HSBC Bank (UK) Pension Scheme
Task Force on Climate-Related Financial Disclosures (TCFD) Report 2023

This report has been prepared in line with the Department for Work and Pensions climate change governance and reporting requirements and guidance (June 2021).

This report details how the HSBC Bank Pension Trust (UK) Limited as Trustee of the HSBC Bank (UK) Pension Scheme ("the Scheme") has followed the recommendations and guidance as outlined in the most recent TCFD implementation guidance (October 2021) to the extent it was feasible to do so.
It is anticipated that this Report will continue to evolve, in line with evolving TCFD guidance, as it becomes available.

PUBLIC

Table of Contents

Executive Summary 3

Introduction **5**

- **Approach to climate change** **5**
- **Timeline of key climate-related actions** **6**

Governance **7**

- **Climate governance structure, including the role of persons undertaking governance activities and those advising the Trustee** **7**
- **Trustee knowledge and understanding of climate change** **13**

Strategy **14**

- **An overview of the DB funding and investment strategy** **15**
- **An overview of the DC investment options** **16**
- **Climate-related considerations in setting the Scheme's investment strategy** **18**
- **Time Horizons** **20**
- **Scenario analysis** **20**
- **Other tools helping the Trustee to identify climate risk in the portfolio** **21**

Risk Management **22**

- **Identifying and assessing climate-related risks in an integrated way** **22**
- **Mitigating climate-related risks in an integrated way** **24**
- **Monitoring climate-related risk exposure** **27**
- **Reporting on the Trustee's management of climate-related risk** **28**

Metrics & Targets **28**

- **Assessment of climate metrics in relation to the Scheme's investments** **28**
- **Climate metrics for the Scheme's DB assets** **30**
- **Climate metrics for the Scheme's DC assets** **33**
- **Climate Metrics Conclusion** **35**
- **The Trustee's climate-related targets** **35**

Appendices **39**

Executive Summary

Scheme overview

Our Scheme consists of three sections: the HSBC UK Bank plc ("HBUK") Section, the HSBC Bank plc ("HBEU") Section and the HSBC Global Services (UK) Ltd ("HGSU") Section. Defined Benefit ("DB") and Defined Contribution ("DC") benefits are provided by each section. Within the DC retirement provision, there is a range of investment funds available for members, including different default arrangements and a number of self-select funds.

Our approach to climate change

As one of the UK's largest pension schemes we recognise climate change as a systemic, long-term financial risk to members' retirement outcomes. Over the years we have taken steps to ensure that climate-related considerations are embedded into our strategic decision-making.

We believe that disclosure and transparency is an important way to improve accountability to our members. We have been reporting on our approach to climate change in an annual TCFD report since 2018. We have been supporters of the TCFD since it was established by the Financial Stability Board ("FSB") in 2017. TCFD improves and increases the quantity and quality of climate-related information across the global economy. This is vital for the robust management of climate-related risks.

This report covers the period from 1 January 2023 to 31 December 2023. It is broken down into four key areas, as prescribed by the TCFD recommendations, and the new regulations:

- **Governance:** We continue to operate a robust governance framework in relation to climate-related risks and opportunities. This enables us to have confidence that climate-related risks and opportunities are appropriately factored into our investment processes. While we are ultimately responsible for the oversight of the Scheme's climate-related risks and opportunities, we are supported by committees and a full-time management team.
- **Strategy:** We have assessed the impacts of potential future climate outcomes on the whole DB funding strategy, and the two main default investment strategies which together encompass more than 85% of DC members. The analysis found that there is a potential loss of value to our members' investments under different climate change outcomes. We recognise that this analysis is not free from limitation and so are exploring how to improve our assessments of members' outcomes. We have already taken several investment decisions to mitigate the risks from climate change, including investing the majority of the DC default investment strategies' assets in a climate-tilted equity strategy. We are committed to continue to take steps to address and limit these potential impacts.
- **Risk Management:** We established a Climate Risk Management Framework in 2020, which ensures that climate-related risks are identified, assessed and managed appropriately. Our preferred approach to climate risk mitigation is:
    - Specific consideration of climate-related risks in fund manager and fund selection
    - Integration of climate-related considerations in fund design, for example, our Global Equities Fund - Passive
    - Engagement with our asset managers, regulators, industry bodies and policymakers
    - Encourage engagement by our asset managers with underlying issuers to promote more robust management of their climate risks and opportunities
    - Helping to enable a smooth climate transition by investing in climate opportunities.
- **Metrics and Targets:** We monitor a combination of climate-related metrics for the Scheme, which provide a balanced view of our current and future exposure to climate-related risks. Furthermore, in an effort to improve our management of the impacts of climate change on the Scheme's investments and the consequent impact on the financial interests of our members, we have also set a number of climate-related targets. These include:
    - Achieve net zero greenhouse gas (GHG) emissions across the DB and DC assets by 2050 or sooner.
    - Targeting a real economy emissions reduction interim target of 50% by 2030 or sooner for our equity and corporate bond funds, relative to our 2019 baseline.
    - Having the ambition of ensuring that all of our corporate bond and equity investments are fully aligned to the goals of the Paris Agreement by 2030, across both DB and DC assets.
    - Enhancing our engagement and stewardship efforts through our asset managers.

What's next?

Over the next year we will continue to build our net zero investment strategy and manage climate-related risks in a robust way. This will include developing and implementing a more comprehensive plan for the Scheme's transition to net zero in

PUBLIC

support of our climate targets. This plan will provide greater detail on engagement expectations, Trustee advocacy, investing in climate solutions and risk management tools.

We will also focus on deciding upon the best approach for scenario analysis going forward, based on the learnings throughout 2023. An updated analysis will be included within next year's report.

More information on our climate and other ESG activities can be found on the Future Focus website.

PUBLIC

Introduction

Approach to climate change

The Trustee recognises climate change is a systemic, long-term material financial risk to the value of the Scheme's investments. Therefore, the Trustee believes it has a fiduciary duty to consider the risks arising from climate change when making investment decisions and seeks to manage these risks on behalf of the Scheme's members. This is especially the case for the Scheme's Defined Contribution ("DC") members, as the value of their pension pots is directly related to the underlying investments.

The Trustee's focus on climate change risk mitigation plays an important role in how investments are managed across all asset classes, in both the DC and Defined Benefit ("DB") parts of the Scheme. At a policy level, the Trustee is supportive of initiatives that contribute towards mitigating climate change risk on members' investments. Within this context, the Trustee is supportive of the Paris Agreement to minimise dangerous climate change by limiting global warming to well below 2°C above pre-industrial levels and pursuing efforts to limit it to 1.5°C.

The Trustee's current focus on managing climate risk is through enhancing its engagement and stewardship efforts with the management of companies in which the Scheme's defined benefit ('DB') and defined contribution ('DC') assets are invested. The Trustee will continue to work closely with the Scheme's asset managers, to ensure they are engaging with company management, voting at company shareholder meetings and encouraging management to run their businesses sustainably and to reduce emissions of greenhouse gases (GHGs).

The Trustee notes that emissions in the real world are not declining in line with the original pathways as implied by the goals of the Paris Agreement, in fact they continue to rise[1]. In this context the Trustee's objective is to encourage real economy GHGs emissions reductions in order to limit the impacts of climate change. The Trustee will focus on stewardship and engagement with the companies and assets held across its portfolios to achieve this objective, rather than simply seek to de-carbonise its asset portfolio by excluding high GHGs emitting stocks. The Trustee expects its asset managers managing pooled funds to make their own decisions with regard to their policies towards achieving net zero GHGs emissions by 2050.

In line with these beliefs, and to ensure climate-related risks and opportunities are embedded in investment decision-making, the Trustee became a supporter of the TCFD in 2017 and published the Scheme's first TCFD report in 2018.

In 2021 the Department for Work and Pensions ("DWP") introduced "The Occupational Pension Schemes (Climate Change Governance and Reporting) Regulations 2021" (the "regulations"), requiring large UK pension schemes to put in place appropriate governance processes for managing climate-related risks and opportunities and to report on actions taken annually.

This is the Scheme's third report prepared in accordance with the regulations, and sixth disclosure under the TCFD framework. It covers the period 1 January 2023 to 31 December 2023, and provides a status update on how the Trustee is aligning with each of the four elements of the TCFD framework as set out in the regulations:

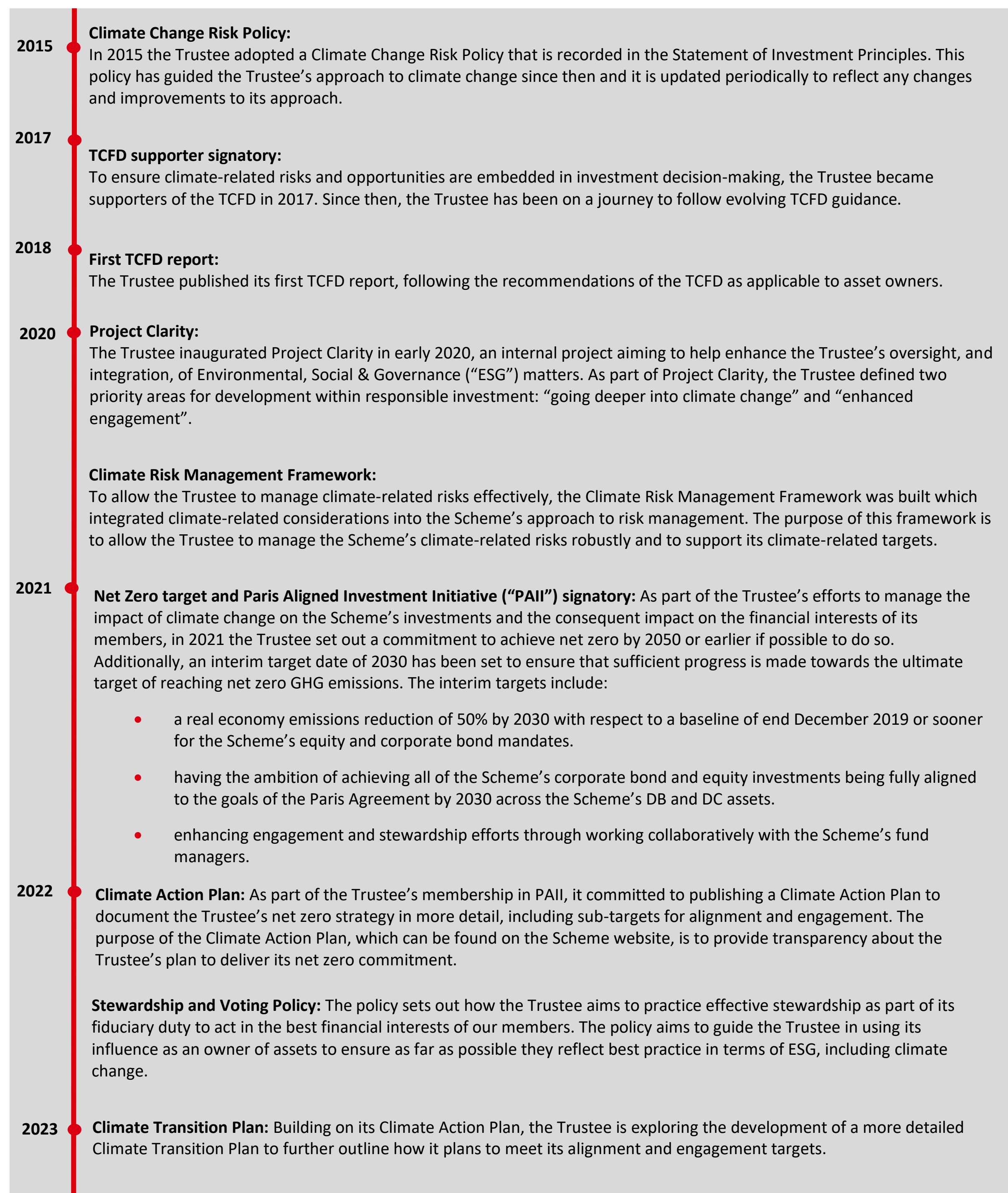
Element	Description
Governance	The Scheme's governance around climate-related risks and opportunities.
Strategy	The actual and potential impacts of climate-related risks and opportunities on the Scheme's investments and funding strategy and integration into investment decision-making.
Risk Management	The processes used to identify, assess, and manage climate-related risks and integration into overall risk management.
Metrics and Targets	The metrics and targets used to assess and manage relevant climate-related risks and opportunities.

[1] Based on data from Emissions Database for Global Atmospheric Research (EDGAR) https://edgar.jrc.ec.europa.eu/

PUBLIC

Timeline of key climate-related actions

The timeline below shows the evolution of the Scheme's TCFD disclosures and key decisions made in relation to climate change (including "going deeper into climate change" and "net zero ambition").



2015

Climate Change Risk Policy:
In 2015 the Trustee adopted a Climate Change Risk Policy that is recorded in the Statement of Investment Principles. This policy has guided the Trustee's approach to climate change since then and it is updated periodically to reflect any changes and improvements to its approach.

2017

TCFD supporter signatory:
To ensure climate-related risks and opportunities are embedded in investment decision-making, the Trustee became supporters of the TCFD in 2017. Since then, the Trustee has been on a journey to follow evolving TCFD guidance.

2018

First TCFD report:
The Trustee published its first TCFD report, following the recommendations of the TCFD as applicable to asset owners.

2020

Project Clarity:
The Trustee inaugurated Project Clarity in early 2020, an internal project aiming to help enhance the Trustee's oversight, and integration, of Environmental, Social & Governance ("ESG") matters. As part of Project Clarity, the Trustee defined two priority areas for development within responsible investment: "going deeper into climate change" and "enhanced engagement".

Climate Risk Management Framework:
To allow the Trustee to manage climate-related risks effectively, the Climate Risk Management Framework was built which integrated climate-related considerations into the Scheme's approach to risk management. The purpose of this framework is to allow the Trustee to manage the Scheme's climate-related risks robustly and to support its climate-related targets.

2021

Net Zero target and Paris Aligned Investment Initiative ("PAII") signatory: As part of the Trustee's efforts to manage the impact of climate change on the Scheme's investments and the consequent impact on the financial interests of its members, in 2021 the Trustee set out a commitment to achieve net zero by 2050 or earlier if possible to do so. Additionally, an interim target date of 2030 has been set to ensure that sufficient progress is made towards the ultimate target of reaching net zero GHG emissions. The interim targets include:

- a real economy emissions reduction of 50% by 2030 with respect to a baseline of end December 2019 or sooner for the Scheme's equity and corporate bond mandates.
- having the ambition of achieving all of the Scheme's corporate bond and equity investments being fully aligned to the goals of the Paris Agreement by 2030 across the Scheme's DB and DC assets.
- enhancing engagement and stewardship efforts through working collaboratively with the Scheme's fund managers.

2022

Climate Action Plan: As part of the Trustee's membership in PAII, it committed to publishing a Climate Action Plan to document the Trustee's net zero strategy in more detail, including sub-targets for alignment and engagement. The purpose of the Climate Action Plan, which can be found on the Scheme website, is to provide transparency about the Trustee's plan to deliver its net zero commitment.

Stewardship and Voting Policy: The policy sets out how the Trustee aims to practice effective stewardship as part of its fiduciary duty to act in the best financial interests of our members. The policy aims to guide the Trustee in using its influence as an owner of assets to ensure as far as possible they reflect best practice in terms of ESG, including climate change.

2023

Climate Transition Plan: Building on its Climate Action Plan, the Trustee is exploring the development of a more detailed Climate Transition Plan to further outline how it plans to meet its alignment and engagement targets.

PUBLIC

Governance

Climate governance structure, including the role of persons undertaking governance activities and those advising the Trustee

The Trustee's investment strategy is built upon a set of investment beliefs[2] including several in relation to climate change, wider ESG factors, and stewardship. The beliefs help to guide the Trustee's investment decision making so that it can fulfil its mission to pay DB benefits as they fall due and provide high-quality investment options to enable DC members to realise their retirement ambitions. In summary:

- The Trustee recognises that global systems, such as the planet, its climate, its people and societies have a material impact on the whole of the economic system, today and over the longer term.
- A robust global economy, society and planet are critical elements for stable and resilient retirement outcomes for members.
- ESG risks and opportunities are important factors to consider in investment decision-making. Some ESG risks and opportunities may be specific to certain companies or assets, others can have a material impact on large parts of the global economy and are considered risks to the whole economic system.
- The Trustee also believes good stewardship and engagement can protect or enhance member retirement outcomes in the long-term.

Further to this, using evidence-based research and training, the Trustee has chosen to prioritise a number of system-wide ESG risks which it believes are financially material to the Scheme, now and/or in the future. These include climate change, biodiversity and nature-related losses, including anti-microbial resistance, as well as diversity, equity and inclusion.

The Trustee believes that by taking such factors into account in its investment process, the Scheme is better positioned to deliver on its objectives. The Trustee anticipates evolving its approach on these system-wide ESG risks over several years. To date, the Trustee is most progressed in its integration and oversight of risks and opportunities related to climate change, which is the focus of this report.

The Scheme's governance structure enables these beliefs to be deployed, ensuring the Scheme is run in the best interests of the Scheme.

While the Trustee Board is ultimately responsible for the oversight of the Scheme's climate-related risks and opportunities, it is supported in this by its committees and a full-time management team:

- The Asset & Liability Committee ("ALCo");
- The Audit & Risk Committee ("ARC"); and
- The Pension Scheme Executive ("PSE"), who are responsible for undertaking Scheme governance activities.

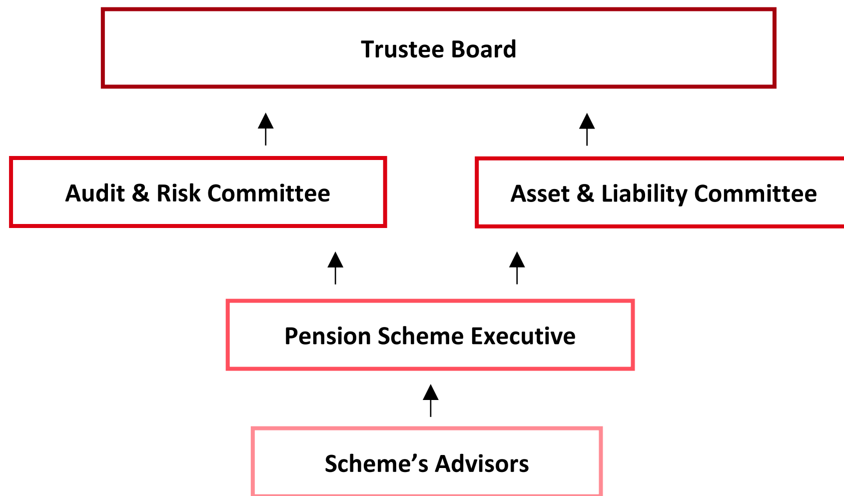
The roles and responsibilities of the Trustee, its committees, those undertaking Scheme governance activities and those advising the Trustee in identifying, assessing, and managing climate-related risks and opportunities, are documented in the Scheme's Climate Risk Management Framework. The Framework has been in place since 2020 and forms part of the separately documented scheme-wide risk management framework.

[2]The full set of beliefs are contained in the Statement of Investment Principles ("SIP") for both DB and the DC benefits, which can be found on the Scheme's website.

PUBLIC

The chart below outlines the climate governance structure that was in place in 2023.

