Climate disclosures for year ended 31 December 2023

Produced by: Sopra Steria (Retirement Benefits Scheme) Trustees Limited

Date: June 2024

Introduction

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

The TCFD is an initiative that has developed best practice guidance for climate-risk reporting. UK regulations require trustees of certain pension schemes to align with the recommendations of the TCFD and publish an annual TCFD-aligned report to set out information on the Scheme's management and exposure to climate-related risks and opportunities.

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

This document is the second annual TCFD report for Sopra Steria Retirement Benefits Scheme (the "Scheme") and covers all three sections of the Scheme (SPP Section, SRP Section and SMP Section, the "Sections"). It has been prepared by Sopra Steria (Retirement Benefits Scheme) Trustees Limited (the "Trustee") for the year ended 31 December 2023.

What is TCFD?

The Financial Stability Board created the Taskforce on Climate-related Financial Disclosure ("TCFD") to develop recommendations on the types of information that entities should disclose to support investors, lenders, and insurance underwriters in appropriately assessing and pricing risks related to climate change.

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

Table of contents

Executive summary

This report sets out the actions that we, the Trustee, have taken to understand the potential impact climate change could have on the Scheme.

We have worked closely with our investment adviser to carefully consider the potential impact climate change could have on the Scheme's investments. This includes considering how we can mitigate any climate-related risks but also, take advantage of climate-related opportunities to help us achieve our objective of ensuring that the benefits promised to members are provided for each Section, whilst investing in a prudent and responsible way.

The report is divided into four sections, to reflect the four pillars of the TCFD's recommendations:

- **Governance:** Processes in place around the management of climate-related risks and opportunities for the Scheme;
- **Strategy:** The actual and potential impacts of climate-related risks and opportunities on the Scheme's investment and funding strategy;
- **Risk Management:** The processes used to identify, assess and manage climate-related risks on an ongoing basis; and
- **Metrics and Targets:** The metrics we use to help measure our exposure to climate-related risks and our climate-related target.

Sopra Steria Sustainability

Sopra Steria Group, the Principal Employer and Sponsor of the Scheme, puts sustainability at the heart of everything it does. As part of its sustainability commitments, the Group has committed to becoming Net Zero by 2040.

The Scheme often engages with the Group, and the Trustee shares the Group's desire to "build a brighter future for everyone and protecting the environment".

Governance

The Scheme is a defined benefit scheme consisting of three sections: the SMP Section, the SPP Section and the SRP Section (each a "Section" and together "the Sections"). Each Section has its own ringfenced assets which are then invested to meet its own liabilities, i.e., the benefits promised to the members of that Section. Together, the Sections invest c. £1bn of assets across asset classes including equities, property, property debt, illiquid credit, infrastructure, corporate credit and Liability Driven Investment ("LDI").

We, the Trustee, are responsible for the oversight of the governance and management framework relating to Environmental, Social and Governance ("ESG") considerations, including climate-related risks and opportunities.

We believe that ESG considerations, including climate-related risks and opportunities, are financially material, and believe the risks posed by climate change will have an impact on the Scheme's investments over the Scheme's time horizon. Equally we believe that the actions related to the Scheme's investments can have a material impact on climate-related outcomes, and so we also believe that we have a duty to seek a wider/additive societal and environmental impact with the Scheme's investments.

Granular oversight and management of ESG risks and opportunities (including climate change) is the responsibility of the Joint Investment Committee ("JIC"). The JIC is a sub-committee of the Trustee and works closely with the Trustee's investment adviser on all ESG matters, with the ultimate aim of ensuring that the Scheme's responsible investment strategy, including its approach to managing climate change risk and opportunities, remains appropriate.

We require that any third parties we work with, including the Scheme's appointed investment managers and our advisers, take account of climate related risks and opportunities in the roles that they perform for the Trustee and the Scheme, and we monitor and review this accordingly.

Strategy

We have carried out two assessments to understand how climate-related risks and opportunities could affect the Sections' investment and funding strategies:

- A qualitative assessment of each asset class the Scheme invests in to help us understand how the Scheme's investment and funding strategy may be exposed to and impacted by climate change risks and opportunities.
- Quantitative climate change scenario analysis, where we considered a range of several possible climate change scenarios and their potential impact on each Section's funding position.

