphere has significantly increased since the Industrial Revolution. The Kyoto Protocol[14] identifies six greenhouse gases which human activity is largely responsible for emitting. Of these six gases, human-made carbon dioxide is the biggest contributor to global warming.

Each greenhouse gas has a different global warming potential and persists for a different length of time in the atmosphere. Therefore, emissions are expressed as a carbon dioxide equivalent (CO_2e). This enables the different gases to be compared on a like-for-like bases, relative to one unit of carbon dioxide.

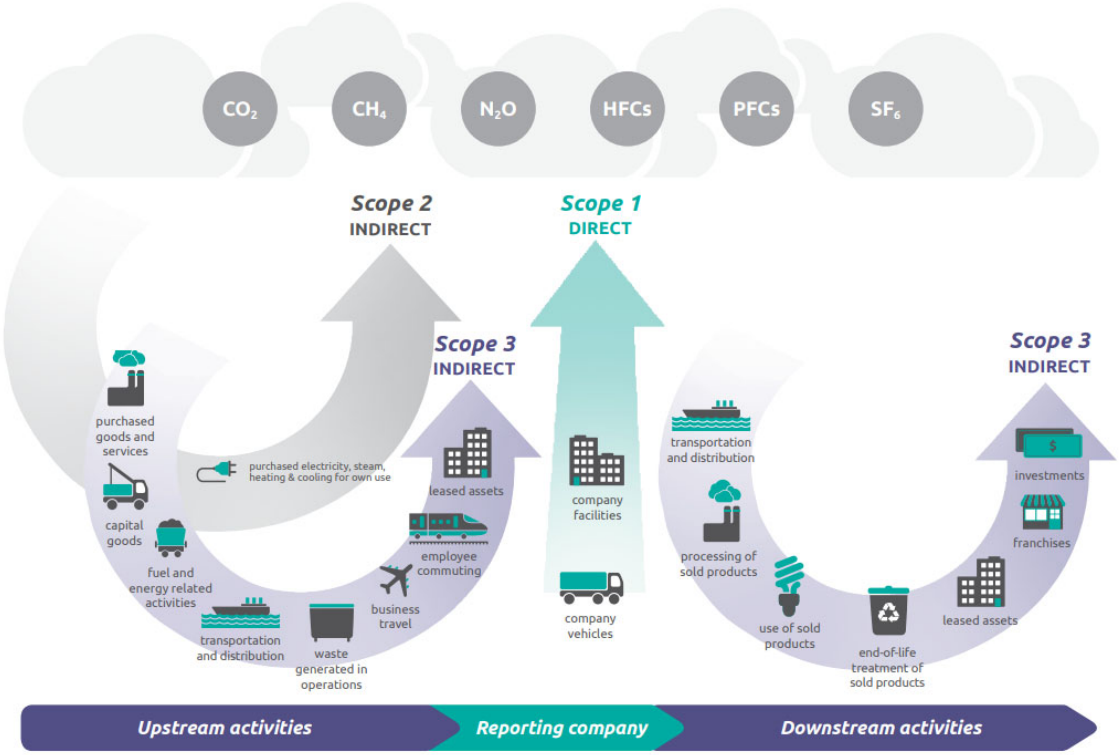
Six main greenhouse gases identified by the Kyoto Protocol



[14] https://unfccc.int/kyoto_protocol

Greenhouse gases are categorised into three types or ‘scopes’ by the Greenhouse Gas Protocol, the world’s most used greenhouse gas accounting standard.

Overview of GHG Protocol Scopes and emissions across the value chain



Source: Greenhouse Gas Protocol, Corporate value chain (scope 3) Accounting and Reporting Standard, 2011