The Scheme's Governance Structure in relation to Climate Change Risk



	Climate-related responsibilities	Key actions over 2023
Trustee Board	• The Trustee has ultimate responsibility for overseeing the Scheme's climate-related risks and opportunities and actions taken to manage them. • This includes determining both the strategic climate-related objectives and the detailed climate-related targets, as well as overseeing progress made against them.	• In 2023, in the context of climate change risk, the Trustee's main focus was continuing to deepen its understanding of the impact of climate change on the Scheme's investments. The Trustee reviewed quarterly updates of the Scheme's climate-related actions undertaken by ALCo (please see detail in ALCo section below). • ALCo and Board-level discussions on establishing a position on current and future investments in the global energy sector took place in 2023. Such a position is one of a number of risk management tools being considered.
Asset & Liability Committee	• As a committee of the Trustee Board, ALCo is responsible for ensuring that the Climate Change Risk Policy, including the Climate Risk Management Framework, and the Trustee's climate objectives are implemented into the Trustee's investment policy. • To achieve this remit, ALCo has been delegated responsibility from the Trustee Board to review climate scenario analysis on the Scheme's funding and investment strategy and to select climate-related metrics to monitor. The metrics are used as management information to monitor the Scheme's progress versus the Trustee's climate objectives. • ALCo is also responsible for defining the Trustee's engagement strategy with the Scheme's asset managers, consistent with the objectives set by the Trustee and the Trustee's Stewardship Policy.	• In Q2 2023 ALCo reviewed the Scheme's annual performance against the chosen climate-related metrics both at the total portfolio-level and the individual fund-level. This included an attribution of year-on-year changes that identified the key drivers of the Scheme's emissions (absolute and intensity) and progress versus the Scheme's 2019 baseline position. Further details of this are provided in the Risk Management section of this report. • During 2023, ALCo reviewed the different approaches to climate scenario analysis and issued a Request for Information to understand evolving climate scenario analysis offerings. Due to continued concerns over the decision-usefulness of the analysis, ALCo approved a recommendation not to undertake climate scenario analysis in 2023, preferring to keep a

PUBLIC

	This process is informed by monitoring steps taken by the PSE. • ALCo is responsible for overseeing investment strategy and will carry out changes based on climate change-related investment risks and opportunities, following advice from its legal, investment and ESG advisors. • ALCo reports to the Trustee Board on a quarterly basis, with the Chair of ALCo providing a report on the matters discussed and decided that is reviewed by the Board.	watching brief on this. Further details of this are provided in the Strategy section of this report. • In Q3 2023 ALCo, along with the Trustee's advisors, reviewed the Scheme's climate risk dashboard. This dashboard sets out how the Scheme is progressing against the Trustee's interim and long-term climate targets. • In Q3 2023, ALCo reviewed the ongoing suitability of the Scheme's net zero transition alignment metrics and emissions data quality metrics. This resulted in the adoption of a new metric to monitor the data quality of its reported financed emissions. • In Q3 2023, ALCo considered a set of available tools to identify and monitor the Scheme's allocation to "climate solutions" [3] investments within the climate risk dashboard. ALCo opted not to adopt a new climate solutions metric until there is greater industry consensus on reliable and useable tools. Industry developments in measuring exposures to climate solutions will continue to be examined going forward. • In Q3 2023, ALCo reviewed which of the Scheme's top contributors to its emissions across the DB and DC portfolios were subject to climate-related engagement by the Scheme's asset managers during the 18-months up to 30 June 2023. ALCo also noted whether managers were engaging with top emitters within their own portfolios. This information was used by the PSE to support their manager engagement. Further details of this are provided in the Risk Management section of this report. • Building on the Scheme's Investment Climate Action Plan, in Q4 2023, ALCo reviewed an initial overview of the key features of a Climate Transition Plan for the Scheme and what developments might be needed if it was to evolve its plan in a manner consistent with the guidance provided by the Transition Plan Taskforce. • In Q4 2023, ALCo reviewed an initial set of nature-related risk metrics and considered how they could be used alongside existing climate metrics to support the Trustee's net zero objective. This work remains ongoing and further progress is expected over 2024.
Audit & Risk Committee	• ARC is responsible for ensuring that risks related to climate change are incorporated into the Trustee's Pension Risk Framework. • Climate change risk is explicitly identified as a Scheme risk on the Trustee's Risk Register, as overseen by ARC, and reported to the Board on a quarterly basis. ARC is also responsible for providing oversight of any assurance carried out in relation to the production of the Scheme's	• In 2023, ARC oversaw internal and external limited assurance exercises for the production of the Scheme's 2022 TCFD report. Specifically, the limited assurance focused on the processes followed by the Trustee's advisors and PSE to calculate the Scheme's emissions and non-emissions metrics, the controls in place for handling data and carrying out calculations, as well as producing the narrative and content of

[3] Climate solution investments encompass those which provide capital for activities, products and services that contribute to GHG emissions reductions.

	TCFD report and ensuring all relevant controls are in place and evidenced as being operational.	the report and how supporting evidence for the statements made in the report was gathered and checked for accuracy. • The limited assurance exercises were completed by two third-party assurance providers appointed by ARC. ARC noted the challenges faced in undertaking some aspects of the assurance work, notably in relation to the access of the source data provided by a third-party provider. As a result, limited assurance in relation to the metrics, could not be completed. Following this, ARC endorsed the Scheme's 2022 TCFD report. The intention is that the limited assurance process will be developed for future reports, with a view to overcoming the practical challenges faced in this round of assurance and repeated as deemed appropriate by ARC.

Pension Scheme Executive	• To improve the efficiency of the Trustee's decision-making processes, the Trustee has full-time executive support from the PSE. The PSE provides the day-to-day management of the Scheme, including climate-related matters. The Chief Investment Officer and Investment team have responsibility for ensuring climate-related risks and opportunities are appropriately considered in investment decision-making. • Specifically, the PSE is responsible for performing manager-specific and portfolio-level climate risk analysis of the Scheme's alignment versus the Trustee's objectives, and the implementation of the engagement strategy set by ALCo. Activity is tracked and reported quarterly to ALCo. In circumstances where the PSE assesses that a fund manager has failed to operate in line with the Trustee's climate-related objectives, it will engage with the fund manager with the intention of providing feedback on agreed mitigation steps, approved by ALCo. Should persistent engagement fail to correct a fund manager's misalignment with the Trustee's objectives, the PSE will raise its concerns with respect to investment strategy and/or fund manager changes to ALCo for approval, with the ALCo having also taken formal advice from its advisors. • The Trustee is required by law, as referenced above, to seek expert advice from qualified professionals, such as a legal practitioner, an actuary, or an investment advisor, before it makes certain decisions. The PSE manages the relationship with the relevant advisors, as well as ensuring that the Trustee has access to the right advice for the decisions it is taking.	• During 2023, the PSE engaged with each of the Scheme's asset managers on climate-related risks and opportunities and broader ESG issues in line with the Trustee's priorities. PSE is supported by the Trustee's ESG and investment advisors, each of whom provides summary information on each manager's position and progress on climate and nature risk, and stewardship. • To aid their engagements, the PSE used individual scorecards for each manager. These scorecards contain a quantitative and qualitative analysis of each fund's key climate characteristics, an assessment of the manager's corporate engagement and stewardship process and activity, manager-level diversity, equity and inclusion statistics and voting statistics where appropriate. Where possible, each scorecard includes the top contributors to the fund's financed emissions, a measure of their transition alignment, and whether the manager engaged with these issuers recently. This analysis helps inform the PSE's view of how aligned each fund and fund manager are with the Trustee's broader sustainability objectives. • To strengthen the Trustee's position on climate, the PSE emphasised to the asset managers the importance of institutional alignment with the Trustee's climate-related priorities. This was made clear at the beginning of 2023 in a letter authored by the Chief Investment Officer (CIO) sent to each fund manager and during engagement exercises undertaken over the year. Institutional alignment with the Trustee's priorities was also a key aspect of broader sustainability factors considered in the manager selection exercises completed during 2023, as well as within the annual advisor assessments. • Throughout 2023, the PSE also attended and chaired various industry initiative meetings and working groups, enabling them to stay up to date with best practice, engage with peers around climate, and share learnings from their experience managing the Scheme.
The Trustee's advisors	• The Trustee's investment advisors advise on and provide objective assessments of differing approaches to identifying, assessing, and managing climate-related risks and opportunities to help the Trustee meet its climate-related objectives for the Scheme. This includes informing the Trustee of climate-related risks and opportunities as relevant for the Scheme. • The advisors are also required to support the PSE in its role of performing manager and portfolio-	• Throughout the year the advisors undertook many actions to support the Trustee's climate strategy. Some examples include evolving investment guidelines to better reflect the Trustee's objectives, the implementation of new managers that are aligned with the Trustee's objectives and themselves engaging with managers and the wider industry to promote better climate risk management. Further

PUBLIC

	specific climate risk analysis and engagement. This includes the completion of climate change scenario analysis on the DB funding strategy and DC investment strategy, as well as the provision of climate-related metrics selected by the ALCo. These metrics feed into a Scheme-level dashboard and manager scorecards that the Trustee use to monitor the Scheme's performance against its climate objectives on an annual basis and identify fund manager engagement opportunities.	examples are identified below, as well as some detailed case studies within the wider Report. • During the year the Trustee's advisors worked alongside the PSE on the climate scenario analysis process, including conducting a peer review, issuing an RFI, and advising on the approach to take for the 2023 TCFD report. • A particular focus during 2023 was placed on building out the climate dashboards and manager scorecards which cover manager's ESG and stewardship approaches, both of which are used to support PSE engagement with managers and provide ALCo with clear oversight. • The Trustee's advisors produced a standalone voting report in Q2 2023. The report utilised the voting framework set out in the Scheme's stewardship policy and covered all of the relevant managers' voting activity over 2022. The report was used by the PSE to assess the extent to which managers' voting behaviour is aligned to the Trustee's expectations and to highlight any areas of inconsistencies which need to be monitored. This is an annual report, and the next report will be produced in 2024. • The advisors also facilitated and worked alongside the PSE to complete the third-party assurance exercise overseen by ARC for the production for the 2022 TCFD report. Given the challenges faced in the completion of the limited assurance exercise, the limited assurance on the metrics could not be completed. • Each of the Trustee's advisors meets bi-annually with the PSE to have detailed discussions about the managers for which they have oversight. This covers the managers in greater detail, including any engagement being undertaken by the advisors to enhance the managers' ESG including climate and nature risk management.

Trustee oversight of third parties

The Trustee operates an outsourced model for Scheme investment activities and does not manage any investments in-house. Given this model, the Trustee's key responsibility is to maintain oversight of the approaches and actions taken by third parties. With regards to climate change, this is done principally through setting and monitoring objectives for Scheme advisors to integrate climate-related considerations and through holding asset managers to account on climate-related risks and opportunities.

	Trustee oversight	Key actions over 2023
Oversight of advisors	• Climate-related objectives are included in the investment and ESG advisors' annual objectives to ensure they are taking adequate steps to identify and assess climate-related risks and opportunities. • The Trustee annually assesses the delivery of this advice using relevant frameworks where	• In line with the Trustee's strategic focus, the investment and ESG advisors' objectives were updated to reflect the Scheme's enhanced ESG engagement priorities. • In 2023 the Trustee reviewed the advisors' ESG and climate-specific objectives and assessed their performance against them during the

	available. Following its annual assessment, the PSE produce a report for the Trustee that provides its view on whether the advisors have met the requirements set out in their annual objectives. If the PSE deems the objectives have not been met adequately, it will provide suggested escalation steps for the Trustee to consider. • Further, the processes followed by the PSE and the Trustee's advisors to produce this TCFD report are captured within a TCFD Reporting Process Manual, noting key milestones and requirements.	annual objectives monitoring exercise. The Trustee confirmed that the advisors met their objectives for the year. • As noted above, in 2023, ARC oversaw internal and external limited assurance exercises for the production of the Scheme's 2022 TCFD report. • Formal reviews of two of the Trustee's investment advisors were undertaken in 2023. In each case, the advisors' skills and abilities on ESG and climate were considered explicitly as part of the overall decision to re-appoint them.
Oversight of asset managers	• The Trustee expects asset managers to be aware of climate change risks and opportunities within their investment processes and manage these on a discretionary basis as applied to the assets of the Scheme. The Trustee has also specifically informed the Trustee's asset managers of its climate-related objectives. The Trustee expects the asset managers to be aware of the climate-related objectives when making decisions in relation to the funds the Scheme is invested in. • Asset managers are expected to report annually on how these risks and opportunities have been incorporated into their investment process, including descriptions of engagement activity undertaken with companies in their portfolios and qualitative responses to the issues raised by the PSE's analysis, within applicable guidelines and restrictions.	• At the beginning of 2023, the PSE sent a letter authored by the CIO to each existing fund manager setting out the expectations for managers to seek to align with the Trustee's sustainability objectives. Managers were asked to respond and comment on how they aim to deliver on the Trustee's expectations. Over 2023 the PSE also met all of the Scheme's asset managers at least once to monitor their approach to managing climate-related risks and opportunities. Understanding the managers' alignment with and views on the CIO letter also formed part of the monitoring meetings. • The PSE reviewed the asset managers' ESG- and climate- reporting and highlighted any areas of concern during the meetings. • The PSE's monitoring of the asset managers over 2023, including the review of individual manager scorecards, is described in more detail in the Risk Management section of this report.
Oversight of PSE	• The PSE undertakes the day-to-day operational management of all investment activity on behalf of the Trustee in accordance with a principles-based table of delegations. The PSE's delegated authority is kept under review by the Trustee.	• The PSE reports quarterly to ALCo the decisions and activities undertaken within its delegated authority. This provides ALCo the opportunity to challenge how the PSE's delegated authority is exercised, including where and how it engaged with asset managers on the Trustee's ESG priorities. • During 2023, all manager and industry engagement on ESG and climate, undertaken by the PSE was tracked and reported quarterly to ALCo and the Board.

Trustee knowledge and understanding of climate change

The Trustee and its committees receive regular training on climate-related and broader sustainability topics. This enables the Trustee to make informed decisions. The Trustee continues to assess skills gaps and undertake training accordingly. The frequency and level of training that Trustee Directors receive depends on their role and their membership of specific committees.

Climate change was a topic of several interim meetings, investment away days and strategy days over the year, building on training from previous years. Training sessions were delivered in face-to-face meetings with advisors and subject matter specialists, and in the form of pre-recorded training videos prepared by the advisors as well as reading material such as relevant academic and industry reports. The use of pre-recorded videos and relevant reading material allowed Trustee Directors to ask more meaningful questions during meetings and be better informed when making decisions.

Specifically, Trustee Directors received training in relation to climate change around scenario analysis, scope 3 emissions and understanding the potential effectiveness of engagement with and transitioning away from fossil fuel companies as part of a global energy transition strategy. The Scheme's advisors also led a training session on systemic risk for the Trustee Board. Members of the ALCo received more technical training on topics such as climate scenario analysis methodology and climate and sustainability solutions.

Throughout 2023, Trustee Directors also continued to deepen their understanding on further sustainable investment priorities. This included how nature and biodiversity loss further compound climate change risk as well as being exacerbated by climate change. This training session also covered metrics available for the Trustees to start monitoring its exposure to nature-related risks and impacts, including an initial analysis of selected funds. Antimicrobial resistance (AMR) and diversity, equity and inclusion (DEI) were also focus topics of additional training sessions.

Additionally, the Scheme is a member of several Responsible Investment organisations that enable the Trustee to remain informed of climate-related issues. The Trustee recognises that it is not possible to support all initiatives and organisations. The Trustee occasionally reviews the Scheme's associations and considers the benefits they offer versus the resources needed to be an active member. The Trustee is currently associated with the following organisations:

- a member of the Institutional Investor Group on Climate Change ('IIGCC') and the Paris Aligned Investment Initiative ('PAII')
- a member of the Cambridge University Ownership Initiative relating to universal ownership and global systemic risks
- a member of the Willis Towers Watson Thinking Ahead Institute ('TAI')
- a member of the Occupational Pensions Stewardship Council ("OPSC")
- a signatory to the Principles for Responsible Investment ('PRI')
- a signatory to the Asset Owner Diversity Charter
- a signatory to the UK Stewardship Code (2020)
- a supporter of the Transition Pathway Initiative ('TPI')
- a supporter of Climate Action 100+

Strategy

Climate-related factors are fully integrated into the Trustee's strategic funding and investment decision-making, sitting alongside traditional investment and risk factors. This applies to both DB and DC benefits. The Trustee recognises that financially material impacts from climate change are unlikely to manifest uniformly across time, and therefore considers the potential impacts on the value of DB and DC benefits over the short, medium, and long terms[4]. The Trustee also seeks to consider climate opportunities when making investment decisions. Details of this are provided within the Risk Management section of the report.

The Scheme consists of three sections: the HSBC UK Bank plc (HBUK) Section, the HSBC Bank plc (HBEU) Section and the HSBC Global Services (UK) Ltd (HGSU) Section. DB and DC benefits are provided by each section. The Scheme holds in assets:

- DB: £20.9bn
- DC: £7.2bn

The Trustee completed climate scenario analysis for both DB and DC benefits to assess the potential climate-related impacts on the funding and investment strategy as at the end of 2021. The 2021 scenario analysis considered the asset portfolio, liabilities, and sponsor covenant of the DB assets and benefits, and the DC investment options with significant assets under management ("popular arrangements"[5]). Results of this exercise were disclosed in the Scheme's 2021 TCFD report, here, and are also included in Appendix A of this report.

The Trustee is required to repeat this exercise at least every three years, although this can be brought forward should there be material changes to the investment strategy of the DB and/or DC assets or significant improvements in scenario analysis methodologies. In 2022 and 2023, ALCo determined that the changes to the investment strategies were not material and that scenario analysis methodologies remained somewhat limited. The Trustee therefore decided not to update the scenario

[4] The Trustee's chosen short, medium, and long terms are defined on page 20.

[5] A "popular arrangement" is considered to be one in which £100m or more of the scheme's assets are invested, or which accounts for 10% or more of the assets used to provide money purchase benefits.

PUBLIC

analysis disclosed in the Scheme's 2022 or 2023 TCFD reports (this report). Updated scenario analysis will be included in the 2024 TCFD report.

As mentioned previously, scenario analysis is undertaken on DC investment options classified as popular arrangements. Following an increase in the value of the assets invested, the "Shariah Law Equities – passive" fund available to members of the Scheme with DC benefits, was classified as a popular arrangement as at 31st December 2023. The Trustee is taking a pragmatic and proportionate approach, and noting the limitations of existing methodologies, did not complete updated scenario analysis for this fund in isolation. It will be included as part of the scenario analysis completed for the 2024 report.

Details of the Scheme's funding and investment strategy are provided below.

An overview of the DB funding and investment strategy

There are different investment strategies for the three sections of the Scheme providing DB benefits. They reflect the risk and return requirements of each section. The HBUK Section contains the majority of DB assets, while the HGSU and HBEU sections, referred collectively as the Top Up Sections, are considerably smaller in size:

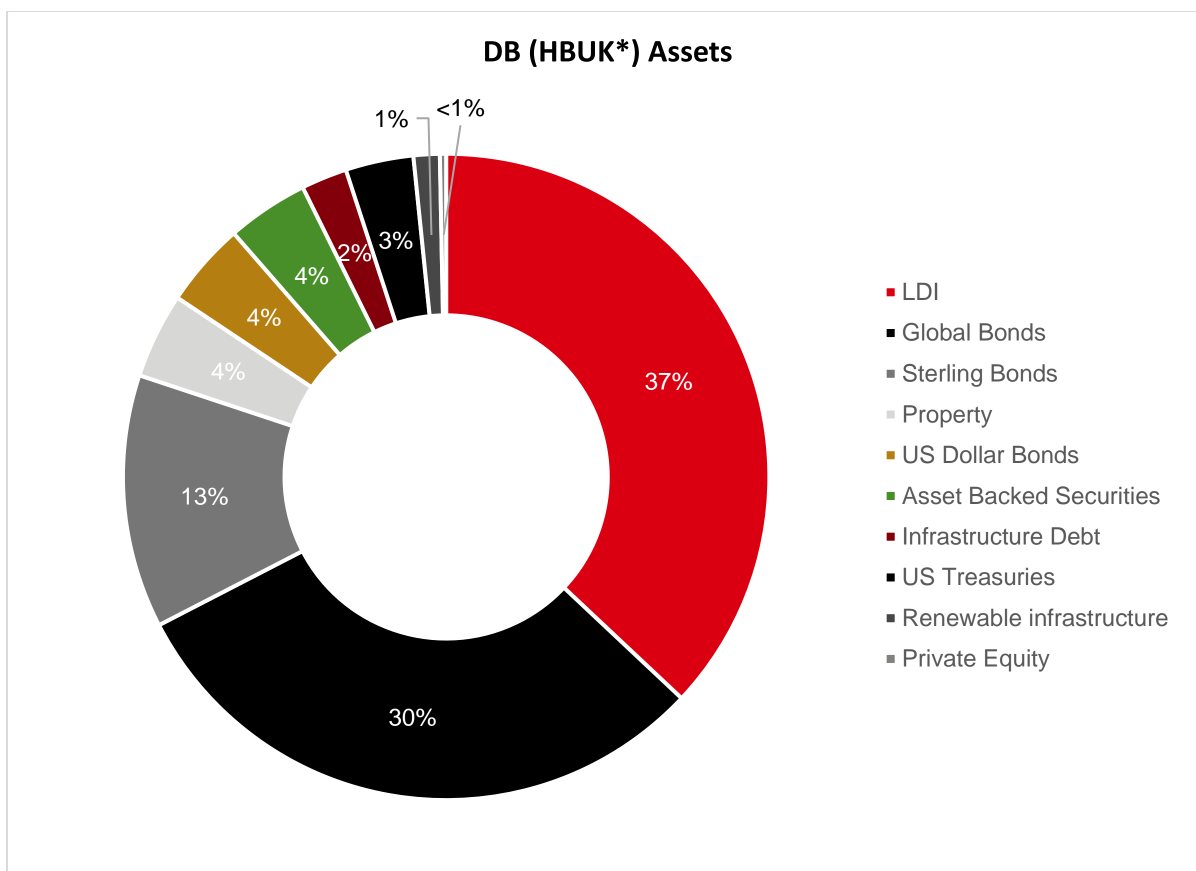
DB Sections	Total DB Assets[6,7]
HBUK Section	99.4%
Top Up Section: HGSU	0.4%
Top Up Section: HBEU	0.1%

The Trustee follows a Cashflow Driven Investment (CDI) approach in the DB HBUK section. Under this approach, the asset allocation is expected to evolve over time as cashflows are released by the underlying assets in line with the evolution of the section's liabilities. This will reduce the value of the DB HBUK section's assets and impact the relative proportions of the remaining assets. It is intended that some future asset reallocations will take place.