Our qualitative analysis shows that climate related risks and opportunities are expected to impact the asset classes the Scheme invests in in different ways. For asset classes deemed to have a higher exposure to climate-related risks (including equities and property) we note that these asset classes only form a small percentage of overall assets, and that this proportion is expected to reduce further over time as the Sections approach full funding. We have also taken action to ensure the investment strategies utilised incorporate consideration of climate-related risks in the investment process. Generally, exposure to climate-related risks is low given the majority of the Scheme's assets are invested in LDI and corporate credit portfolios which have low overall exposure to climate-related risks.

We have engaged with our investment managers to understand potential climate-related investment opportunities. Opportunities identified include cleaner energy, energy and materials efficiency, green investments and biodiversity. We continue to delegate the selection of individual investments to our fund managers and expect them to consider these opportunities appropriately where consistent with their investment mandate and objectives.

The quantitative analysis indicated that all Sections of the Scheme exhibit reasonable resilience under most of the climate change scenarios. Even in the worst-case scenario that we assessed, where funding levels across all Sections deteriorate sharply in 2032, the SMP Section remained in surplus and the SRP and SPP Sections could be expected to return to surplus (on an economic basis) by 2040.

It is important for us and our stakeholders to keep in mind that the current asset allocation of each Section is subject to change. Over time, this may mean that the Scheme's climate risk exposures and the time horizons over which these are significant may also be subject to change.

Risk Management

The management of climate-related risks and opportunities is integrated within our wider risk management framework, which is overseen by the JIC. This includes:

- Annual evaluation of the ESG credentials of the Scheme's appointed investment managers, including follow up action and engagement if managers are deemed as falling behind our expectations.
- Annual review of manager stewardship activities (as outlined in our Engagement Policy Implementation Statement).
- Regular training on climate and wider ESG topics.

Alongside this, we undertake periodic training on responsible investment to understand how ESG factors, including climate change, may impact the Scheme assets and liabilities. Details of training we have undertaken through the Scheme year are included in the Governance Section.

Our full Climate Risk Management Plan (which includes the complete list of activities we undertake to manage climate-related risks, as well as timeframes and frequency of these activities) can be found in the Risk Management Section.

Metrics and Targets

We have gathered and collated the data for four climate-related metrics:

- Total greenhouse gas ("GHG") emissions;
- Carbon footprint;
- Portfolio alignment; and
- Data quality

As this is our second TCFD report, the total GHG emissions and carbon footprint disclosed in this report now relate to Scopes 1,2 & 3 emissions where available.

While we have endeavoured to collect a complete set of data for all of the Scheme's investments, not all of the required information was available, and for certain asset classes, no information was available at all. We expect that better information will become available over time, as the industry aligns to expectations and best practice standards. We also plan to engage with managers where incomplete data was received to communicate to them our expectations for future reporting.

What are emission "scopes"?

There are three ways of categorising the kinds of emissions an organisation makes, which are referred to as "scopes":

Scope 1 & 2 emissions are essentially those owned or controlled by an organisation, as a result of their own activities.

Scope 3 emissions come from activities not owned or controlled by an organisation, but from others that they indirectly affect, for example in their supply chain.

General observations on the Scheme's climate-related metrics include:

- Generally good levels of data availability, being strongest for equity and LDI investments, followed by property investments (over 80%).
- The Scheme's equity investments have the highest degree of portfolio alignment (just over 40%).
- There has been a reduction in the scopes 1 & 2 carbon footprint for property, LDI and corporate credit for all Sections.

– There has been a significant increase in the carbon footprint for the Scheme's infrastructure investments which has been driven by improvements in data availability rather than any material change to the underlying investments.

We have also set the following climate-related target:

To reduce the carbon footprint of the Scheme's equity and corporate credit investments by 50% by 31 December 2030

Target is set versus 31 December 2021 baseline (i.e., versus the carbon footprint metrics disclosed in the Scheme's first TCFD report.

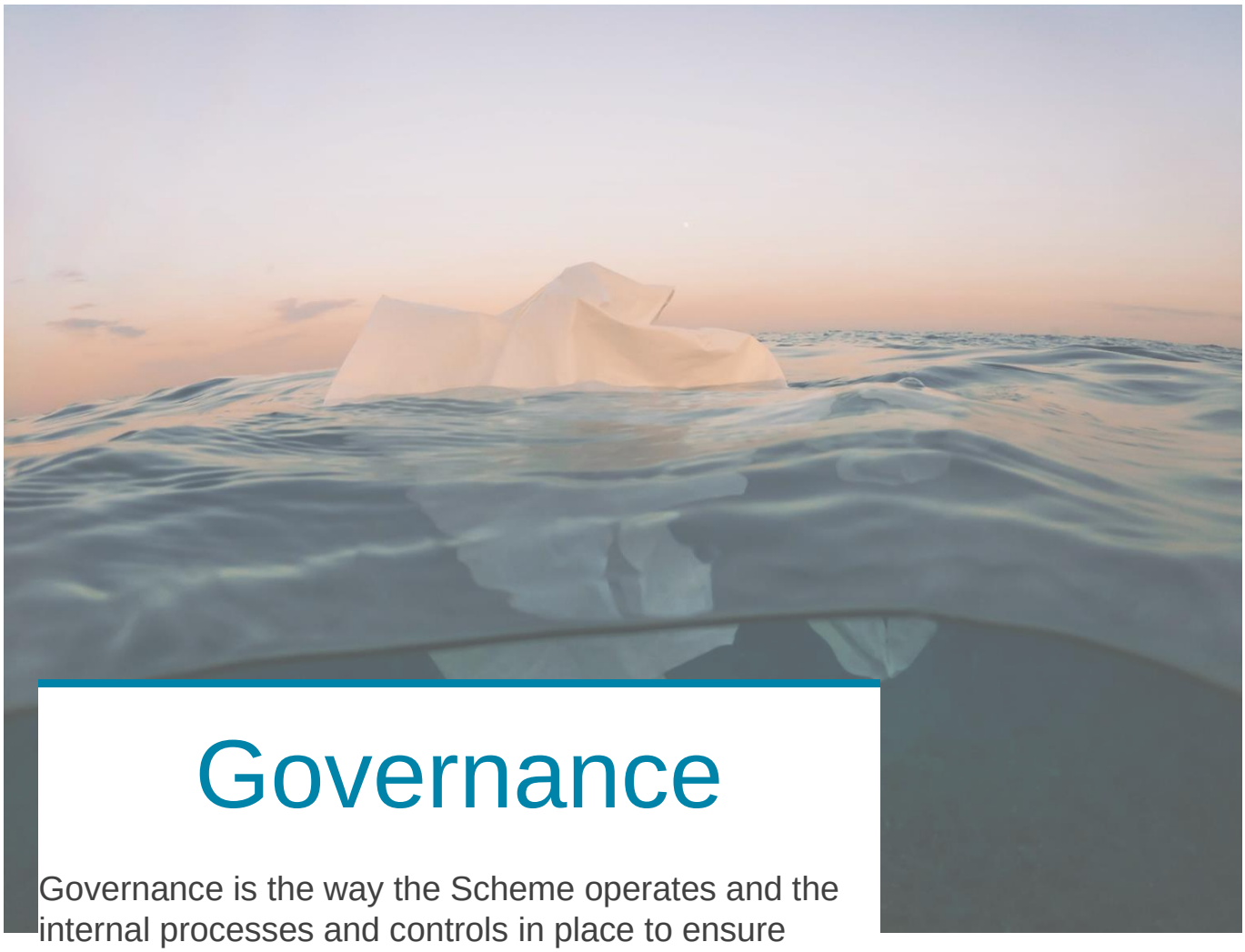
There has been a 35%-37% fall in carbon footprint for corporate credit investments across the Sections over the last 12 months. For the Scheme's equity investments, there has been an increase in carbon footprint over the last 12 months. This has been driven by changes made to the SRP and SPP equity portfolios, where we have opted to invest in index-tracking funds (with a far larger number of underlying investments) versus the previous active approach. Whilst the new approach has a higher carbon footprint, we note that the new strategy explicitly accounts for ESG factors (including climate-related factors) in the investment decision-making process and that the carbon footprint remains significantly lower than the broad market benchmark.