The DB HBUK section currently comprises government bonds, cash and hedging instruments, high-quality corporate bonds, low-risk illiquid matching assets, and residual allocations in private equity and property. This asset allocation helps achieve the Trustee's overall risk-adjusted return objective to ensure members with DB benefits receive their benefits as and when they fall due. The investment strategy for the Top Up sections follows a lower-risk strategy comprised of matching assets and a Diversified Growth Fund which is intended to generate an expected investment return that marginally outperforms the return of the actuarial liability discount rate. Following the Scheme's 2022 actuarial valuation, the investment strategy for the two Top Up sections will be changing in 2024, with climate risk considered as part of this review.

[6] Climate scenario analysis was completed on the assets and technical provisions liabilities as at 31 March 2021 on each DB section independently, using the latest available data at the time the analysis was performed.

[7] Totals sum to 100% to more than one decimal place.



** Given the size of the other two sections, this report does not include a breakdown of their assets.*

Fund	2023 Asset allocation (%) [8]
LDI	37%
Global Bonds	30%
Sterling Bonds	13%
Property	4%
US Dollar Bonds	4%
Asset Backed Securities	4%
Infrastructure Debt	2%
US Treasuries	3%
Renewable infrastructure	1%
Private Equity	<1%

An overview of the DC investment options

There are a range of investment options available to members with only a DC pension pot or with Hybrid benefits (former active members with DB benefits on 30 June 2015 who became active members with DC benefits from 1 July 2015). The DC default arrangements vary depending on whether a member has a DC pension pot or Hybrid benefits and where in the targeted strategy a member is (i.e. the time to retirement age).

In line with the definition prescribed by the regulations, in 2021, the Trustee considered climate scenario analysis on the DC funds that met the regulatory definition of a ‘popular arrangement’. These were the Flexible Income Strategy, the default arrangement for members with DC-only benefits, and the Lump Sum Strategy, the default arrangement for members with Hybrid benefits. Additional detail on these two arrangements is provided below. Together, they covered over 85% of Scheme members.

[8] Totals sum to 100% to more than one decimal place.

As noted above, the Shariah Law Equities – passive DC fund increased in assets throughout the year and was classified as a popular arrangement as at 31 December 2023. This will be included in the next round of scenario analysis for the 2024 report.

Fund Offering	Description
Flexible Income Strategy	For members with only a DC pension pot, the Flexible Income Strategy is the default strategy. It is designed for members, at their retirement or beyond, to take 25% of their DC pension pot as a cash lump sum and the balance to provide a flexible income (e.g. income drawdown), spreading the amount and timing of withdrawals. Members can do this by transferring their DC pension pot out of the Scheme. This strategy works by switching the investment mix of members' DC pension pots from the Global Equities – passive Fund into the Diversified Assets – active Fund and then de-risking into the Global Bonds – active Fund and the Cash – active Fund as the members near retirement. This design is based on the demographic profile of the membership and the generous contribution structure combined with the belief that members are likely to both accrue large pots and choose to take a flexible income. Market trends and Scheme experience since the introduction of Pension Freedoms in 2015 also indicate that members with larger DC pension pots are moving away from purchasing annuities and are choosing flexible income instead. The Flexible Income strategy will be changing in 2024 and details of this will be provided in the 2024 TCFD report.
Lump Sum Strategy	For members with Hybrid benefits, the Lump Sum Strategy is the default strategy. It is designed for members to use all of their DC pension pot for a cash lump sum at their target retirement age or beyond. This strategy works by switching the investment mix of members' DC pension pots from the Global Equities – passive Fund into the Diversified Assets – active Fund and the Global Bonds – active Fund and then de-risks into the Cash – active Fund as the member nears retirement. The rationale for this design is the belief that many members with Hybrid benefits are expected to use all of their DC pension pot as part of their overall Scheme tax-free cash lump sum at retirement.

The main DC investment fund used in the Flexible Income Strategy and Lump Sum Strategy, the Global Equities - passive fund, has Legal and General Investment Management's (LGIM's) Future World Fund as its underlying investment (75% GBP currency hedged). This is a multi-factor global equity fund which targets certain stocks to gain a balanced factor exposure while incorporating climate change considerations in the core investment thesis.

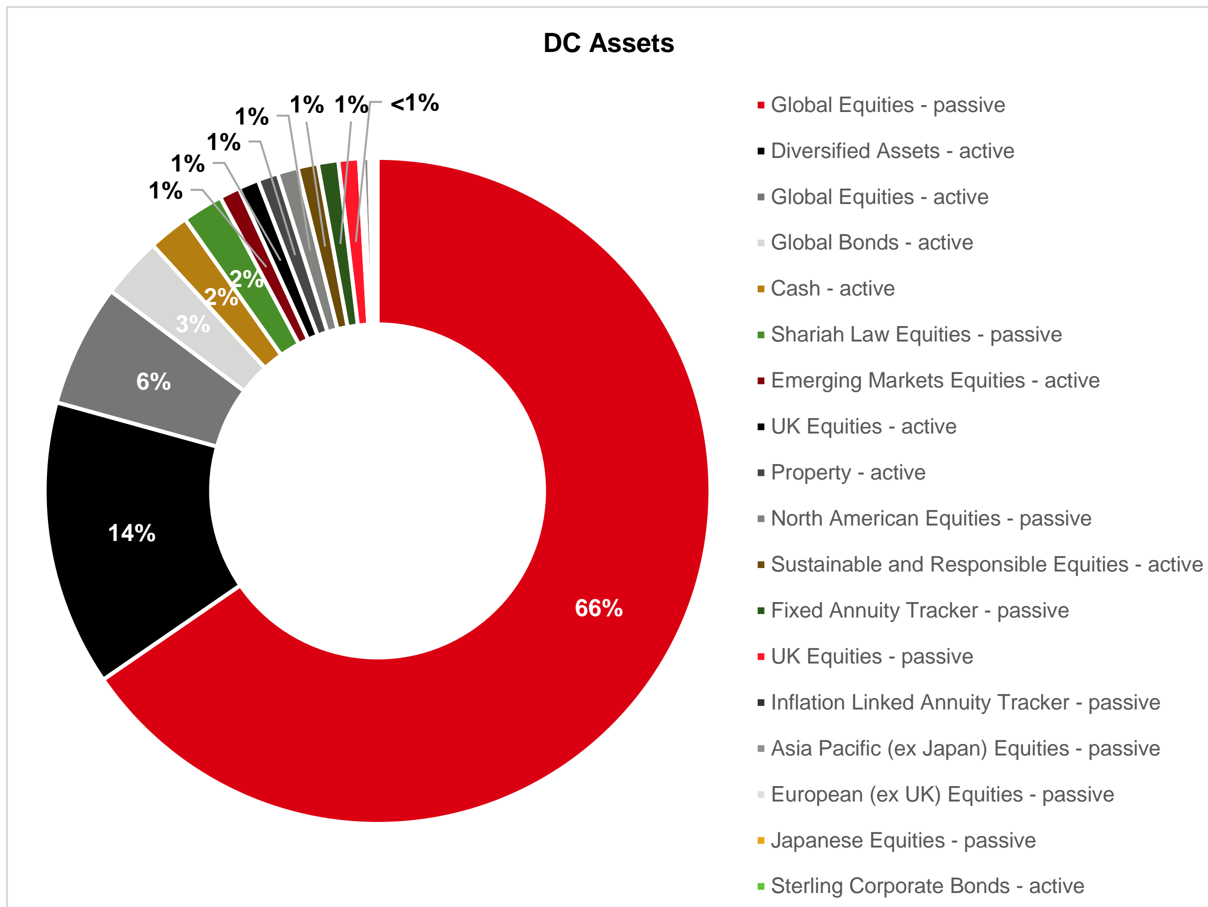
These include achieving at minimum a 30% reduction in carbon footprint and a minimum 50% reduction in carbon reserves intensity (reducing exposure to coal, oil, and gas) relative to an index without climate considerations. This is achieved through a combination of tilting and exclusion. Companies that derive more than 25% of their revenue from thermal coal extraction or thermal coal power generation are excluded. The Global Equities - passive fund is designed to favour investment in companies which are less carbon-intensive or earn green revenues.

In 2022 the Trustee also appointed Schroders Investment Management to manage a diversified growth fund which seeks to mitigate ESG risks, and which is incorporated into the two DC default arrangements. For Freechoice members with DC or Hybrid benefits, there are also several self-select DC funds that members can include within their DC pension pot.

The DC strategies were reviewed in detail in March and June 2023 in which the ALCo and Trustee Board approved a number of significant changes to the default investment arrangements which will be fully implemented by July 2024. Following this review, the Trustee confirmed that the Scheme's lifecycle and targeted strategies are adequately and appropriately diversified between different asset classes and the self-select DC investment options provide a suitably diversified range of funds for members with DC or Hybrid benefits to choose from.

The Trustee reviews the investment arrangements for consistency with their beliefs, including those on ESG risk management, climate change and stewardship, on a regular basis. The Trustee also monitors the behaviour of members with DC or Hybrid benefits to check whether assumptions made about how members will access their benefits are borne out in practice. The Scheme's full DC asset allocation is shown below:

PUBLIC



Fund	2023 Asset allocation (%)
Global Equities – passive	66%
Diversified Assets – active	14%
Global Equities – active	6%
Global Bonds – active	3%
Cash – active	2%
Shariah Law Equities – passive	2%
Emerging Markets Equities – active	1%
Property – active	1%
UK Equities – active	1%
North American Equities – passive	1%
Sustainable and Responsible Equities – active	1%
Fixed Annuity Tracker – passive	1%
UK Equities – passive	<1%
Inflation Linked Annuity Tracker – passive	<1%
Asia Pacific (ex Japan) Equities – passive	<1%
European (ex UK) Equities – passive	<1%
Japanese Equities – passive	<1%
Sterling Corporate Bonds – active	<1%

Climate-related considerations in setting the Scheme's investment strategy

The Trustee is cognisant that the diversified nature of the DB and DC assets means that the source of climate-related risks is likely to be asymmetric and varied. For example, climate change risk could affect:

- The creditworthiness of the issuers of the fixed income assets;
- The rental values of the real estate assets;
- The share prices of companies in the listed equities portfolios.

PUBLIC

The Scheme has material exposure to long-dated credit in the DB HBUK section, and developed market equities in the DC default arrangements, both of which face differing climate risks across different time horizons. Given the differing timespans over which climate-related market impacts are likely to occur, the specific types of climate risks are unlikely to be constant. As a result, and to account for these differing sources, the Trustee has evaluated the impact of climate risks on DB and DC assets through three lenses:

Physical Risk

Physical risks from climate change are those which arise from both gradual changes in climatic conditions and extreme weather events. They can be event-driven (acute) such as flooding or storm damage or longer-term shifts (chronic) in climate patterns such as rise in sea levels and the destruction of biodiversity. These physical risks could have financial implications, such as direct damage to assets and indirect destabilising impacts from supply chain disruption. Other potential impacts of physical changes in the climate are wider economic and social disruption, including mass displacement, environmental-driven migration and social strife.

Transition Risk

Transition risks occur in the process of moving to a net-zero economy. This includes policy (e.g., abrupt imposition of carbon taxes or emission limits), reputational impacts, risk of stranded assets, as well as shifts in market preferences, norms and technology – the severity of the impact will depend on whether the transition is orderly or disorderly.

In 2022 the Trustee commissioned the calculation of Climate Transition Value-at-Risk ("CTVaR") on the DB and DC assets to monitor their transition risks more closely. The CTVaR metric used resource and sector models to deliver market-based estimates of the financial impact of an orderly global economy decarbonisation transition consistent with limiting warming to well below 2 degrees by 2100 and global net zero emissions by 2050. The "bottom up" CTVaR analysis complemented the "top down" climate scenario analysis, identifying specific areas of the portfolio with the greatest decarbonisation transition risk which can be used to engage with the Scheme's asset managers. The Trustee agreed to review the CTVaR analysis every 2 years, and this was therefore not repeated for 2023. Having said this, in 2023, additional CTVaR analysis was undertaken on the new current Diversified Assets – active DC fund which was not included in the previous assessment of the DC assets. The PSE are in the process of considering how CTVaR analysis could effectively be used in 2024 to better understand the Scheme's exposure to climate transition risks and understand how this feeds through in significantly exposed sectors or issuers based on the Scheme's portfolio.

Reputational Risk

The TCFD considers reputational risk to be a sub-category of transition risk and defines it as a "risk tied to changing customer or community perceptions of an organisation's contribution to or detraction from the transition to a net-zero economy".

The reputational risk the Scheme is exposed to is mainly in relation to stakeholder and wider civil society perception - stakeholders being entities such as members and the Bank, regulators and policy makers, and civil society including activist groups, peers and the media. The risk would materialise if the Scheme were failing to meet public expectations, for example if the Trustee or appointed asset managers were found to be taking insufficient steps to manage climate risks, and/or changes to the legislative framework under which the Scheme operates occurred. In this context, the Trustee believes the reputational risk to the Scheme is less substantial than the reputational risk for a company that might be affected by a loss of customers as a result of reputational damage.

Nonetheless, it is acknowledged that the importance of retaining the confidence of Scheme members in the Trustee's ability to effectively manage climate-related risks on their behalf, noting that a loss of confidence, and the adverse reputational implications that may ensue, could potentially be financially material. For example, a perception of worse climate risk management could lead to lower DC contribution rates. The Trustee therefore considers the potential implications for the Scheme's reputation as it pertains to climate-related factors within the decision-making frameworks.

Liability Considerations

There are likely to be direct impacts to mortality and indirect impacts from changes to lifestyles resulting from climate change for members of the three DB sections. The mortality outcomes from climate change are impossible to predict accurately and will depend on complex interactions between various factors. In the UK, it is currently considered unlikely that the direct

PUBLIC

effects of climate change on weather patterns and global temperatures will have a significant impact on life expectancies[9]. The disruption and impact of transition risks on economic activity could have a more significant effect.

Whilst the Trustee has insured broadly half of the benefits of retired members within the HBUK section against mortality impacts, including climate change, climate risk remains relevant for the Scheme and is therefore subject to ongoing assessment.

Time Horizons

Climate-related factors can have a material financial impact on the value of both DB and DC benefits. The impact is likely to vary over different time horizons depending on the nature of the invested assets. The Trustee therefore believes that by taking such factors into account in the investment process, the Scheme will be better positioned to deliver on its investment objectives.

Time Horizon	Comment
Short-term	The short-term time horizon is a period of 3 years for both DB and DC benefits. This relatively abrupt period will allow the Trustee to evaluate the short-term risks faced by the Scheme from sudden climate-related behavioural changes. Over the short-term, the Scheme is expected to be most exposed to transition risk. This is likely to be most applicable to the equity and corporate credit assets, given the Scheme's investment in these assets is mainly in issuers from developed markets where climate-related policy and societal behavioural changes are expected to occur more quickly and on a wider scale. Higher price volatility due to climate change considerations is also a risk the Trustee is aware of.
Medium-term	The medium-term time horizon is up to 2030, for both the DB and DC benefits. This is aligned with the interim decarbonisation and alignment targets in support of the goals of the Paris Agreement. Over the medium-term, the climate risk exposure of the Scheme is also expected to be predominantly transition risk, although the Trustee recognises that the increasing frequency and severity of extreme weather events means physical risk is likely to be more prevalent than in the short-term. This is likely to have more of an impact on the Scheme's investments in real assets, such as infrastructure and property. From a transition risk perspective, a larger scale re-pricing is likely to happen in the medium term, impacting various geographies and sectors.
Long-term	For DB benefits, due to the reliance of the CDI portfolio on long-term cash flows to make member benefit payments, the Trustee has adopted a multi-decade investment long-term time horizon in the region of 20 to 30 years. The majority of the DC assets are invested in the default arrangements, which is designed to generate returns sufficiently above inflation whilst members with DC or Hybrid benefits are some distance from retirement, but then to automatically and gradually switch to lower-risk investments as members approach their retirement age and take their DC pension pot. These assets therefore also have a multi-decade investment time horizon, in the region of 50 years. Over the long-term, physical risk is expected to be a more significant contributor of climate-related risk to the Scheme, however, transition risks will still exist and will likely be material. Physical risk could materialise across the DB and DC assets via write-downs in real asset valuations due to direct physical damage, or in the form of indirect impacts such as supply chain distributions and weaker productivity owing to temperature effects that may negatively impact business profitability.

Scenario analysis

2021 results

The Trustee completed scenario analysis to assess the potential climate-related impacts on the funding and investment strategy for DB and DC benefits as at the end of 2021. Full results of this exercise were disclosed in the Scheme's 2021 TCFD report and are included in Appendix A of this report.

The relative impact of climate-related physical and transition risks on the DB assets was estimated to be more subdued than on the DC assets. This reflected the nature of the investments held, with equity securities, which make up a majority of the DC assets, expected to suffer a larger loss in value than the sovereign bonds and investment grade credit that make up the majority of DB assets.

[9] As presented by WTW to the Asset and Liability Committee in a Climate Change Scenario Analysis paper delivered in November 2021.

Concerns with current scenario analysis methodology

As noted above, in 2023 the Trustee recognised the increasing scrutiny of climate modelling and scenario analysis. In light of this and given a desire to remain aligned with emerging good practice, the Trustee reviewed the approach it used to complete climate scenario analysis in 2021 and the different approaches more recently used in the industry.

The aim of this exercise was to help the Trustee determine if updated climate scenario analysis should be completed in 2023 and, more broadly, how to use scenario analysis to identify climate risks and opportunities as part of the Trustee's investment decision making process moving forwards.

To inform its decision, the Trustee engaged with climate scientists from the University of Exeter, issued a formal RFI to a selection of leading scenario analysis providers, and sought input from its advisors. The review placed a particular focus on three areas: assessing whether climate tipping points can be adequately incorporated into a currently available methodology; the ability to apply differentiated scenarios and/or time horizons, and whether the information and conclusions would be adequately robust to inform decision-making.

Following this review process, in November 2023 the Trustee took the decision not to re-run scenario analysis across the assets for the year ending 31 December 2023. This was based on the view that developments in methodology and available tools remained limited and did not adequately capture the Trustee's aspirations. During 2024, determining the best approach for scenario analysis going forward will be a key focus for the Trustee. An updated analysis will also be included within the 2024 TCFD report.