To continue to progress towards our target, we will engage with the Scheme's managers to understand their decarbonisation plans and encourage best practice reporting. For any new fund manager selections, we will also consider the carbon footprint and wider climate-related risks and opportunities associated with the prospective investment strategy.

We hope you enjoy reading this report and understanding more about how we are managing climate-related risks and opportunities within the Scheme. The Trustee, as per the rest of the pensions industry, is on a journey regarding its understanding of climate-related risks and opportunities. We expect our reporting to evolve over time and we welcome feedback from members, and our wider stakeholders, as we look to continuously improve our ESG reporting and disclosure.

Frank Oldham

On behalf of the Sopra Steria (Retirement Benefits Scheme) Trustees Limited.



Governance

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

Our Scheme's governance

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

Reminder: How the Scheme is structured

The Scheme is a sectionalised scheme consisting of three sections: the SMP Section, the SPP Section and the SRP Section (each a "Section" and together "the Sections"). Each Section has its own ringfenced assets which are then invested to meet its own liabilities, i.e., the benefits promised to the members of that Section. This means that each Section also has its own investment strategy based on the proportion of assets relative to its liabilities, also known as its funding level. Each Section's investment strategy incorporates de-risking, so as the funding level increases, the proportion of Section assets invested in the Growth and Credit portfolios decrease, and the proportion in the Liability Matching Portfolio increases.

As at 31 December 2022, the SMP Section was over 100% funded (106% on a technical provisions basis) and the SRP and SPP Sections were over 90% funded (94% and 98% respectively on a technical provisions basis). On an Economic Liabilities basis (as at 31 December 2022), the SMP, SRP and SPP sections were 99%, 81% and 86% funded, respectively.

Climate Mission Statement

As the Sopra Steria (Retirement Benefits Scheme) Trustees Limited, we aim to invest the assets of the Scheme prudently with the objective of ensuring that the benefits promised to members are provided for each Section.

We acknowledge that climate change is financially material to our objective and believe the risks posed by climate change will have an impact on the Scheme's investments (and vice versa) over the Scheme's time horizon. The stability of the Earth's climate is therefore a key priority of ours and Sopra Steria Limited (the "Principal Employer").

As such, we recognise the importance of properly managing the risks and opportunities in relation to climate change. Climate change as a risk factor features in our investment decisions, strategy reviews and engagements with asset managers across all asset classes.

We believe we have a duty to seek a wider/additive societal and environmental impact with the Scheme's investments. These wider ESG considerations (including climate change) are also financially material and should therefore also be integrated into investment decision making in order to identify investment opportunities and risks. Management of climate change risks should not override or come at the expense of these wider ESG considerations.

Governance structure and role of the Trustee

The Trustee collectively is responsible for oversight of all strategic matters related to the Scheme. This includes approval of the governance and management framework relating to Environmental, Social and Governance ("ESG") considerations and climate-related risks and opportunities.

Granular oversight of ESG (including climate change) risks, opportunities and risk management is the responsibility of the Joint Investment Committee ("JIC").

The JIC is a sub-committee of the Trustee and keeps the Trustee updated on material climate related and ESG developments on a regular basis via quarterly Trustee board meetings.

The Trustee is then responsible for evaluating and ratifying proposals put forward by the JIC and ensuring consultation with the Principal Employer.

The figure on the right illustrates the typical flow of discussion between the key groups on Responsible Investment ("RI") matters. In practice, the interactions are more flexible.

An example of how this worked in practice over the year in practice is if, as part of the annual ESG monitoring, the Investment Adviser and JIC identify concerns regarding a particular fund or manager, then the JIC will request a joint discussion with the asset manager in question regarding the rationale for their processes and potential areas of improvement. The JIC will then notify the Trustee of the outcome of any engagement including whether they believe further action is required.

Further detail on the responsibilities of each party is set out further below.

Figure 1: Governance structure

Trustee beliefs and approach

We have discussed and agreed our ESG and climate-related beliefs and our overarching approach to managing climate change risk. Details are set out in our RI policy, and in the Scheme's Statement of Investment Principles ("SIP") to which it is scheduled, of which it forms part and is reviewed annually.