The exercise completed during 2023 highlighted that the scenario analysis results included in Appendix A may not fully account for the short- and medium-term climate risks the Scheme could face and may therefore have limited reliability and usefulness as a decision-making tool. As such, the Trustee does not rely solely on this analysis to inform its strategic decision-making. Nonetheless, the scenario analysis did highlight that climate change risks do exist, and the Trustee therefore believes that appropriate risk management steps should be taken to address and limit their potential impacts. This is covered in more detail in the Risk Management section.

Sponsor covenant

There are three Principal Employers for the Scheme but this report focuses on HSBC UK Bank Plc ("the Bank"), which is part of the HSBC Group, given that the key covenant risk is with the HBUK section as it represents 99.4% of the assets. Given the strong funding position and Technical Provisions surplus, the Scheme has a low reliance on the Bank to achieve its long-term objectives. Nonetheless, the Trustee recognises that the Bank is likely to be affected by climate change which, in turn, may impact the resilience of the Scheme's investment and funding strategy over the short-, medium-, and long-term. Climate change is a topic that has been covered within the assessment of the investment and funding strategy. Also, the Trustee has noted the Group's recent TCFD Reports which outline the risks to which they are exposed, along with the Group's Thermal Coal Phase-Out Policy and more recent Energy Policy.

The Trustee is confident that the Bank recognises the risk that climate change may pose to its operations and wider business strategy. Importantly, the Bank has taken steps to incorporate climate-related factors into its wider governance and risk management practices, noting that in November 2020, the Bank formalised its overall approach to climate risk management and developed plans to integrate climate risk into the Group-wide risk management framework. Over the past two years, this has continued to develop, and the Bank is building resource and capability to further understand and mitigate climate change and wider ESG risks in its business activities. To date, the Bank has undertaken exploratory and wide-ranging quantitative stress testing and scenario analysis in relation to climate-related risks, considering the impacts across short-, medium-, and long-term time horizons. Some of the output of these processes is reported in its most recent TCFD disclosure embedded in the Group's 2023 Annual Reports and Accounts. Similarly, in 2023 the Group prepared its Net Zero Transition Plan, reporting it in January 2024. This reported on progress made to date and plans for the future. Climate change remains an area of focus for the Bank and further climate stress-testing and scenario analysis is expected to be completed over time.

These actions represent positive and meaningful steps by the Bank to address climate-related risks, and the Trustee will continue to engage with the Bank on this topic with the aim of deepening the understanding of the climate-related risks. This will inform the Trustee's ongoing assessment of the strength of the covenant, and in turn, the Trustee will consider any impact this may have on the Scheme's investment and funding strategy.

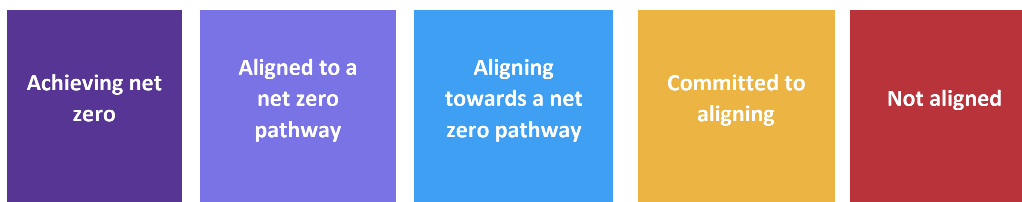
Other tools helping the Trustee to identify climate risk in the portfolio

Aside from performing climate scenario analysis on the investment and funding strategy, in 2023 the Trustee began to assess, where possible, the proportion of financed emissions and the proportion of invested assets attributable to companies identified as having a low or high transition risk.

By assessing what proportion of the financed emissions are generated by companies that are aligning (or indeed not aligning) with recognised decarbonisation pathways, it is possible to identify the companies that could meaningfully impact the success of the Trustee's decarbonisation objective. The results of this analysis are disclosed within the Metrics and Targets section, while details of the engagement completed during the year are set out in the Risk Management section.

PUBLIC

The Trustee also continues to make use of the PAII's Net Zero Investment Framework (NZIF) to assess the alignment of the Scheme's listed equity and publicly traded corporate bond assets. This is used to develop a picture of the source of the Scheme's climate risks by assessing whether the most carbon intensive portfolios are those mainly consisting of companies with higher or lower transition risks. This will allow the Trustee to focus engagement efforts across the DB and DC assets where it can be most impactful. This is an ongoing exercise on which the Trustee hopes to provide further detail in future TCFD reports.



The NZIF framework aims to classify the DB and DC assets into five distinct categories of alignment from "achieving net zero" to "not aligned". To do so, the Trustee collects alignment data using open-source metrics recommended by the NZIF alongside the alignment metrics shown in the Metrics and Targets section:

1) Climate Action 100+ (CA100+) Net Zero Company Benchmark.
2) Science Based Targets Initiative (SBTi).

Collecting data on the Scheme's multi-asset and multi-manager portfolios in a way that allows the Trustee to classify Scheme assets into different alignment categories has proven to be a challenge to date. The Scheme's alignment metrics were only available for a small proportion of the Scheme's DB and DC assets – though these did account for a relatively higher percentage of financed emissions. Although coverage remains low, the Trustee will continue to collect alignment data from its DB and DC asset managers as well as from ESG data providers via its investment advisors, noting that coverage is expected to improve significantly over time.

The Trustee is looking to increase the scope of the alignment assessment through two avenues:

- Fund manager engagement: Engaging with the DB and DC asset managers and setting clear expectations of them with regards to climate metrics provision. For example, in 2023 the Trustee sent a letter to all of the Scheme's asset managers detailing the Trustee's expectations of managers' ESG data provision. The PSE also continues to monitor the asset managers' commitment to and use of alignment metrics, noting the importance of achieving higher portfolio coverage to the Trustee.
- Additional metrics: To expand its assessment of transition risks across the Scheme's portfolio, the Trustee plans to explore the use of an Implied Temperature Rise (ITR) metric in 2024. This looks at the current and projected GHG emissions pathways of the DB and DC assets to determine their implied contribution to global temperature increases.

Risk Management

Identifying and assessing climate-related risks in an integrated way

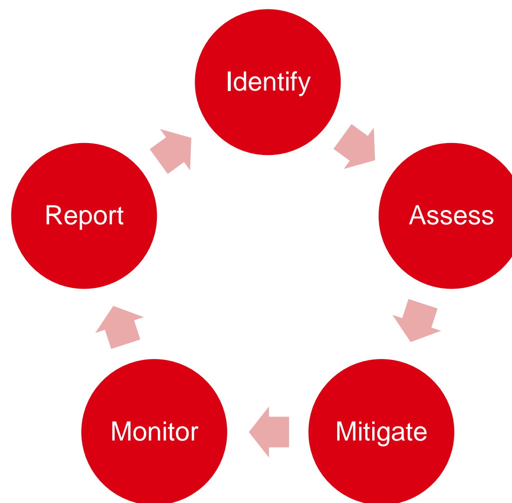
The Trustee considers climate change to be a systemic, long-term financial risk to the DB and DC assets, though it acknowledges that it is difficult to measure with a single number, metric, or lens. To ensure climate-related risks are assessed in an integrated manner, the Trustee has explicitly identified "Climate Change Risk" as a Scheme risk on the Trustee Risk Management Framework, as overseen by the Audit & Risk Committee, and reported to the Board on a quarterly basis. This ensures climate risk is given due consideration alongside the other investment risks identified for the Scheme. Additionally, as one of the Trustee's ESG priorities, the Trustee recognises the role that biodiversity and nature plays in understanding and mitigating climate risk.

As discussed in the Governance section of this report the Climate Risk Management Framework, established in 2020 and which aligns with the Scheme's existing Risk Management Framework, clarifies the roles and responsibilities of the Trustee, the Trustee's committees, the PSE, and Scheme advisors with regards to identifying, assessing and managing climate-related risks. Having this framework in place allows the Trustee to manage climate risk in a considered and effective manner by considering both top-down (Scheme-level) and bottom-up (DB fund- and DC fund-level) perspectives. The Risk Management Framework, illustrated in the diagram below, follows a circular approach that ensures identified risks are managed on an ongoing basis. At a more granular level:

- The Trustee delegates authority to its ALCo to approve metrics that identify, assess, and monitor the climate-related risks of the DB and DC assets.
- The PSE reviews the assets of the Scheme versus the ALCo-approved metrics and recommends mitigating actions to the ALCo for approval where necessary. The DB and DC asset managers are required to provide descriptions of engagement activity undertaken with companies in their portfolios and qualitative responses to issues raised by the PSE's climate risk analysis.
- Where feasible, mitigation of climate-related risks is factored into the DB and DC investment funds.
- Evaluation of ESG risk management, which includes climate-related risks, is a part of all DB and DC manager selection exercises, the manager on-boarding process, and continued due diligence or monitoring that the Trustee undertakes.

The Trustee also delegates the authority to the PSE, and advisors, where appropriate, to engage with the DB and DC asset managers as appropriate.

The Trustee's Approach to Climate Risk Management



Top-down risk identification and assessment process

At the Scheme level, quantitative and qualitative scenario analysis is used to identify and assess climate-related risks and opportunities under different climate outcomes and circumstances. This includes consideration of the possible impacts that physical and transition risks could have on the Scheme. The conclusions from the scenario analysis are shared with ALCo who assess them in the context of the Trustee's overall climate change risk mitigation objectives. As discussed in more detail in the Strategy section, the Trustee is aware of the current limitations associated with climate scenario analysis and as such, makes greater use of a narrative-based analysis to inform its climate risk management approach. The Trustee also recognises the importance of biodiversity and nature play in understanding and mitigating climate risk. This will be a key focus for 2024.

Bottom-up identification and assessment process

To assess risk at the DB and DC fund-level, the Trustee uses a selection of climate metrics, alongside the guidance of the NZIF framework. This enables the Trustee to form a balanced view of the Scheme's current exposure to transition risk as well as an indication of the underlying holdings' future trajectory.

The Trustee recognises that climate-related metrics remain incomplete and have mixed levels of accuracy and therefore does not rely on any individual metric to drive investment decisions. The Trustee also recognises the pace of change in the development of climate-related metrics and keeps its selection of metrics under active and ongoing review.

The key metrics are incorporated into scorecards that assess the DB and DC asset managers' integration of climate risk factors into their overall investment and risk management processes. The scorecards are used to monitor the year-on-year progress of each individual DB and DC fund against the Scheme's climate risk management objectives, as well as any fund-specific targets. The scorecards also identify the funds' top emitters, the alignment status of emitters (relative to the goals of the Paris Agreement), where there is available data, and whether the manager has engaged with these companies or not.

To supplement the annual climate metric analysis and in line with the Trustee's focus on stewardship in 2023, the scorecards also monitor engagement and voting statistics (where relevant) of the DB and DC asset managers, and include an overarching qualitative assessment formed by the Scheme's investment advisors. The purpose of the scorecards is to enable the PSE to

assess and monitor the climate-related risk exposure of the Scheme and to identify assets where changes could be made to keep them in line with the Trustee's objectives. In 2023, the scorecards were predominantly used to support and inform PSE engagements with the DB and DC asset managers.

Recognising their specialist risk identification and management skillset, the DB and DC asset managers are also invited to share their own assessment of climate-related risks identified within the portfolios they manage. This forms part of the regular engagement that the PSE and investment advisors perform, the results of which influence the PSE's assessment of the DB and DC asset managers in its reporting of climate risks to ALCo.

Recognising the role of nature in understanding climate risk, in 2023 the Trustee reviewed deforestation metrics in order to identify nature-related risk within the Scheme's key portfolios. This analysis also formed the basis to discern which the most material sectors are for nature risk within portfolios and how this compares to climate risk. The Trustee will look at how a consideration of nature risk can be integrated as a regular process going forward.

Mitigating climate-related risks in an integrated way

Once risks have been identified and assessed appropriately as described above, the next step following the Climate Risk Management Framework is to take appropriate and proportionate actions to mitigate these risks. The Trustee has a preference for engagement as a means to mitigate the Scheme's climate risk exposure, however it will also make use of a range of approaches, as appropriate. These include:

- Engagement with asset managers, wider industry and policymakers, including around biodiversity and nature-related risk within the context of climate change,
- Consideration of climate related risks in DB and DC fund manager selection,
- Integration of climate-related considerations in fund design, and
- Seeking to limit exposure to climate-related risks by investing in climate opportunities.

Engagement with DB and DC asset managers to mitigate climate risk in the portfolio

To help protect the Scheme's assets, the Trustee requires the DB and DC asset managers to be cognisant of climate-related risks and opportunities within their investment processes and to manage climate-related risks on a discretionary basis, considering both transition and physical risks. The DB and DC asset managers are required to report annually on how this has been achieved, including descriptions of engagement activity undertaken with companies in their portfolios and qualitative responses to the issues raised by the PSE's climate risk analysis, within applicable investment guidelines and restrictions.

The Trustee also delegates voting rights to its asset managers and, where permissible, expects them to vote consistently with the Trustee's climate-related objectives, and in line with the Trustee's fiduciary responsibility. Where the Trustee has no ability to retain voting rights, for example within pooled fund structures, the Trustee has made the Scheme's climate-related objectives clear to the asset managers and will engage with them should monitoring of their voting activity highlight inconsistencies with Scheme policies and in line with its fiduciary responsibility.

The Trustee has a framework in place for effective stewardship, formulated in the Scheme's Stewardship and Voting Policy. This framework sets out the Trustee's expectations of the asset managers' voting and engagement processes, the significance of stewardship in the appointment and monitoring of managers, and how the Trustee holds the asset managers to account versus expectations. It also details the Trustee's priority stewardship themes, selected based on the materiality of the financial risks that they pose. One of the priority themes pertains to climate change and the risks associated with significant increases in global temperatures. The Trustee will use the stewardship framework to assess and ultimately improve the alignment of the DB and DC assets to the Trustee's net zero ambition, with the intention of mitigating the climate risks facing the Scheme.

Throughout 2023, the PSE, supported by the investment advisors, engaged with all of the Scheme's DB and DC asset managers on matters relating to the climate risk exposure of the assets they manage on behalf of the Scheme. This climate-related engagement focussed on four overarching themes:

1. Reiterating to the DB and DC asset managers the Trustee's priority ESG themes. In particular, highlighting the importance of biodiversity and nature loss and how the Trustee views this area as an important lever to achieving its climate-related objectives.
2. Reinforcing the value the Trustee places on engagement as a risk management lever and its expectations of the DB and DC asset managers to use it to create long-term value for the Scheme's members. In particular, considering the DB and DC asset managers' voting behaviour in relation to significant votes related to the Trustee's priority ESG themes.

3. The manager's conviction in its own commitments to supporting the transition to net zero, including assessing whether they are engaging with the most material contributors to climate risk within their portfolios.

4. Understanding the approach taken by a selection of the DB and DC asset managers to assess the climate risk and opportunities of government bond assets.

The intention of this engagement was to initiate an ongoing process of improvement with the DB and DC asset managers rather than act as a catalyst for significant immediate changes to their portfolios.

To highlight three specific examples:

- At the start of 2023, the Trustee's Chief Investment Officer sent a letter to all of the DB and DC asset managers. This letter set out the Trustee's beliefs, priorities and commitments on climate, ESG and stewardship, outlining clear expectations of its asset managers in these areas with some specific requests for each fund manager. The managers' responses to this letter formed the basis of the PSE's ongoing engagement with the managers throughout 2023, the results of which were reported to the Trustee Board.
- In 2023, the PSE became increasingly concerned about the ongoing institutional alignment of one of the DC asset managers with the Trustee's ESG priorities, as well as the manager's pace of improvement relative to peers. As of 2022, the manager had not made a commitment to net zero, with no tangible plan or process for measuring or monitoring progress towards net zero, therefore falling short of the Trustee's expectations. The PSE emphasised their expectation for the manager to make progress on its climate commitment and develop their net zero strategy. The PSE also discussed the need for the manager to use engagement with underlying issuers as a tool to fulfil their commitment. During 2023, the PSE and its advisors began to see some progress in this area in terms of policy, governance, process and stewardship programme. However, there remained concerns the DC fund manager had fallen too far behind its peers for the relevant asset class. Given this, along with a number of other concerns, the Trustee subsequently decided to fully divest from this manager. The PSE worked with its investment advisor to identify a replacement DC fund manager. One of the primary drivers for appointing the replacement DC fund manager was its perceived strengths in understanding and managing long-term ESG risks, which is more aligned with the Trustee's ESG priorities.
- In 2023, the PSE engaged with one of the DC asset managers due to concerns around its reporting on climate and ESG-related risks relative to the Scheme's other DB and DC asset managers. During the engagement, the PSE identified a number of possible improvements to their ESG reporting for the manager to consider. In response, the manager recognised the need for improvements and stated that it would review changes it could make going forward. The PSE were satisfied with the response and will continue to monitor this manager closely going forward with regards to its ESG progress.

Recognising the intrinsic link between climate and nature and as one of the Trustee's key ESG priorities, the PSE also used these engagements to communicate key asks from managers on biodiversity and nature-related issues in the context of climate change.

Engagement with industry, and through policy advocacy to help mitigate systemic climate risk

Noting that active participation in industry initiatives and public policy consultations can provide valuable insight as to current best practice regarding climate risk management processes and to help to achieve our objectives, the Trustee completed five climate-related public engagements during 2023. These are described in the table below.

Engagement	Purpose	Details of engagement
Financial Conduct Authority ("FCA") Consultation on Sustainability Disclosure Requirements and investment labels	The FCA consulted on whether to introduce a package of measures aimed at reinforcing that sustainability-related claims must be fair, clear and not misleading. This includes sustainable investment labels, disclosure requirements and restrictions on the use of sustainability-related terms in product naming and marketing by asset managers.	The Trustee submitted a letter in response to the FCA, noting the areas which it agreed with and highlighting points for further consideration, emphasising that more holistic sustainability characteristics, such as nature and human capital, should become mandatory for firms to report over the coming years. The FCA's proposals could have far-reaching impacts on the Sustainable Investment landscape in the UK and the Trustee believed that this represented the best point of intervention for the Trustees to influence future developments.

International Sustainability Standards Board ("ISSB") Consultation on Agenda Priorities	The ISSB is the body responsible for developing a framework of sustainability disclosures for capital markets. In 2023, it published a Request for Information to solicit views on its priorities for a two-year period starting in 2024. The ISSB named four proposed priority projects in the form of research projects: biodiversity and ecosystems, human capital, human rights and a project on integrating disclosures in in financial reporting.	The Trustee submitted a letter in response to the consultation. The letter noted the Trustee's broad support for the ISSB's four proposed priority themes given their alignment with the Trustee's responsible investment goals. The letter also noted that from the Scheme's perspective, the key aim for the ISSB for the next few years must be to improve the level of international support and acceptance for its existing standards, notably IFRS S2, which closely reflects and advances TCFD.
ISSB Consultation for Enhancing International Applicability of the Sustainability Accounting Standards Board ("SASB") standards	The ISSB also sought feedback on its proposed methodology for enhancing the international applicability of sustainability standards. The SASB Standards largely influence what sustainability-related information companies disclose globally.	The Trustee is a firm advocate of globally agreed standards intended to improve climate- and sustainability-related data quality and robustness. The Trustee submitted a letter in response to the ISSB. The letter noted the areas the Trustee particularly supports in addition to several points for further consideration. The response was written taking into account the Trustee's decision to adopt a universal asset owner perspective.
Department for Energy Security and Net Zero Consultation on Scope 3 Emissions	The Department for Energy Security & Net Zero published a Call for Evidence to gather feedback from asset owners and other market participants on the benefits, costs and practicalities of UK scope 3 emissions reporting and if the UK government should endorse the ISSB's proposed scope 3 reporting and Standard.	The Trustee submitted a letter in response to the consultation. The response emphasised the importance of the UK continuing to require the disclosure of scope 3 emissions as it is vital to investor understanding of material climate change risks. Scope 3 emissions account for the majority of the Scheme's financed emissions and the Trustee believes that enhanced disclosure of scope 3 emissions by corporates and other entities will improve its understanding of sources of climate risk in the portfolio.
Transition Plan Taskforce ("TPT") Consultation on Asset Owners Guidance	The Transition Plan Taskforce (TPT) requested feedback on its proposed disclosure framework for asset owners that are looking to establish climate transition plans. The framework aims to help asset owners identify and make use of recognised decarbonisation levers and set and monitor metrics and targets that will ultimately accelerate the economy-wide transition.	Recognising that the TPT asset owner guidance will be widely used by asset owners in the future, the Trustee felt it important to submit a letter with its views on the TPT's proposed framework. In its response, the Trustee highlighted key areas for further consideration within the guidance. In particular, the Trustee noted that it would be beneficial for the TPT to include more case studies detailing how the framework could be used and provide additional resources to help asset owners implement transition plans.