The RI policy is reviewed as part of any strategic review of the Scheme's investment objectives and management of risk, or as required in response to changing regulations or broader governance issues.

Our core beliefs are set out in our Climate Mission Statement above. In line with these beliefs, our approach to managing climate-related risks and opportunities is to:

- Integrate assessments of climate change risk into our investment decisions across asset classes and convey the importance of climate change risk to our asset managers.
- Assess risks and opportunities over relevant and appropriate time horizons (outlined in the Strategy Section of this report), and where appropriate, consider transition and physical risks separately.
- Seek to capture climate-related opportunities in our investment portfolio where possible and appropriately aligned with our strategic objectives and fiduciary duty.
- Harness the power of stewardship and engagement to preserve and enhance the value of assets and also to manage the social and environmental impact of the Scheme's investments.
- Consider excluding investments if there is a consensus view that they present a financially material ESG risk (for example, there are significant negative effects on the community or environment) and there is no expectation that engagement could resolve or rectify the issue.
- Receive training on a regular basis (at least annually) on ESG, climate related issues, industry developments and best practice to ensure that we have the appropriate knowledge and understanding to support good decision-making.

As part of our ongoing oversight of the Scheme, we have decided the most relevant time horizons for us to consider are:

- short term: **up to 3 years**, reflecting a triennial valuation cycle
- medium term: **4-10 years**
- long term: **11 years onwards**

These time horizons were chosen as they align with the likely time horizon over which current members' benefits will be paid. They are relevant for all three sections of the Scheme.

Trustee update

During the last Scheme year, we updated our SIP to account for new guidance on stewardship from the Department for Work and Pensions.

In particular, we highlighted the fact that we expect the Scheme's investment managers to engage with underlying investee companies on ESG considerations (including but not limited to climate change) and other relevant matters such as the companies' performance, strategy, risks, capital structure, and management of conflicts of interest.

Trustee update

In March 2023, the JIC received training from our investment adviser on climate change scenario analysis for the SRP and SPP Sections, following initial analysis in 2022 for the SMP Section. This analysis helped us to better understand the potential climate impacts on the SRP and SPP funding strategies given the different asset base and liability profile of these Sections.

Our beliefs on RI (including climate-related risks and opportunities) were shared with the appointed investment managers in 2022, and we did not make any significant changes to our beliefs or policies over 2023.

Role of the JIC

As set out above, the JIC is a sub-committee of the Trustee. The JIC is responsible for working closely with our investment adviser on all RI matters, with the ultimate aim of ensuring that the Scheme's responsible investment strategy, including our approach to managing climate change risk and opportunities, remains appropriate.

The key climate related activities undertaken by the JIC, with the support of our investment adviser, are:

- Oversight and review of our Responsible Investment ("RI") policy;
- ESG and climate related monitoring of the Scheme's investments, including periodic reviews of all funds used by the Scheme;
- Reviewing climate scenario modelling as a risk management process as part of each formal triennial strategy review;
- Identification of risks, new investment and other opportunities, including
- the selection of new investments with explicit consideration of manager ESG integration and stewardship;
- Reporting and disclosures, including publishing reports in line with the TCFD recommendations;
- Engaging with asset managers to: ensure that stewardship activities are being undertaken appropriately by the asset managers on our behalf; understand how they are considering climate risks in their investment approach; and obtain and disclose relevant climate-related metrics; and
- Regularly reviewing best practice regarding the identification and disclosure of climate-related risks. This includes reviewing the calculation methodologies and availability of climate-related data as new data and information emerges.

TCFD is an item on the JIC's business plan and so is discussed at least annually.

Trustee update

Over the year to 31 December 2023, TCFD-related items including climate-related risks and opportunity remained key discussion points at the quarterly JIC meetings and were considered as part of investment strategy and investment manager changes.

How we work with our advisers

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

Investment adviser – our investment adviser provides investment-related strategic advice and support to the JIC and ourselves in respect of the management of ESG and climate-related risks and opportunities.