Mitigating climate-related risks via fund manager and fund selection

The Trustee has sought to integrate climate change considerations into the DC assets for a number of years. This includes being an early adopter of climate-aware indices. The LGIM Future World Fund was invested in 2016 and forms the majority of equity investments in the default fund for DC members. It is a climate-tilted passively managed multi-factor global equity fund. The design of this fund is reviewed from time to time to assess whether it remains 'fit for purpose', with the most recent review being undertaken in 2023. More recently in 2021 the Trustee worked with Schroders, a manager within the Scheme's DC pension fund arrangements, to develop a bespoke diversified growth pooled fund with enhanced ESG (including

climate change) risk management characteristics. The PSE continue to engage with Schroders to ensure that the fund reflects the Trustee's evolving ESG priorities.

As noted above, the Future World Fund forms part of the growth phase of the lifecycle default investment options for DC members. The principal aim of the fund is to provide investors with exposure to a well-diversified global equity investment portfolio which uses climate tilts and investment factors (principally quality, value, size & low volatility) to determine the benchmark weights of the underlying companies in which to invest. The Future World Fund also benefits from LGIM's Climate Impact Pledge, covering more than 5,000 companies across 20 climate-critical sectors. Additional details on LGIM's Climate Impact Pledge are included in Appendix C.

During 2023, the Trustee sought to improve the positive climate characteristics of the Emerging Market Equities – active Fund within the Freechoice options available to DC members. This allocation now includes a fund that incorporates sustainability in its investment process though exclusions, ESG integration, engagement and voting. The Fund seeks to limit the exposure to elevated sustainability risk within the stock selection process, with financially material ESG factors being a core element of the bottom-up investment analysis process.

In 2021, the Trustee undertook a major fund selection exercise to construct a bespoke Long Term Asset Fund with a material allocation to illiquid assets for the growth phase of the DC default arrangements. Sustainability considerations, including climate considerations, were core criteria in the selection of the fund and fund manager. In 2023, following selection of Fulcrum as fund manager, work began on the investment guidelines and reporting requirements for this fund, with the Trustee's ESG priorities, climate ambition and preference for engagement, being central elements.

Mitigating climate-related risks via fund design

In past years the Trustee has worked closely with a number of the DB and DC asset managers to develop bespoke funds with enhanced climate change risk management characteristics for the Scheme.

In 2023, the Trustee reviewed the Investment Management Agreements (IMA) of the DB asset managers to ensure they remain up to date and reflect the Trustee's climate and broader sustainability objectives. In some cases, this led to an evolution of the IMA to better incorporate climate considerations into the DB Asset managers' investment processes. For example, the IMAs for a selection of the Scheme's buy and maintain funds were updated to enable to managers to divest from corporate bonds deemed to be unaligned with the Trustee's climate ambitions.

Mitigating climate-related risks by capturing climate opportunities

As well as adopting climate risk mitigating actions as part of the Trustee's investment strategy, the Trustee also strives to capture opportunities that will contribute to limiting the adverse impacts of climate change, either directly or via biodiversity and nature-related opportunities, while also contributing to enhanced member outcomes.

The DC funds that the Trustee designed with LGIM and Schroders Investment Management, have a dual objective of managing climate risks and capturing climate opportunities where feasible. There is also a DC fund that focuses on investing in sustainability solutions and assets, focussing on climate- and nature-related opportunities created by the transition to a sustainable economy.

The DB HBUK section contains an investment in a diversified fund of renewable onshore wind and solar infrastructure assets managed by Schroders Greencoat. These assets generally help to limit the overall carbon footprint and climate risk exposure of the Scheme while also contributing to improvements in the net-zero transition of the real economy. The assets also provide a steady stream of cash flows that are used to meet member benefit payments.

In September 2023, the Scheme's investment advisors provided a review of climate-related opportunities and broader sustainability asset classes (including nature-based solutions), assessing both the Scheme's existing illiquid asset allocations and the wider asset universe. ALCo also reviewed available tools to identify the Scheme's allocation to climate solution assets in 2023. Whilst no new metric was adopted, this is an area which is monitored by the Scheme's advisors.

Monitoring climate-related risk exposure

The top-down and bottom-up climate analysis described above was used in 2023 to update the climate dashboards monitored by ALCo for the DB and DC assets. The dashboards build upon the individual DB and DC fund manager scorecards to present an assessment at the total Scheme level.

The climate metrics set out in this report are key tenets of the dashboards and scorecards, alongside additional metrics that combine quantitative and qualitative assessments of each fund manager, supplementing the assessment of funds and DB and DC asset managers' practices. The Trustee recognises, however, that data and methodology gaps remain, and therefore continues to explore ways in which new forms of risk analysis will assist with the monitoring of climate-related risks across different asset classes. The investment advisors also perform specialist monitoring of the Scheme's DB and DC asset managers on an ongoing basis, considering climate-related risk and opportunities at the fund-level, but also taking an overarching Scheme-level view.

PUBLIC

In 2023, the Trustee requested that all asset managers complete an annual questionnaire that included questions about their progress against the Trustee's climate ambition, including procedures and processes to address climate change risk, including their engagement on climate change issues e.g. voting, and their climate risk management practices at the firm and asset-level. The purpose of this annual exercise is to identify whether the DB and DC asset managers have deviated from the Trustee's climate-related objectives. If any deviation is observed, ALCo will be informed, and if necessary, the PSE will recommend corrective steps. There were no recommendations to remove a manager based on climate-related factors alone during 2023. However as described above, the PSE did engage with a number of managers to generate improvements and climate-related factors were a high contributing factor in both the selection of a manager and in the decision to replace a manager.

Reporting on the Trustee's management of climate-related risk

On a quarterly basis, ALCo reviews a summary of manager monitoring activity and recommended mitigating actions prepared by the PSE and where appropriate with input from its advisors. The PSE's reporting is supplemented by reporting provided by the Scheme's advisors to ALCo on a quarterly basis that summarises the takeaways from their manager monitoring and assessment. These include clear calls to action should the advisors feel a manager is not meeting the required standard set by the Trustee. ARC also provide a report on the Trustee's Risk Register on a quarterly basis. This includes an assessment of climate-related factors.

In addition to regular internal monitoring, the Trustee reports on climate risk management practices and the steps it has taken to address climate-related risks in annual publicly disclosed reports. The Trustee published the Scheme's first annual TCFD report in 2018, the Scheme's first Implementation Statement in 2021 and the Scheme's first Stewardship Code report in 2022.

Metrics & Targets

Assessment of climate metrics in relation to the Scheme's investments

The Trustee uses a set of metrics to help assess the exposure to climate-related risks for both DB and DC benefits. These metrics, explained below, offer an assessment of the Scheme's current and forward-looking exposure to climate-related risk.

The Scheme's 2021 TCFD report presented results for four climate metrics. In 2022 the Trustee adopted an additional metric that assesses the degree to which the Scheme's assets align to the goals of the 2015 Paris Agreement. This metric was selected to allow the Trustee to monitor its progress against its target to "achieve all of its corporate bond and equity investments being fully aligned to the goals of the Paris Agreement by 2030 across its DB and DC assets" and to continue to align with its statutory obligations. In 2023, the Trustee adopted an additional data quality metric to enable the quality of reported financed emissions to be monitored over time.

Details of the metrics and their calculation methodologies are provided in the table below:

Metric Type	Metric	Description and methodology
Absolute Emissions	Total Carbon Emissions (tCO_2e)	Measures the absolute emissions associated with a portfolio, expressed in tons CO_2e. It is a metric based on ownership. For corporate issuers, ownership is determined based on the Enterprise Value Including Cash (EVIC) of the underlying corporate issuer, in line with the guidance from the Partnership for Carbon Accounting Financials (PCAF). For sovereign issuers, ownership may be based on total government debt outstanding or total capital stock (GDP).
Emissions Intensity	Carbon Footprint (tCO_2e / £m invested)	Measures the total emissions normalised by total portfolio value. It is a metric based on ownership, where ownership is determined based on the EVIC of the underlying corporate issuer, in line with the guidance from the PCAF.
	Weighted Average Carbon Intensity "WACI" (tCO_2e / £m revenue)	Measures a portfolio's exposure to carbon-intensive assets. It is a metric based on exposure, rather than ownership. The metric covers corporate assets as well as sovereign assets, where the corporates' emissions intensity is defined as the emissions in tons CO_2e per company revenue and countries' emissions intensity is defined as a

		country's emissions in tons CO2e on a domestic production basis per Gross Domestic Product (GDP).
Non-Emissions-Based Metric	PCAF Data Quality score	Measures the quality of disclosed financed emissions data. The metric ranges from a score of 1 (highest data quality) to 5 (lowest data quality). The metric can be calculated at the individual issuer- fund-, or aggregate Scheme-level.
Non-Emissions-Based Metric (additional metric)	TPI Management Quality Score "TPI MQ score"	Measures companies' management and governance of GHG emissions and the risks associated with the net-zero transition. The metric ranges from a score of 0, where a business is unaware of (or not acknowledging) climate change as a business issue, to 5 where a business has established a rigorous transition plan.
Portfolio Alignment Metric	TPI Carbon Performance Score "TPI CP score"*	Provides a quantitative benchmarking of companies' emissions pathways against the 2015 Paris Agreement goals. This metric translates greenhouse gas emissions targets made at the international level (e.g., under the 2015 Paris Agreement) into a benchmark based on sectoral decarbonisation pathways. The benchmark is used to assess the actual performance and forward-looking trajectory of individual companies against each decarbonisation pathway. The TPI metrics provide assessments of companies' trajectory on three time horizons: 2025, 2035 and 2050. The metric ranges from a score of 0% to 100%, showing what proportion of the portfolio is assessed as aligned with the three decarbonisation pathways consistent with the goals of the 2015 Paris Agreement.

** The methodology for calculating the TPI Carbon Performance score has been updated since last year. It is now based on proportion of financed emissions that are aligned rather than proportion of assets.*

Emissions-based metrics

To calculate the absolute emissions, emissions intensity, non-emissions-based metrics, and portfolio alignment metrics, the Trustee has used individual portfolio holdings data provided by the asset managers. For the emissions-based metrics, the individual portfolio holdings data was used in conjunction with emissions data provided by the Trustee's third-party data provider, MSCI, to estimate fund-level metrics. The emissions data provided by MSCI made use of a combination of issuer-reported and modelled data. For the non-emissions-based metric and portfolio alignment metric, the individual portfolio holdings data was used in conjunction with data provided by the Transition Pathway Initiative.

Individual portfolio holdings data was available for most of the listed and publicly traded assets across the DB and DC portfolios. In certain instances, individual portfolio holdings data was unavailable due to the complex or illiquid nature of the assets within the portfolio. In these cases, where possible, the metrics presented below used figures calculated and provided by the Scheme's asset managers. Of note, this is the first year which climate metrics have been provided by the Scheme's Private Equity manager. Details of the data sources and calculation methodologies can be found in Appendix D.

There were however some remaining assets (Asset and Mortgage-Backed Securities and Municipal and Government Guaranteed Bonds), equivalent to circa 10% of DB portfolio assets (excluding cash), for which it was not possible to obtain emissions-based and non-emissions-based data. This is reflective of the broader coverage issues associated with these asset classes. The Trustee elected not to make use of proxy figures for these asset classes due to the complexity of the methodology and the heavy reliance on modelling assumptions to derive an estimate. The Trustee will keep this approach under review and intends to provide further updates on the progress of this in future disclosures.

The Scheme's own operational emissions, which are scope 1 and scope 2 emissions directly relating to its business operations, are likely to be immaterial. The analysis for the emissions-based metrics therefore encompasses the Scheme's most material scope 3 emissions: financed emissions. In line with the statutory guidance, the figures below disclose the Scheme's financed scope 1, scope 2, and scope 3 emissions.

Scope 3 financed emissions represent indirect emissions of companies and assets the Scheme is invested in. They are the result of activities from assets not owned by the company and are beyond a given company's direct operational control. As such, scope 3 emissions capture a number of different activities. For this reason, attributing and calculating scope 3 emissions is very complex, and in aggregate, scope 3 emissions tend to be considerably larger than scope 1 and 2 emissions combined.

Due to the complexity involved in measuring scope 3 emissions, they are rarely fully reported by underlying companies. To address this challenge, the Trustee has chosen to report scope 3 emissions that have been modelled by its third-party data

provider MSCI. The Trustee recognises that the use of modelled data is likely to result in a margin of estimation error due to the inherent complexity of emissions data, however, it believes this approach provides more consistency than alternatives such as proxied data.

The Trustee completed a review of reputable third-party data providers in 2022 and is comfortable that MSCI is an appropriate data provider for the Scheme. As such, the Trustee is comfortable with supplementing company-reported data with MSCI's line-by-line estimates to provide a more comprehensive estimate of the Scheme's carbon footprint.

The estimated scope 1 and 2 financed emissions for a given investment will form part of the scope 3 financed emissions for another investment. Aggregating the three emissions scopes would therefore lead to a double counting effect that may misrepresent the Scheme's financed emissions. Consequently, the total scope 1 and 2 absolute emissions and carbon footprint have been reported separately from scope 3 emissions.

Finally, the Trustee is aware that emissions-based metrics in their current form suffer from several limitations. The inclusion of asset valuations creates a risk that inaccurate valuation data is a further source of errors in the Scheme's estimated financed emissions. It may also create timing inconsistencies due to differences in when valuation data becomes available and the Trustee's required disclosure timelines. In addition, there is often a timing lag between the reporting period in question and the period covered by the latest available emissions data. As such, the emissions data reported by asset owners typically does not fully correspond to the reporting period in question. The Trustee is cognisant of these issues but recognises the value in measuring its emissions as a tool to support its understanding and management of climate risk across the portfolio. The Trustee looks to take mitigating steps to overcome existing methodological challenges where possible.

Non-emissions-based metrics

In 2023 the Trustee agreed that its non-emissions-based metric is the PCAF Data Quality score, which is in line with the DWP's recommendations. It is the first year this score is being disclosed in the Scheme's TCFD report. It is used to help the Trustee better understand the quality of the emissions data being disclosed.

The Trustee continues to make use of an additional non-emissions-based metric, TPI MQ score as well as an alignment metric, TPI CP score, which use the TPI's publicly available dataset to provide a forward-looking assessment of the Scheme's exposure to climate transition risk.

In 2022 the Trustee selected the TPI CP score as the most appropriate alignment metric to monitor for the Scheme's DB and DC portfolios. These metrics were selected as they are independently calculated with academic rigour and focus on material carbon emitters, covering companies with higher climate risk exposure. The Trustee chose to disclose both TPI metrics as they complement each other and paint a fuller picture of a company's forward-looking trajectory on climate than they would in isolation of each other. However, the Trustee recognises that while TPI covers the higher emitting companies, the metrics suffer from low coverage in terms of the number of companies so far subject to scoring. The TPI assessed 1061 companies at the time of data gathering for this report which, whilst nearly double the companies assessed last year, is still low when compared with other climate metrics.

The Trustee has communicated its choice of climate metrics with its asset managers and continues ongoing engagement with them in relation to the availability of metrics and company disclosures. It is hoped that over time this will assist with data quality and coverage.

Climate metrics for the Scheme's DB assets

Absolute Emissions and Emissions Intensity metrics

The table below provides the results for the first three climate metrics at an asset class level, alongside the coverage of total DB assets and the coverage of emissions data. The figures are provided at an asset class level, rather than a total portfolio level as aggregating would have meant adding sovereign emissions to corporate emissions, resulting in a degree of double counting as outlined in the previous section. Additionally, as the current methodology for the attribution of emissions from sovereign bonds differs from that for other asset classes, the Trustee feels it is appropriate to consider these figures separately. Details on the calculation methodologies for the different asset classes are provided in Appendix D.

Asset Class	Absolute Carbon Emissions (tCO2e)		Carbon Footprint (tCO2e / £m invested)		WACI (tCO2e / £m revenue)
	Scope 1&2	Scope 3	Scope 1&2	Scope 3	Scope 1&2
LDI[1,2]	1,188,021	See note 2	177.6	See note 2 below	162.6
Global Bonds	267,394	2,233,810	41.9	350.3	165.4
Infrastructure Debt[1]	115,353	13,285	246.7	28.4	39.8

US Treasuries[1,2]	222,126	See note 2	311.5	See note 2	207.3
Sterling Bonds[3]	88,008	594,549	57.5	388.7	134.8
US Dollar Bonds	49,265	464,839	55.6	524.3	517.8
Diversified Fund	2,630	13,857	87.6	461.4	260.6
Property[1,4]	9	10,511	0.0	12.0	See note 4
Renewable Infrastructure[1]	43	26,963	0.2	98.1	1.3
Private Equity[1]	2,279	10,669	35.2	164.6	92.4

[1] *Data provided by the Scheme's respective asset managers.*
[2] *Due to the nature of the fund and the calculation methodology used, Scope 3 absolute emissions and carbon footprint data was not available.*
[3] *One of the Scheme's Sterling Bond funds has been excluded from the calculations due to the lack of EVIC data available for issuers (largely supranational).*
[4] *Due to the nature of the fund and the calculation methodology used for WACI, this data was not available.*

The fund with the highest absolute emissions is the DB portfolio's allocation to Liability Driven Investments (LDI), which is due to a combination of the amount invested (circa £6.7bn, equal to circa 37% of assets) as well as the intensity of the emissions of the fund. This fund primarily consists of UK Government bonds and cash assets and is used for liability interest rate and inflation hedging purposes. However, the emissions attributed to the LDI fund account solely for the Scheme's investment in UK Government bonds. Looking at carbon footprint, the Infrastructure Debt, US Treasuries, and LDI funds are the most emissions intensive in respect of scope 1 and 2 emissions similar to last year. When considering scope 3 emissions, US Dollar Bonds and the Diversified Fund have the highest carbon footprints.

The figures for the Property assets were provided by the asset managers. The Property Fund has a scope 1 and 2 carbon footprint close to zero but a meaningful scope 3 carbon footprint. This is due to the treatment of emissions associated with the underlying assets applied by the asset managers of the Scheme's property assets, whereby the majority of the property assets' emissions are tenant emissions that are classified as scope 3. The figures for the Infrastructure Debt assets were provided by the asset managers. We note that the scope 3 absolute emissions and carbon footprint are lower than scope 1 and 2 due to lower coverage.

The Trustee was able to source scope 1 and 2 emissions data for all the funds in the table, however scope 3 emissions data for the sovereign bond funds (LDI and US Treasuries) were not available. Scope 3 emissions for sovereign bonds are emissions related to non-energy imports of goods and services. The Trustee was not able to source this data for this report as the Scheme's asset managers providing sovereign bond data were not able to provide it. The Trustee continues to engage with the Scheme's asset managers to attempt to overcome this challenge.

Looking at WACI, the US Dollar Bonds have the highest exposure to carbon-intensive assets with a WACI significantly higher than the other funds. This is due in part to a higher aggregate exposure to companies that generate a relatively high level of emissions.

The Trustee will perform more in-depth analysis to further explore the drivers of these insights, which will inform the Trustee's engagement activities over 2024.

Data Quality and Coverage

The table below shows the aggregate PCAF Data Quality score and provides details on the coverage achieved for the emissions-based metrics for the DB assets.

Data Quality and Coverage Statistics	
DB assets PCAF Data Quality score	**2.3**
DB assets covered as a percentage of total (excluding cash)	**87%**
DB assets average data coverage where line-by-line emissions data was available	**49%**

The PCAF Data Quality score is applicable to the listed and publicly traded assets calculated using individual portfolio holdings data provided by the asset managers. It could not be applied to illiquid assets or government bonds. The score of 2.3 indicates that the majority of the data used to calculate the DB assets' emissions-based metrics was reported but unverified by the underlying corporate issuers in line with the Greenhouse Gas Protocol or estimated based on the company's energy consumption and production data.

Overall, it was possible to calculate emissions-based metrics for 87% of the total DB assets (excluding cash). This includes the listed and publicly traded assets calculated using individual portfolio holdings data from the MSCI data feed as well as illiquid assets and gilts where the emissions figures were provided by the Scheme's asset managers. Of the line-by-line emissions

data 85% has a PCAF Data Quality score of 2, meaning that the data was sourced either directly via reported emissions or using highest quality estimates. The remaining 15% of the line-by-line emissions data was estimated by MSCI based on economic data. The 13% of non-cash assets that could not be covered by the analysis is made up of Asset and Mortgage-Backed Securities assets, as well as one Sterling Bond fund that was excluded due to the lack of emissions and/or EVIC data. Emissions coverage of the listed and publicly traded assets was better for some funds than others.

On average, 49% of the assets within the funds covered with individual portfolio holdings data had available emissions and EVIC figures, inputs necessary to calculate the ownership-based emissions metrics. This result was largely driven by the portfolio's large LDI and Global Bonds allocation for which limited coverage was achieved. The Diversified Fund achieved the highest coverage of 65%. To address the issue of low coverage, which can result in a relative understatement of emissions-based metrics, the Absolute Emissions and Emissions Intensity figures for assets within the funds covered with individual portfolio holdings data were scaled up to reflect an equivalent 100% coverage. The Trustee is aware that whilst this aids comparability across assets, it remains an imperfect assessment of the Scheme's financed emissions.

The Trustee recognises the data quality and quantity challenges it faces and will explore further analysis of the underlying quality of emissions data used in its reporting. The Trustee notes that average data coverage has been improving year-on-year since the Trustee's first TCFD report in 2018.

To help to overcome the data quality challenges, the Trustee engages with its asset managers as well as with regulators and industry bodies. For example, in 2023 the Trustee responded to the Department for Energy Security and Net Zero's Consultation on Scope 3 emissions, which referenced the ISSB's rationale for including scope 3 reporting and asked whether UK governments should endorse this. The Trustee's response emphasised the importance of the UK continuing to require the disclosure of scope 3 emissions in order to enable investors to understand material climate change risks.

TPI Management Quality and Carbon Performance Scores

The Trustee uses metrics from the TPI to balance the backward-looking emissions metrics with forward-looking indicators of climate risk. These metrics cover the listed and publicly traded assets of the DB portfolios, where this data was available. The metrics are weighted on a financed emissions basis, which has broadly increased the scores versus the 2022 report. This is due to the TPI's focus on larger, more emissions-intensive issuers that have a relatively higher contribution to the DB portfolio's overall financed emissions and that more commonly publish climate transition plans that can be assessed by TPI.

Metric	Result
TPI Management Quality Scores	Aggregate TPI MQ across all funds where data available: **3.6**
	Highest TPI MQ of all funds where data available: **3.9**
	Lowest TPI MQ of all funds where data available: **3.3**
TPI Carbon Performance Score*	Aggregate TPI CP score (2050) = **20.4%**

** The methodology for calculating the TPI Carbon Performance score has been updated since last year. It is now based on proportion of financed emissions that are aligned rather than proportion of assets.*

As noted above, the TPI's assessment universe comprised only 1061 companies at the time of data gathering. This means that approximately 25% of the DB portfolio's financed emissions are generated by companies with TPI MQ and TPI CP scores. Whilst the number of companies assessed by the TPI has nearly doubled since the 2022 report was written, the coverage for the DB portfolio remains relatively low for both metrics. The Trustee uses these metrics for assessing the alignment of individual companies and funds, rather than at the more aggregated level disclosed here. At present given the metrics' low coverage, it is challenging to meaningfully use the aggregated TPI CP and TPI MQ metrics to a portfolio-level. The Trustee expects the coverage for this metric to continue to improve over time, yielding more meaningful and insightful conclusions at an aggregate level.

The Trustee has communicated its choice of climate metrics with its asset managers and continues to hold ongoing engagement with them in relation to the availability of metrics and company disclosures. It is hoped that over time this will assist with data quality and coverage.

The aggregate TPI MQ score across all funds weighted on a financed emissions basis of the companies in which the Scheme invests in high impact sectors, represents an average score of 3.6. This provides comfort to the Trustee that on average these companies have assessed how climate-related risks impact their business and have started integrating these considerations into their business strategy.

To assess the DB portfolio's alignment to the goals of the Paris agreement, the Trustee has calculated an aggregate TPI CP score. This metric looks at the proportion of the DB portfolio assets that are projected to be aligned with relevant decarbonisation pathways based on a 2050-time horizon. The Trustee previously looked at this metric across three different time horizons (2025, 2040, 2050), however this year has assessed it solely on a long-term time horizon (2050). This is intended to simplify the Trustee's reporting and to bring into focus the 2050-time horizon adopted in the 2015 Paris agreement and the Trustee's own net zero target.

PUBLIC

The result shown above implies that circa 20% of the portfolio's financed emissions are aligned to a 2050 decarbonisation pathway. It is expected that the low level of alignment is largely a function of the low coverage of the TPI metric, rather than that a majority of the portfolio's constituents are unaligned with internationally agreed decarbonisation goals. As noted in the Risk Management section, the Trustee also made use of the Science Based Targets Initiative's assessment of company targets to classify individual funds into different categories of alignment.

Climate metrics for the Scheme's DC assets

Absolute Emissions and Emissions Intensity metrics

The table below provides the results for the first three climate metrics at a white label fund level, alongside the coverage of total DC assets and the coverage of emissions data. The figures reported are consistent with the range of funds available to DC members.

White Label Fund	Absolute Carbon Emissions (tCO2e)		Carbon Footprint (tCO2e / £m invested)		WACI (tCO2e / £m revenue) Scope 1&2
	Scope 1&2	Scope 3	Scope 1&2	Scope 3	
Global Equities – passive	381,285	2,316,187	81	494	120
Diversified Assets – active	41,982	323,524	42	327	115
Global Equities – active	21,628	140,358	48	312	118
Global Bonds – active	13,881	85,640	62	385	164
Shariah Law Equities – passive	2,940	33,460	23	256	66
Emerging Markets Equities – active	3,589	34,164	41	393	82
UK Equities – active	3,520	52,552	40	602	63
North American Equities – passive	3,692	26,558	39	282	133
Sustainable and Responsible Equities – active	1,463	11,470	22	172	90
Fixed Annuity Tracker – passive	2,001	15,101	41	306	112
UK Equities – passive	2,950	31,964	85	916	107
Inflation Linked Annuity Tracker – passive	615	5,207	37	312	113
Asia pacific (excluding Japan) Equities – passive	2,310	13,261	120	689	214
Property – active*	235	1,068	6	27	61
European (excluding UK) Equities – passive	1,319	7,360	81	452	111
Japanese Equities – passive	792	6,950	89	784	107
Sterling Corporate Bond Funds – active	212	1,433	36	245	98

* *Data for Property – active asset allocation is estimated using both individual portfolio holdings data and data calculated and provided by the Scheme's asset managers.*

The allocation with the largest absolute emissions, both on the basis of scope 1 and 2, and scope 3, is the Global Equities – passive fund. As this is the main DC default investment strategy, this result is a function of the size of the investment rather than the intensity of the fund.

Looking at the intensity metrics, within the DC portfolio funds with the highest carbon footprint are some of the regional passive equity funds. The Asia pacific (excluding Japan) Equities – passive and Japanese Equities – passive funds had the highest carbon footprints again as at the end of 2023, similar to results in the previous year. The UK Equities – passive fund displays the highest scope 3 carbon footprint, followed by the Japanese Equities – passive fund.

PUBLIC

As well as having the highest carbon footprint, the Asia Pacific (excluding Japan) Equities – passive fund also has the highest WACI, meaning this fund has the highest exposure to high carbon emitters. These insights will inform the Trustee's engagement with its asset managers over 2024 as it continues to explore the drivers of these metrics and how climate impacts can be reduced over time.

Looking at scope 3 emissions, the table above demonstrates the point raised earlier: scope 3 emissions are multiples of scope 1 and 2 emissions for all of the funds. This is expected due to the scale of activities and the range of sources of emissions captured in scope 3 when compared with scope 1 and 2 emissions.

Data Quality and Coverage

The table below shows the aggregate PCAF Data Quality score and provides details on the coverage achieved for the emissions-based metrics for the DC assets.

Data Quality and Coverage Statistics	
DC assets PCAF Data Quality score	**2.0**
DC assets covered as a percentage of total (excluding cash)	**100%**
DC assets average data coverage where line-by-line emissions data was available	**90%**

As with the DB assets, the PCAF Data Quality score is only applicable to the listed and publicly traded assets calculated using individual portfolio holdings data provided by the asset managers. The DC assets achieved an aggregate score of 2.0, indicating that the majority of the data used to calculate the DC assets' emissions-based metrics was reported but unverified by the underlying corporate issuers in line with the Greenhouse Gas Protocol, or estimated based on the company's energy consumption and production data.

The emissions data in the table above cover 100% of the total DC assets (excluding cash). It was possible to cover most funds using line-by-line emissions data analysis from the MSCI data feed, with the exception of two funds within the Property– active allocation, where emissions data was provided by the respective asset managers. Of the line-by-line emissions data 98% has a PCAF Data Quality score of 2, meaning that the data was sourced either directly via reported emissions or using highest quality estimates. The remaining 2% of the line-by-line emissions data was estimated by MSCI based on economic data. Overall, emissions coverage of the listed and publicly traded assets was better for the DC funds due to better data availability on equity assets generally. On average, 90% of the assets within the funds with individual portfolio holdings data had available emissions and EVIC figures, inputs necessary to calculate the ownership-based emissions metrics.

More than half of the funds with individual portfolio holdings data had coverage > 95%. In the 2022 report, the average data coverage was reduced by the circa 14% allocation to the Diversified Assets – active fund, where coverage achieved was 33%. This was due to the wide variety of asset classes the Fund invests in, many of which do not have readily available emissions and EVIC figures. However, in this year's report, coverage for this fund has increased to 57%. The lowest coverage of 20% is now for the Property – active fund. Consistent with the approach taken to the assets within the DB portfolio, to address the issue of low coverage the Absolute Emissions and Emissions Intensity figures for assets within the funds covered with individual portfolio holdings data were scaled up to reflect an equivalent 100% coverage.

TPI Management Quality and Carbon Performance Scores

The Trustee uses metrics from the TPI to balance the backward-looking emissions metrics with forward-looking indicators of climate risk. These metrics cover the listed and publicly traded assets of the DC portfolios, where this data was available. The metrics are weighted on a financed emissions basis, which as noted above has broadly increased the scores versus the 2022 report.

Metric	Result
TPI Management Quality Scores	Aggregate TPI MQ score across all funds where data available: **3.7**
	Highest TPI MQ score of all funds where data available: **4.4**
	Lowest TPI MQ score of all funds where data available: **3.5**
TPI Carbon Performance Score*	Aggregate TPI CP score (2050) = **50.8%**

** The methodology for calculating the TPI Carbon Performance score has been updated since last year. It is now based on proportion of financed emissions that are aligned rather than proportion of assets.*

As noted above, the TPI's assessment universe comprised of 1061 companies at the time of data gathering. Approximately 72% of the DC portfolio's financed emissions are generated by companies with both TPI MQ and TPI CP scores.

Looking at the Trustee's additional non-emissions-based metric of choice, TPI MQ, the high-level conclusions are similar to those for the DB portfolio above. Considering the aggregate TPI MQ across all funds, the average score of companies is 3.7 when weighted on a financed emissions basis (i.e., higher emitting companies have a higher weight). This score means that on average companies have assessed how climate-related risks impact their business and have started integrating these considerations into their business strategy.

At present, the fund manager of the Global Equities – passive allocation, considerably the largest allocation within the DC portfolio, uses the TPI MQ metric within its portfolio construction and evaluation process. The higher aggregate TPI MQ score for the DC portfolio relative to the DB portfolio is therefore not an unexpected outcome. All of the funds were given a TPI MQ score of 3 or above, with no outliers identified.

The TPI CP metric reflects the proportion of the DC portfolio's financed emissions produced by companies considered to be aligned with relevant decarbonisation pathways to 2050. As detailed above, the Trustee has chosen to assess alignment based on this point in time alone, rather than the three time points previously assessed, due to the nature of the metric and the significance of 2050 for the Scheme's targets. The relatively low scores partially reflect the small coverage universe for this metric, which, as discussed above, is expected to continue to improve over time.

The Trustee has communicated its choice of climate metrics with its asset managers and continues ongoing engagement with them in relation to the availability of metrics and company disclosures. It is hoped that over time this will assist with data quality and coverage.

Climate Metrics Conclusion

The results set out above are used by the Trustee to provide insights on the Scheme's climate risk exposure as part of the bottom-up identification and assessment process set out in the Risk Management section. In addition, the metrics also form part of the Trustee's "climate dashboard" which is used as a monitoring tool to track the Scheme's progress versus the Trustee's climate-related objectives. The dashboards are maintained separately for DB and DC assets, providing a holistic view of each portfolio. Underlying the dashboards are fund-level climate scorecards, which are used to monitor the Scheme's asset managers' performance and to inform engagement activities. The scorecards combine the metrics' quantitative assessments with qualitative considerations gathered via discussions with the asset managers.

The ALCo, overseen by the Trustee, reviews the selection of climate metrics in both the dashboard and the scorecards from time to time as appropriate to ensure it continues to make use of best practice techniques that offer effective insight to the Scheme's climate-related risk exposure.

Note: All line-by-line emissions-based analysis is provided by the Scheme's Investment Advisor, Redington Ltd ("Redington"), and the data in the report is sourced from MSCI©. Certain information ©2024 MSCI ESG Research LLC. Reproduced with permission. Where the emissions-based analysis was sourced directly from asset managers, the relevant approaches are outlined in Appendix D.

The Trustee's climate-related targets

Details of the Scheme's historical progress and most recent emissions level as at 31 December 2023 are provided below.

In the 2021 the Trustee set out its target to achieve net zero emissions by 2050, or sooner. The high-level 2050 target is supported by shorter-term interim targets, which include:

- targeting a real economy emissions reduction interim target of 50% by 2030 or sooner for the Scheme's equity and corporate bond funds, (compared to a baseline of financed emissions as at 31/12/2019).
- having the ambition of achieving all of our corporate bond and equity investments being fully aligned to the goals of the Paris Agreement by 2030 across both DB and DC assets.
- enhancing the Trustee's engagement and stewardship efforts through the Scheme's asset managers.

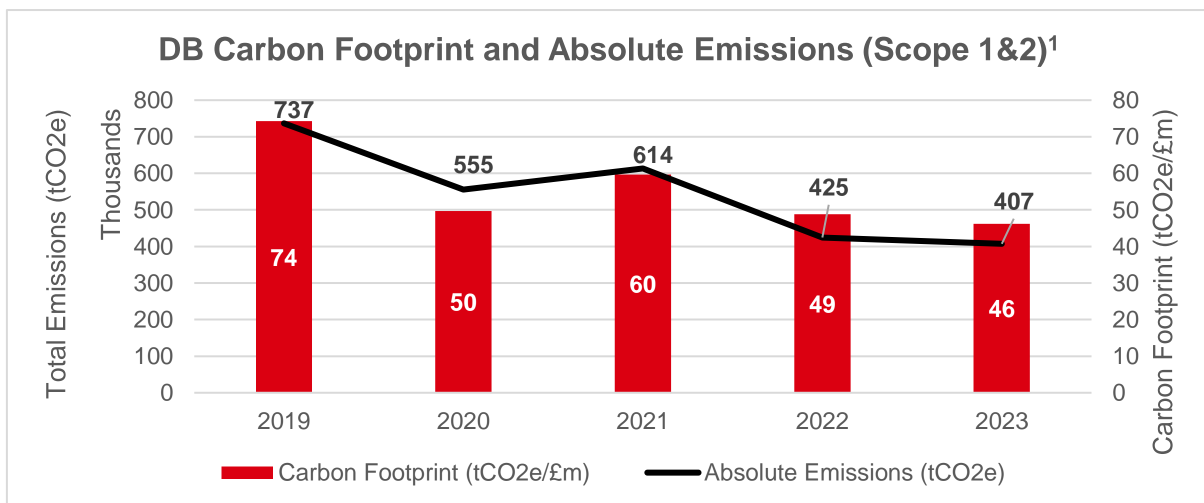
To date, the Trustee has quantitatively monitored progress against the interim decarbonisation target, details of which are described below. Progress against the Trustee's alignment and engagement targets is challenging to quantify robustly at this point in time. The section below provides an update on the Trustee's progress in measuring these two targets.

Progress towards the Trustee's 2030 decarbonisation target

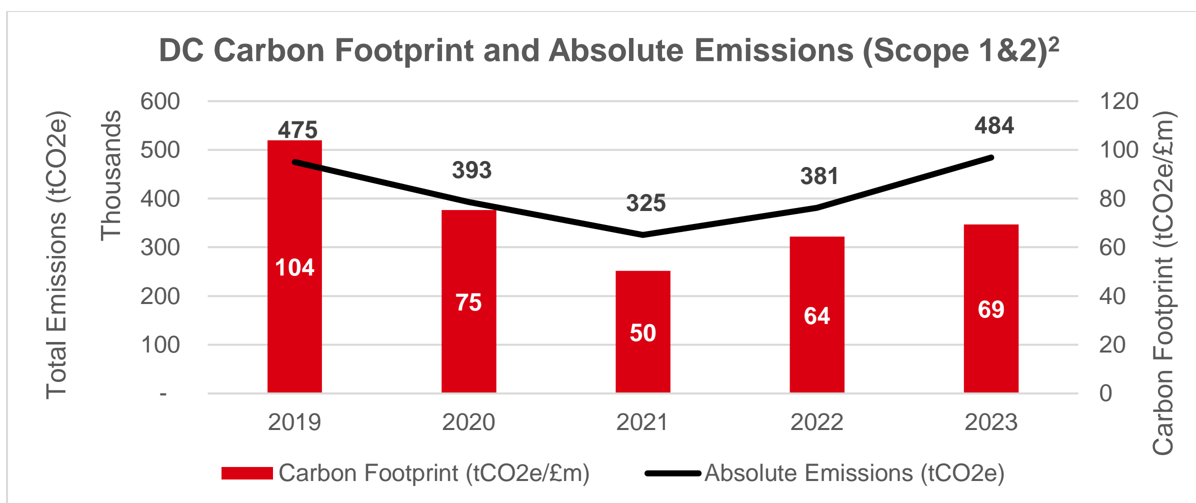
The Trustee's 2030 decarbonisation target covers scope 1 & 2 financed emissions, but not scope 3 emissions. This is due to the challenges around calculating, attributing, and aggregating scope 3 emissions that was explored in the Metrics section of this report. As the Trustee's reported scope 3 emissions are all based on data provider estimates (in an attempt to provide a consistent assessment), the rigour behind sourcing and calculating scope 3 emissions is not yet the same as scope 1 & 2 emissions.

Decarbonisation target	The Trustee aims to achieve 50% emissions reduction in the Scheme's listed equity and corporate bond funds by 2030 or sooner compared to a year-end 2019 baseline. This target covers scope 1 and 2 financed emissions.
Progress to date	The carbon footprint has declined as compared to 2019: by 38% in DB and 33% in DC portfolios.
Steps the Trustee is taking to achieve its target	The Trustee makes use of two key levers of action to achieve its decarbonisation target: • **Investing for a net zero future:** As described in the Risk Management section the Trustee has already made a number of asset allocation, fund selection and fund design decisions to increase its investment in climate solutions and assets that are aligned to a net zero future. • **Engaging for a net zero future:** The Trustee currently sees engagement as its main lever of influence to help decarbonise the assets that it holds. This includes engagement with the Scheme's asset managers, policymakers and the wider industry. The Trustee has clearly communicated its decarbonisation target to all of the Scheme's asset managers and it expects its managers to align their investment decision-making with these goals. As explained earlier in the report, the Trustee's Stewardship framework helps the Trustee hold asset managers to account on climate-related engagements that are material to the Scheme, outlining clear expectations and escalation measures.

The charts below provide the Scheme's progress on its 2030 decarbonisation target, looking at the financed emissions of the DB and DC parts of the portfolio as at 31/12/2023 against the Trustee's 31/12/2019 baseline.



[1] *Chart uses latest available EVIC data for baseline year 2019 and for 2023. Lagged EVIC figures were used for interim years 2020, 2021 and 2022.*



[2] *Chart uses latest available EVIC data for baseline year 2019 and for 2023. Lagged EVIC figures were used for interim years 2020, 2021 and 2022.*

Looking at the Trustee's target of carbon footprint, both the DB and the DC portfolios have reduced their carbon footprint since the 2019 baseline. Having a 2019 baseline provides the Trustee with five data points and allows for a year-on-year comparison over time. What these five datapoints tell us is that there is significant year-on-year variation in the metrics, largely driven by volatility in market valuations, changes in portfolio composition and improving coverage of underlying data. The Trustee will continue to monitor year-on-year changes to ascertain the drivers behind them.

A key driver of the effect between 2022 and 2023 was changes in market valuations which influenced carbon footprint and absolute emissions. As noted above, the carbon footprint metric is an ownership-based metric that uses the EVIC of the underlying corporate issuer to attribute the Scheme's share of an issuer's emissions. As EVIC incorporates the value of both publicly traded debt and equity outstanding, a change in the value of an issuer's equity relative to its debt and the type of asset the Scheme is invested in (i.e., equity or debt) can have a meaningful impact on the emissions attributed to the Scheme and subsequently its carbon footprint.

For the DC portfolio, the change in carbon footprint was mostly driven by the Global Equities – passive allocation and the Diversified Assets – active allocation which represent approximately 67% and 14% of total DC portfolio assets respectively. The Global Equities - passive allocation invests in a variety of publicly traded equity securities. For this DC fund, a larger proportion of the financed emissions were produced by a small concentration of issuers compared to 2022, with ten issuers accounting for 31% of the total financed emissions in 2023 versus 19% in 2022. The slight increase in carbon footprint over the year contributed to an increase in the absolute emissions of the portfolio. A larger contributor to this increase however was an increase in the total value of the portfolio which has gone from £6.2bn to £7.2bn over the year. A larger portfolio owns more assets and therefore a greater share of financed emissions. The increase in value accounted for approximately 70% of the increase in absolute emissions. The Trustee note, however, that while the value of the DC portfolio has increased from £4.9bn in the baseline year 2019 to £7.2bn in 2023, an increase of over 47%, total absolute emissions have only increased by 2% due to the reduction in carbon footprint over that period of 33%.

For the DB portfolio, which is predominantly invested in publicly traded credit, the fall in carbon footprint was mainly driven by one of the Global Bonds allocations which represents circa 13% of total DB portfolio assets. Whilst emissions have become more concentrated within the top emitters for this DB fund since 2022, with the top issuers contributing 38% of total financed emissions compared to 27% in 2022, a fall in the fund's total emissions was observed. The fall in portfolio carbon footprint was the primary driver behind the slight fall in absolute emissions.

The Trustee is encouraged to see the carbon footprint decreasing for both portfolios since 2019. However, when comparing the Scheme's progress to the real economy, where an equivalent reduction in absolute emissions has not been achieved, it is evident that further progress is required. Over 2024, the Trustee will consider how the Scheme can move closer towards its real economy emissions target and support the global transition to a low carbon economy, including further development of a Climate Transition Plan.

Progress for measurement of alignment and engagement target

Over 2023 the Trustee has continued to assess its portfolio's alignment to the goals of the Paris Agreement using the TPI CP score as described above. To date, the Trustee has used alignment metrics in its fund-level climate dashboards and scorecards to assess the alignment of the Scheme's largest emitters on an issuer basis. However, collecting data on multi-asset and multi-manager portfolios has proven to be a challenge. The low coverage of these metrics has meant that the Trustee has not been able to quantify reliably its total portfolio's alignment to date. The Trustee continues to engage with its asset managers around climate expectations and more specifically on the availability of alignment data. The Trustee

continues to work with its investment advisors to explore the development of other alignment metrics and expects to report on the alignment of all assets in scope in the coming years.

Similarly to alignment metrics, assessing the extent and the quality of the Scheme's asset managers' engagement activities is also integrated into fund-level climate dashboard and scorecards. The Trustee's climate dashboards and scorecards identify each asset managers' level of engagement with the Scheme's top ten emitters, and this informs the discussions it has with the asset managers.

In 2023, the Trustee began to develop an initial overview of a Climate Transition Plan, building on the Scheme's Investment Climate Action Plan from 2022. The Trustee will continue to consider what progress will be required to evolve this plan for the future and how it can be used to help meet its alignment, and engagement targets.

PUBLIC

Appendices

Appendix A: Climate Scenario Analysis Results (2021)

Note the most recent scenario analysis was completed as at the end of 2021, the results of which are presented below and are identical to the results repeated in the Appendix of the 2022 statement.

Scenario analysis (2021)

The Scheme's advisors completed climate scenario analysis on the DB and DC funding and investment strategies respectively, and the Trustee was comfortable accepting their respective scenarios and methodologies to complete the analysis. The advisors used different scenarios that considered the potential impacts from climate change differently, however both included at least two scenarios, one of which was consistent with the statutory guidance to assess a 1.5°C-2.0°C Paris-aligned temperature scenario. The Trustee's climate-related ambitions pertain to the Paris-aligned scenario specifically.

The analysis completed on the DB and DC parts of the Scheme indicated that there is likely to be a material impact to members under a range of possible climate change outcomes. The magnitude of the impact is likely to differ across the DB and DC parts of the Scheme, reflecting the nature of the invested assets and age profile of the members.

The Trustee noted that the scenario analysis was not free of limitations due to a reliance on assumptions which contained considerable levels of uncertainty, as well as a reliance on data which was recognised as lacking in coverage and robustness. Given these limitations, the results were used as one of a number of inputs to help inform the decision making. Further detail on the scenarios used and estimated impacts are provided below and in Appendix B.

DB – 2021 Modelling and Assumptions

Scenario analysis was completed by Willis Towers Watson ("WTW"), the Scheme's DB Investment and Actuarial advisor. They assessed the assets and technical provisions liabilities associated with the DB benefits under two climate scenarios. Both scenarios considered an immediate shock and a return drag (over 20 years). This reflects the reality that tipping points are likely which will be a combination of asset return drags and significant impacts over short periods when such a tipping point is reached. These scenarios and their underlying assumptions are described below.

	Scenario 1: Least Common Denominator	Scenario 2: Global Coordinated Action
Description	A "business as usual" outcome where current policies continue with no further attempt to incentivise further emissions reduction. Emissions as well as social, socioeconomic and technological trends do not shift markedly from historical patterns.	Policy makers agree on and immediately implement policies to reduce emissions in a globally co-ordinated manner. Companies and consumers take the majority of actions available to capture opportunities to reduce emissions.
Temperature Rise	~3.5°C	~2.0°C
Renewable energy by 2050	30-40%	65-70%
Physical Risk Level	High	Low
Transition Risk Level	Low	High

Source: Willis Towers Watson.

Under both scenarios, the Trustee expects there to be a drag on asset returns. Under the Global Coordinated Action scenario immediate mitigation costs are expected to be significant, however the benefits of moving to a low carbon economy (in terms of lower economic losses compared with a Least Common Denominator scenario) are expected to emerge in the longer term.

The Trustee noted that the scenarios assumed the entire climate change impact will be capitalised on both the asset and liability side as an instantaneous shock. The Trustee also noted the selected scenarios did not represent the full range of outcomes, nor did they necessarily capture the most adverse possible scenario, but the Trustee believed the analysis provided a useful understanding of potential behaviour of the Scheme's portfolios under scenarios covering potential temperature pathways.

Mortality Assumptions

- WTW considered the potential mortality outcomes which could arise under the two climate scenarios. Clearly these are impossible to predict accurately, being dependent upon complex interactions between various direct and indirect factors.
- However, WTW believed that:
  - those outcomes which increase UK life expectancy are more likely to prevail under the Global Coordinated Action scenario; and
  - those outcomes which reduce UK life expectancy are more likely under the Least Common Denominator scenario.
- To assess the potential impact to liabilities under these scenarios, WTW assumed:
  - Global Coordinated Action: long-term rates of improvements in mortality trend to 2.5% pa
  - Least Common Denominator: long-term rates of improvements in mortality trend to 0% pa
- These long-term trend rates of future improvements in mortality compare to the assumption of 1.5% pa assumed in the 2019 valuations of the Scheme. Average trend rates of mortality improvement experienced in the UK over the 2000 to 2011 period were around 2.5% pa whereas in more recent years mortality rate improvements have been closer to 0% pa (with a recent reversal over 2018 and early 2019).

DB – 2021 Scenario Analysis Results – HBUK Section

The table below shows the estimated impact on the asset value, technical provisions liabilities, and total funding level of the HBUK Section in one year under the two climate scenarios conducted as part of the 2021 TCFD report.[10]

Since the HBUK Section had entered into a longevity hedging arrangement covering 75% of the pensions in payment as at 31 December 2018, the value of the liabilities in respect of these insured members, once the pay and receipt legs of the swap are also taken into account, will be unaffected by the impact of climate change on member mortality. The liability impact shown in each scenario is therefore the estimated change in the total liabilities of the HBUK Section arising solely from the uninsured population.

Scenario	Change in Funding Level (%)	Asset Shock (£m)	Liability Impact (£m)	Net Change in Surplus (£m)
Scenario 1: Least Common Denominator	**+3.4%**	-299	- 1,030	+731
Scenario 2: Global Coordinated Action	**-5.5%**	-602	+770	-1,372

The Trustee estimated that under Scenario 1, the value of the Scheme's assets and technical provisions liabilities are both likely to fall, by £299m and £1,030m respectively. On the asset side, this reflects the realisation of a negative price impact owing to climate-related factors, while the liability impact reflects the deteriorating life expectancy under this scenario relative to current longevity assumptions. Given the magnitude of the two changes, the net impact is expected to be a c.3.4% increase in the funding level.

The Trustee estimated that under Scenario 2, the value of the HBUK assets is likely to fall by £602m following the instigation of more rapid economic reform to reduce emissions in a globally co-ordinated manner, with the impact particularly pronounced on the liquid credit assets within the portfolio. The technical provisions liabilities are likely to increase by c.3%, equivalent to £770m, which reflects the improving life expectancy of members under this scenario relative to current longevity assumptions. Given the magnitude of the two changes, the net impact is expected to be a c.5.5% decrease in the funding level. It is important to note, however, that given the funding level surplus, the Scheme is expected to retain a net surplus in spite of the estimated adverse impact on the surplus under this scenario.

[10] Using the latest available data (as at 31st March 2021) at the time the analysis was performed.

PUBLIC

The Trustee recognised that mitigating climate risk can offer attractive investment opportunities and believes that investing in such opportunities is consistent with its fiduciary responsibility. The Trustee has already identified and invested in a renewable energy investment opportunity that was both financially compelling and aligned with the Paris Agreement. The Trustee continues to explore further climate-related opportunities that are consistent with its climate objectives as well as its funding objectives and fiduciary responsibility.

DB – 2021 Scenario Analysis Results – Top Up Sections (HGSU and HBEU PLC)

The Trustee currently has a policy in place (jointly agreed by the Trustee Board and relevant Sponsors) to transfer back to the HBUK Section, the liabilities for members of Top-Up sections as they leave service or retire. Whilst this policy remains in place, the impact of climate change on the liabilities of the top-up sections might be expected to be small, with the liabilities being effectively settled before climate change is able to have a significant effect on members.

Those members may still be at risk from the long-term impact of climate change, but while the transfer back policy remains in place, the financial risks of this will be borne by the HBUK Section. This would only have an impact on the Top-Up section if amendments were made to the transfer back assumptions to allow for these climate change risks.

The table below shows the estimated impact on the asset value, technical provisions liabilities, and total funding level of the Top Up sections conducted as part of the 2021 TCFD report. The entire impact is modelled to materialise over the journey plan, with an assumption that no contributions and cashflows will be received, a liability basis of Gilts+70bps and an investment return of Gilts+80bps within the base case.

The scenario analysis indicated that the impact on the HGSU and HBEU sections differs under the two scenarios, with a positive funding level impact realised under Scenario 1 and a negative funding level impact realised under Scenario 2. Similar to the HBUK section, the magnitude of the impact on the HBEU section is not expected to be large enough to remove the current funding level surplus, however based on the funding level of the HGSU section at the analysis date, the deficit is expected to worsen.

HGSU Section

Scenario	Change in Funding Level (%)	Asset Shock (£m)	Liability Impact (£m)	Net Change in Surplus (£m)
Scenario 1: Least Common Denominator	**+5.7%**	-4	-16	+12
Scenario 2: Global Coordinated Action	**-6.1%**	-4	+11	-15

HBEU Section

Scenario	Change in Funding Level (%)	Asset Shock (£m)	Liability Impact (£m)	Net Change in Surplus (£m)
Scenario 1: Least Common Denominator	**+6.8%**	-1	-3	+2
Scenario 2: Global Coordinated Action	**-7.3%**	-1	+2	-3

Under the Least Common Denominator scenario, where no action is taken to achieve further emissions reductions, the funding level is expected to improve across each Section. Under the Global Coordinated Action scenario, the analysis forecasted a negative impact to the funding level. The Trustee's ambition to decarbonise and simultaneously align the Scheme to a lower carbon world, in accordance with the Global Coordinated Action scenario, thus appeared to pose more risks based on this analysis.

PUBLIC

However, it is important to note that in both instances, the estimated liability change was the predominant driver of the net funding level impact. As noted above, the UK-based mortality outcomes from climate change are impossible to predict accurately and will depend on complex interactions between various factors. This therefore introduces a meaningful degree of uncertainty with respect to the liability impacts. Nonetheless, since the estimated upside in the Least Common Denominator scenario arises from heightened mortality among Scheme members, the Trustee was clear that this perceived financial advantage cannot be seen to accrue to their benefit.

Given the scenario analysis forecasted a loss of value under both scenarios, the Trustee believes it is prudent and in the best interests of Scheme members to take steps to manage and reduce the climate risk exposure of the Scheme. It is for that reason the Trustee has adopted a target to align the Scheme to a Paris-aligned trajectory consistent with the Global Coordinated Action scenario.

The Trustee also recognised that mitigating climate risk can offer attractive investment opportunities and believes that investing in such opportunities is consistent with its fiduciary responsibility.

As noted previously, the scenario analysis was not free from limitations due to a reliance on assumptions which contain considerable levels of uncertainty, as well as a reliance on data which was recognised as lacking in coverage and robustness. Given these limitations, the results were used as one of a number of inputs to help inform the decision making.

DC – 2021 Modelling and Assumptions

Scenario analysis was completed by Lane Clark & Peacock ("LCP"), the Scheme's DC Investment advisor, on the Scheme's two default arrangements. These are the Flexible Income Strategy, the main default option for DC-only members, and the Lump Sum Strategy, the main default option for members with Hybrid benefits.

The scenarios cover projections to retirement for four straw person members: a 25-, 35-, 45- and 55-year-old, with characteristics taken from the average member of that age within the Scheme. Members will be impacted in different ways depending on their investments held, contribution rate, fund value and proximity to retirement. The analysis assumed the example members each have an expected retirement age of 65. Assessing members across different age cohorts allowed the introduction of a temporal element into the analysis, and this also allowed the Trustee to assess climate risk across various timespans.

Whilst the Scheme has used the climate-tilted Future World Fund in the default arrangements since 2017, in order to show a meaningful comparison, the projected pots were modelled for identical targeted strategies which do not use low carbon equities and shown the results alongside those of the Scheme's targeted strategies.

Three scenarios were considered, an orderly and disorderly transition to the Paris goals and a scenario of a failed transition. The Trustee compared these climate scenarios with a baseline, "climate uninformed" scenario. This baseline climate scenario assumes no increase of physical risks due to climate change and does not make any explicit assumptions about the transition to a low carbon economy. Details on the three scenarios are provided below. Please see Appendix B for further details on the methodological assumptions and limitations associated with this analysis.

<u>Policy Response and Physical Effects</u>

Impact	Failed Transition	Paris Orderly Transition	Paris Disorderly Transition
Low carbon policies	Continuation of current low carbon policies and technology trends (e.g., significant falls in renewable energy prices).	Ambitious low carbon policies, high investment in low-carbon technologies and substitution away from fossil fuels to cleaner energy sources and biofuel.	
Paris Agreement outcome	Paris Agreement goals not met.	Paris Agreement goals met.	
Global warming	Average global warming is about 2°C by 2050 and 4°C by 2100, compared to pre-industrial levels.	Average global warming stabilises at 1.5°C above pre-industrial levels.	
Physical impacts	Severe physical impacts.	Moderate physical impacts.	
Impact on GDP	Global GDP is significantly lower than the baseline scenario without explicit allowance for climate impacts in 2100.	Global GDP is lower than the baseline scenario in 2100.	In the long term, Global GDP is slightly worse than in the Paris

	For example, cumulative UK GDP growth to 2100 is c55% lower than estimated in the baseline scenario.	For example, cumulative UK GDP growth to 2100 is c10% lower than in the baseline scenario	Orderly scenario due to sentiment shock.
Financial market impacts	Physical risks priced in over the period 2026-2030. A second repricing occurs in the period 2036-2040 as investors factor in the severe physical risks.	Transition and physical risks priced in smoothly over the period of 2021-2025.	Abrupt repricing of assets and a sentiment shock to the financial system in 2025.

Source: Ortec Finance Ltd (a financial modelling specialist that supports LCP to provide investment advice)

DC – 2021 Scenario Analysis Results

The tables below outline the results of the climate scenario analysis completed on the DC popular arrangements conducted as part of the 2021 TCFD report. The figures represent the change in value of each members' pension pot at retirement relative to the baseline outcome, assuming that members are holding low carbon equities.

The figures indicated that the impacts under each scenario are non-uniform across age cohorts, with the magnitude under each scenario less significant as member age increases. This reflects the fact that older members are expected to have less time as active members prior to their retirement, thereby reducing the length of time and therefore cumulative impact that each scenario can have on their pension pots at retirement.

The failed transition scenario is the worst outcome for most members in terms of expected pension pot at retirement, however a disorderly transition is the worst scenario for members over 55 years old, as they are expected to suffer the brunt of the upfront cost and acute shocks of a disorderly transition to a lower carbon economy but retire before their pension pots have sufficient time to recover from any loss in value.

In any case, the analysis showed that there are no climate scenarios in which members are expected to benefit, and it is therefore important that the Trustee takes steps to limit the climate change risk of the Scheme. Details of the activity undertaken during 2022 to address these risks are set out in the Risk Management section.

As reported in previous iterations of the Scheme's annual TCFD report, the Trustee has made several important changes over time to the default and self-select fund range available to members that should reduce both the physical and transition risk exposure of the portfolios. The intention of this activity was, in part, to minimise the potential adverse impacts on members' pension pots at retirement. The Trustee continues to explore further climate-related opportunities, including areas for improvement in current funds that help to deliver both the Scheme's climate objectives and financial targets.

	Member aged 25		**Member aged 35**	
Starting pot and contributions	£5,700, 12% total contribution rate		£35,900, 18% total contribution rate	
	Flexible Income Strategy	Lump Sum Strategy	Flexible Income Strategy	Lump Sum Strategy
Baseline outcome	-	-	-	-
Paris Orderly outcome	-3.2%	-3.1%	-1.1%	-1.1%
Paris Disorderly outcome	-4.3%	-4.3%	-2.7%	-2.7%
Failed Transition outcome	-26.9%	-26.6%	-22.3%	-22%

	Member aged 45		Member aged 55	
Starting pot and contributions	£43,800, 22% total contribution rate		£45,600, 24% total contribution rate	
	Flexible Income Strategy	Lump Sum Strategy	Flexible Income Strategy	Lump Sum Strategy
Baseline outcome	-	-	-	-
Paris Orderly outcome	-0.1%	-0.1%	-0.3%	-0.2%
Paris Disorderly outcome	-1.9%	-1.9%	-2.2%	-1.5%
Failed Transition outcome	-10.6%	-10.3%	-1.4%	-1%

Appendix B: Climate Scenario Analysis Limitations

The climate scenario analysis modelling for the Scheme's DB and DC assets has been undertaken by Willis Towers Watson and Lane Clark & Peacock respectively. The following explains the general limitations of financial and climate modelling and gives greater detail from WTW and LCP about the limitations of elements of their respective processes used.

General limitations of financial modelling

- Models are relatively simplistic approximations of real-world behaviour that are not able to capture every possible real-life permutation. The use of any model of future economic and investment experience is subject to risks arising from the underlying uncertainties inherent in predicting the future.
- Risk models are only models, even if complex and/or powerful.
- The random variation in future inflation and investment returns over a short or medium time periods may result in experience that is significantly different to the expected long-term average experience over much longer time periods. In short, circumstances that are (reasonably) assumed by a model to be very unlikely to occur may, nevertheless, occur.
- The conclusions of the modelling process will depend on the structure of the underlying model (particularly the relationships between different economic and investment indicators) and on the detailed parameterisation of the model, including the assumed path dependency of the interaction of modelled variables which influence the modelled results.
- The results of the modelling depend crucially on the methodology and assumptions used. Using different models or using different assumptions in the same model can give rise to very different results.
- The results of modelling should be regarded as illustrative. Limited weight should be put on the probabilities of different outcomes emerging calculated by the model.
- The model is best used to compare potential outcomes between scenarios.
- The modelling does not capture all dynamic changes to circumstances

General limitations of climate modelling

- Material uncertainties in climate modelling are inevitable. For example, there is uncertainty about the physical changes in the climate that will emerge as a result of GHGs that have already been emitted (i.e., the locked-in effects of climate inertia) and how the climate will respond to future rises in GHG concentrations. There is also huge uncertainty about the future trajectory of GHG, the actions that will give rise to that trajectory, and the economic effects of those actions.

Willis Towers Watson – DB Analysis Limitations

- WTW has taken reasonable steps to satisfy itself that the data provided by third parties is of adequate quality for the purposes of the modelling, including carrying out basic tests to detect obvious inconsistencies. These checks have given WTW no reason to doubt the correctness of the information supplied. It is not possible, however, for WTW to confirm that the detailed information provided, including that in respect of individual members and the asset details, is correct.
- The climate modelling scenarios span the range of plausible outcomes for physical and transition risks and the trade-off between the two. The costs of each at an index level have been based upon figures sourced from MSCI with judgment being applied by WTW as to current market pricing at the time the analysis was undertaken, the extension of these base figures to all asset classes and their attribution over time.
- The climate scenarios have been derived on the basis of all other things being equal, which is unlikely to be the case in practice. Second order effects and feedback loops are hard to estimate with certainty and represent the reason why the climate scenarios cannot be a substitute for using the base investment model for risk management purposes.
- In the absence of climate transition, temperatures are expected to increase exponentially with the risk of non-linear tipping points being reached (e.g., melting ice sheets) that would amplify the economic impact even further compared to the exponential change.
- Although the scenarios illustrate the potential variability in future mortality rates due to climate change, they are subjective, and arguments could be made for different outcomes. They represent beliefs which are intended to form the basis of a discussion and it is right that they should be challenged.
- Detailed analysis of the drivers of mortality indicates very little impact on the future path of UK longevity, with these impacts much more concentrated on other populations. However, the indirect effects of climate change and the transitional risks on economic, social and health factors would appear to be of sufficient consequence to have similar impact on improvements or deterioration in longevity to that seen in the past, supporting the belief that climate change represents a demographic risk to be managed by pension schemes and their sponsors.

Lane Clark & Peacock – DC Analysis Limitations

- The scenarios are intended to be plausible, not “worst case”. Hence, they do not indicate the potential seriousness of tail risks. Moreover, as described elsewhere, LCP is using median values from Ortec Finance’s stochastic modelling outputs.
- In aggregate, it is quite likely that Ortec Finance’s modelling, which has been used to support this work, is biased to under-estimate the potential impacts of climate-related risks, especially for the Failed Transition scenario. This is typical of climate-economic modelling.
- Ortec Finance considers three scenarios out of infinitely many that are possible. Alternatives include different long-term temperature outcomes, different combinations of policy/technological/behavioural actions to achieve similar long-term temperature outcomes to those that are being modelled, and different financial market reactions to the same policy/technological/behavioural actions that are being modelled.
- Ortec Finance models climate impacts on financial markets using the GDP impacts from Cambridge Econometrics’ macro econometric modelling and assumed relationships between GDP and the financial parameters. GDP is the only translation mechanism from the macro econometric model to the stochastic financial scenario model except that, following the June 2020 model updates, Ortec Finance uses Cambridge Econometrics’ inflation estimates instead for the two Paris scenarios. Other potential translation mechanisms (such as carbon-price impact on interest rates) are not modelled.
- There is a great deal of uncertainty in the timing of market responses to climate change. Ortec Finance’s model assumes the biggest market movements under the Failed Transition scenario occur after 2030, which would mean that many DB schemes would avoid the worst impacts. However, the market movements could occur a lot earlier.
- Financial market volatility might increase as the physical and transition impacts of climate change unfold, particularly if this happens in an unpredictable manner. The modelling does not make any allowance for this, except in the Paris Disorderly Transition scenario during 2025 while pricing-in of climate-related risks takes place.
- Like most modelling of this type, the modelling does not allow for all potential climate-related impacts and therefore is quite likely to underestimate some climate-related risks. For example, tipping points (which could cause runaway physical climate impacts) are not modelled and no allowance is made for knock-on effects, such as climate-related migration and conflicts.

PUBLIC

Appendix C: Climate Impact Pledge exclusions and engagement

As part of the Climate Impact Pledge, LGIM will assess and rank companies according to a traffic light scoring system reflective of the climate-critical sector in which they operate. Companies identified as failing to meet LGIM's minimum expectations will be subject to direct engagement and encouraged to align their strategy with net zero and to build climate resilience. The consequence of a lack of subsequent action may include a vote against the re-election of the companies' board chair at the next annual general meeting using all the voting interests from their assets under management. When change is insufficient over time, LGIM may subsequently divest from that company. As of June 2023, LGIM have increased the number of companies subject to deep engagement to over 100 and excluded 14 companies from the Scheme's global equity exposure as an outcome of the manager's Climate Impact Pledge. The reason for the exclusion is reported alongside each company name.

- Air China - No operational emissions reduction target is in place and the company lags on most of LGIM's expectations.
- American International Group Inc - There has been progress with the company making a 2050 net zero commitment for underwriting and investments and setting out coal restrictions. However, no material Scope 3 emissions data have yet been disclosed.
- China Construction Bank Corporation - No thermal coal policy in place and no disclosure of Scope 3 emissions associated with investments.
- China Resources Cement - No operational emissions reduction target in place, no improvement since last year where LGIM voted against the chair due to the same concerns.
- COSCO Shipping Holdings - An operational target is in place, but the level of ambition for this target is low compared to leading peers. There is no commitment or investment in low-carbon fuels, which is key to sector decarbonisation.
- Exxon Mobil Corporation - Disclosing Scope 3 emissions and has set 'net zero by 2050' emissions reduction target for its own operations. However, the interim operational target does not reach the ambition expected of a net zero trajectory.
- Hormel Foods Corporation - Progress towards net zero targets and two product lines sourcing from solely regenerative farms. However no comprehensive zero-deforestation policy, no targets for scope 3 upstream agricultural emissions.
- Industrial and Commercial Bank of China (ICBC) - Increased engagement with LGIM and responsiveness to investor concerns. ESG-relevant amendments to Articles of Association and action on green finance. However, no thermalcoal policy in place and no disclosure of Scope 3 emissions associated with investments.
- Invitation Homes Inc - No disclosure of emissions from property portfolio or emissions target covering property portfolio's operational emissions. No improvement since last year.
- Korea Electric Power Corporation (KEPCO) – Net zero target is in place and there are plans for scaling up renewables. Company is cancelling all apart from two new coal projects overseas. However, pathway seemingly misaligned with net zero due to its plans to run unabated coal until 2050.
- Loblaw Companies Ltd.- Net zero target covering scope 3 emissions from suppliers, however interim scope 3 targets not yet published and no comprehensive zero deforestation policy in place.
- MetLife, Inc. - Thermal coal policy in place. No material Scope 3 emissions disclosure and no net zero commitment for underlying investments.
- PPL Corporation - Committed to achieving emission reduction targets of 70% by 2035, and net zero by 2050, but pathway seemingly misaligned with net zero on a global basis as company plans to have unabated coal running past 2030.
- Sysco Corporation - Lack of ambitious emissions reduction targets and progress on net zero commitment not aligned with pace required this decade to align with a 1.5°C trajectory.

This is an ongoing process. These companies could be repurchased if their approach to climate change improves sufficiently. Conversely, other companies could be divested if the reverse is true.

Source: LGIM, LGIMs Climate Impact Pledge 2023

Appendix D: Climate Metrics Analysis

Data sources:

- The absolute emissions and emissions intensity metrics have been calculated using line-by-line holdings data for the Scheme's Corporate Bonds, Equities, Diversified Funds and REITS Funds. The emissions data for these funds is from MSCI. Please see MSCI data disclosure below:
    - *This disclosure was developed using information from MSCI ESG Research LLC or its affiliates or information providers. Although HSBC Bank (UK) Pension Scheme's information providers, including without limitation, MSCI ESG Research LLC and its affiliates (the "ESG Parties"), obtain information (the "Information") from sources they consider reliable, none of the ESG Parties warrants or guarantees the originality, accuracy and/or completeness, of any data herein and expressly disclaim all express or implied warranties, including those of merchantability and fitness for a particular purpose. The Information may only be used for your internal use, may not be reproduced or redisseminated in any form and may not be used as a basis for, or a component of, any financial instruments or products or indices. Some funds may be based on or linked to MSCI indexes, and MSCI may be compensated based on the fund's assets under management or other measures. MSCI has established an information barrier between index research and certain Information. Further, none of the Information can in and of itself be used to determine which securities to buy or sell or when to buy or sell them. None of the ESG Parties shall have any liability for any errors or omissions in connection with any data herein, or any liability for any direct, indirect, special, punitive, consequential or any other damages (including lost profits) even if notified of the possibility of such damages.*
- Latest available EVIC data was used to calculate the absolute emissions and emissions intensity metrics for the baseline year 2019 and for 2023. Due to data availability constraints, one year lagged EVIC figures were used for the calculations for interim years 2020, 2021 and 2022. Additionally, emissions data used by MSCI and provided by the asset managers is generally provided on at least a one-year lag, such that this report relies on emissions data from before the Scheme's year-end date of 31 December 2023.
- The emissions data for the Scheme's LDI, US Treasuries, Property, Renewable Infrastructure, Private Equity and Infrastructure Debt assets were calculated and provided by the Scheme's respective asset managers.

Redington's calculation methodology using MSCI input data:

- Emissions metrics are calculated in line with the GHG Protocol Methodology, the global standard for companies and organisations to measure and manage their GHG emissions. The GHG Protocol provides accounting and reporting standards, sector guidance and calculation tools. It has created a comprehensive, global, standardised framework for measuring and managing emissions from private and public sector operations, value chains, products, cities, and policies to enable greenhouse gas reductions across the board.
- The ownership-based metrics have also been calculated using the guidance from the PCAF, which apportions emissions using ownership as determined by EVIC, rather than Market Value.

LDI calculation methodology:

- Insight Investment Management
    - Insight Investment Management provided the estimated figures for one of the Scheme's UK LDI funds. To calculate the emissions attributable to Gilts, Insight have used the latest annual Scope 1 and Scope 2 CO2e emissions data produced by the Department for Business, Energy & Industrial Strategy ("BEIS") and apportioned these figures to the total market value of Gilts in issuance as at 31 December 2023.
    - Sources, assumptions and approach
        - Latest annual data for emissions produced in the UK (Scope 1 and 2) for 2022, published as a provisional figure by the UK government, of 417.1m tonnes of CO2e. Scope 3 emissions are not included.
        - Figures cannot sensibly be aggregated with emissions data for non-gilt assets due to risk of double counting as UK emissions include corporate and household emissions.
        - Total UK government debt at 29 December 2023, taken as the market value of gilts in issuance of £2,335,585m (including green gilts). UK PPP-adjusted GDP estimate for 2022, published by the IMF of $3,716,621m.
        - Gilts posted out as collateral by the Scheme are included in the gilt valuations and gilts received as collateral are excluded. Derivatives, cash and short gilt positions have all been excluded.
    - **Carbon footprint:** Total absolute emissions associated with the issuing country's economy, normalised by total government debt.
    - **WACI:** Total emissions associated with the issuing country's economy, normalised by GDP.
- Legal and General Investment Management ("LGIM")
    - LGIM provided the estimated figures for two of the Scheme's UK LDI funds in the DB portfolio as at 31/12/2023. This analysis excludes derivative instruments including repo. LGIM assumes the carbon intensity of government bonds should reflect carbon emissions of the entire country. To that end, carbon intensity is

measured as the total carbon equivalent GHG emissions within a country border normalised for GDP (tC02e/$m GDP). For the carbon footprint, the numerator remains the same whilst the denominator is the total capital stock, a measure of total value of investment in the economy at a point in time (tCO2e/$m invested). The metrics LGIM provided for each portfolio were calculated by the relevant investment team and reviewed prior to being released.

  - LGIM define 'Sovereigns' as, Agency, Government, Municipals, Strips and Treasury Bills and is calculated by using: the CO2e/GDP, Carbon Emissions Footprint uses: CO2e/Total Capital Stock
  - Derivatives including repos are not presently included and the methodology is subject to change. Leveraged positions are not currently supported. In the instance a leveraged position distorts the coverage ratio over 100% then the coverage ratio will not be shown.

US Treasuries ("TIPS") calculation methodology:

- Insight Investment Management provided the estimated figures for the Scheme's US TIPS fund in the DB portfolio. To calculate the emissions attributable to US TIPS, Insight have used the latest annual Scope 1 and Scope 2 CO2e emissions data produced by the US Environmental Protection Agency ("US EPA"), and apportioned these figures to the total market value of US Treasuries in issuance as at 31 December 2023.
  - Sources, assumptions and approach:
    - Latest annual data for emissions produced in the US (Scope 1 and 2) as at 31 December 2021, published by the US Environmental Protection Agency, of 5,586m tonnes of CO2e. Scope 3 emissions are not included.
    - Figures cannot sensibly be aggregated with emissions data for non-sovereign assets due to risk of double counting as US emissions figure includes corporate and household emissions.
    - The calculation uses the total market value of US Treasuries (used as an approximation for General Government Debt) in issuance at 30 November 2023, of $24,165,200m (£19,092,925m) (source: St Louis Fed) and the US purchasing power parity-adjusted GDP for 2023 of $26,949,643m (Source: IMF).
    - Scheme's asset position at 29 December 2023.
    - FX conversion rate of 1USD=0.7901GBP at 29 December 2023 (Source: Bank of England) used for converting GDP and total market value of US Treasuries to GBP.
- **Carbon footprint:** Total absolute emissions associated with the issuing country's economy, normalised by total government debt.
- **WACI:** Total emissions associated with the issuing country's economy, normalised by purchasing power parity-adjusted GDP.

Infrastructure Debt

- Vantage Infrastructure ("Vantage") provided the estimated figures for the Infrastructure Debt fund in the DB portfolio. This uses emissions reporting data taken directly from borrower reporting as at 31st December 2022 and the Scheme's investment amounts as at 31st December 2022. This is the latest available information.
- 17.8% of the emissions of the portfolio (by debt investment amount as at 31/12/22) were verified by an independent source prior to being provided to Vantage by the borrower. A further 73.9% of the emissions data were provided by the borrower but not subject to independent verification. The final 8.3% of the portfolio by value relates to prorated estimates against comparable companies undertaken by Vantage. Where Scope 3 emissions are not reported by an asset, Vantage has not calculated estimated values due to the complexity and variability between companies.

Property

- Alpha Real Capital (Ground Rents)
  - Alpha Real Capital provided the estimated figures for one of the Scheme's Property funds in the DB portfolio.
  - Fund emissions are assessed annually and the data provided corresponds to 2022 emissions, obtained in 2023 with the support of external consultants (CBRE).
  - The reported metrics are based on proxy and actual data. In the case of proxy data, figures are provided by MSCI Real Estate Climate VaR, and therefore is subject to MSCI's methodology limitations and assumptions.
  - In the case of HSBC ILIF Holding, reported data corresponds to 68% of the fund and estimated equals 32%, on a floor area basis. In the case of HSBC Direct Holding (Parkdean), metrics are based on proxy data. Such proxies are location and property-type specific, and provided by MSCI Real Estate Climate Var.

PUBLIC

- LaSalle Investment Management
    - LaSalle Investment Management provided the estimated figures for two of the Scheme's Property funds in the DB portfolio.
    - For built property, scope 1 and 2 emissions relate to the energy use of the building. This does not include construction or development activities. Data is based on a combination of actual energy consumption (where available) and estimated energy consumption, based on the property type, size and nature of the underlying occupiers.
    - Weighted average emission factor is the weighted average of the relevant energy suppliers' emission rates. Asset's emissions are the emissions for each asset determined in an appropriate manner
    - External estimations of real asset emissions have been provided by JLL Upstream Sustainability Services, a market leading real estate sustainability consultancy.
    - LaSalle did not provide a WACI for the two funds as this metric is inconsistent with commercial real estate metrics. LaSalle have aligned its carbon reporting metrics with the PLSA and until an appropriate and consistent methodology and calculation is available for Real Assets it does not provide a WACI figure on its funds.
- Colombia Threadneedle Investment
    - Colombia Threadneedle Investment provided the estimated figures for one of the Scheme's Property funds in the DC portfolio. Asset-level GHG emissions (i.e., whole building carbon emissions) include:
        - Scope 1 emissions
        - Scope 2 emissions
        - Scope 3 emissions for Category 13: Downstream Leased Assets (i.e., tenant data)
    - The above scope aligns with PCAF Technical Guidance for 'Accounting and reporting of GHG emissions from real estate operations; Technical Guidance for the Financial Industry' (March 2023) and The International Financial Reporting Standards (July 2023).
    - Assumptions and Approach:
        - Where there is only partial or no data available for any asset in the reporting period, 01 January 2023 to 31 December 2023, gaps in consumption data (for assets with less than 50% completeness) are filled on a pro-rata basis using existing data from a comparable historical period or using a representative benchmark if insufficient historical proxy data is available. Benchmarks are sourced from EVORA Global Ltd's proprietary dataset, allocated by asset class and country where available.
        - Due to the differing availability of estimated rental values (ERVs) for all assets in the reporting period, 01 January 2023 to 31 December 2023, where current figures could not be sourced for any asset in the reporting period, proxy data provided as of 31 December 2022 have been used as an indicative value for all assets in scope.
        - Where Gross Internal Area (GIA) is not reported for an asset, GIA is estimated using asset class-specific benchmarks based on a ratio of the net lettable area to GIA, aligned to those used by GRESB
    - **Carbon footprint:** Whole-building GHG emissions are attributed to investors based on an equity ownership approach, normalised by the portfolio value. Emissions are the absolute emissions associated with the portfolio, expressed in tonnes CO2e.
    - **WACI:** WACI is the exposure of the portfolio to carbon-intensive companies, expressed in tonnes of CO2e per million units of revenue in applicable currency.
- LGIM
    - LGIM provided the estimated figures for one of the Scheme's Property funds in the DC portfolio.
    - Carbon dioxide equivalent (CO2e) is a standard unit to compare the emissions of different greenhouse gases. The choice of this metric follows best practice recommendations from the Task Force on Climate-related Financial Disclosures.
    - Data on carbon emissions is sourced from companies' operations and purchased energy.

Private Equity

- Pathway provided the estimated figures for the Scheme's Private Equity fund. This data relies on the Holdings-based Carbon Footprint Analysis as provided by MSCI and Burgiss. The carbon data includes both reported and

estimated emissions for companies, covering approximately 68% of the market value of PPEF XIX and is not extrapolated to the full size of the portfolio.

- MSCI and Burgiss provide carbon estimates and other figures in alignment with PCAF standards.

Renewable Infrastructure

- Schroders GreenCoat provided the estimated figures for the Renewable Infrastructure fund. All emissions are estimated using a GHG Protocol approved methodology and calculated based on equity ownership of the assets. Asset value is total equity as at 30 September 2023.