This includes:

- Investment strategy advice and reviews with consideration of RI issues;
- Provision of regular training and updates on climate related issues;
- Climate change scenario analysis;
- Support on ESG monitoring and providing ESG ratings.

Scheme Actuary – the Scheme Actuary, helps us assess the potential impact of climate-related risks on the Scheme's funding where appropriate.

Covenant adviser – Our covenant adviser helps us understand the potential impact of climate-related risk on the sponsor covenant of the Principal Employer, the Sopra Steria Group.

We review the ESG ratings of all our external advisers on a regular basis to ensure they are aligned with our expectations and suitably positioned to advise us on climate-related risks. We also specifically consider how our investment adviser has advised us on ESG (including climate) related matters as part of our annual review of their services.

Strategy

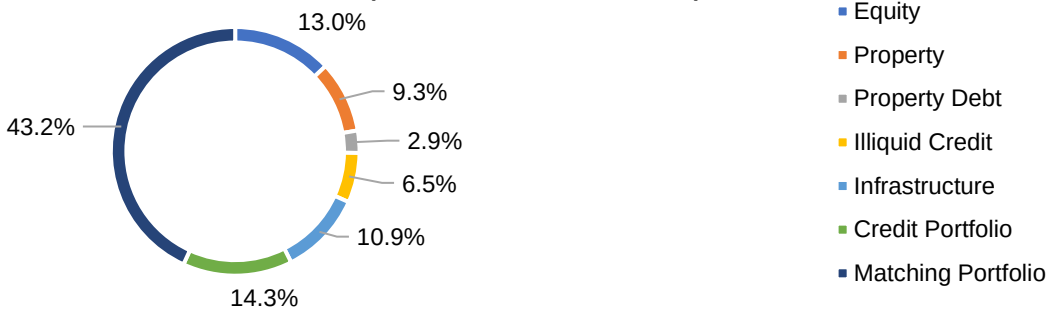
It is crucial to think strategically about the climate-related risks and opportunities that will impact the Scheme if we are to stand a chance of mitigating the effects of climate change.

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

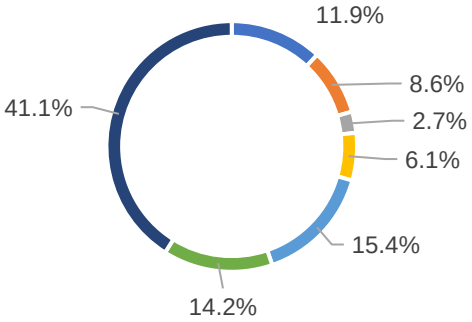
Reminder: Current Investment Strategy

The charts below set out the asset allocation for each of the Sections of the Scheme. Data is shown as at 31 December 2022 to align with the date at which the climate-related metrics have been gathered (see the Metrics & Targets Section of this report).

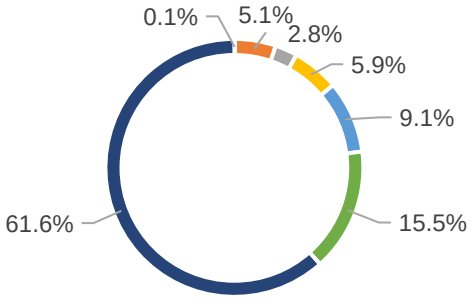
SPP Asset Allocation (31 December 2022)



SRP Asset Allocation (31 December 2022)



SMP Asset Allocation (31 December 2022)



Current Investment Strategy

Full details of the investment strategy for the Sections can be found in the Statement of Investment Principles.

Generally, as the economic funding level improves (the proportionate difference between the value of each Section's assets and the promised obligations to members, otherwise known as liabilities) a larger proportion of each Section's assets will be invested in a matching portfolio, with less invested in riskier assets like equity and property (i.e. more growth-oriented assets). This is to reduce investment risk and protect the funding position.

Changes to the investment strategy since our last TCFD report

Changes have been made to the underlying funds we use in the corporate credit and equity allocations. These changes were made following an investment strategy review, structuring the assets in line with longer term objectives whilst improving the ESG credentials of the Scheme. In particular the Scheme has allocated to LGIM Future World Global Equity Index funds, providing exposure to developed and emerging markets while reflecting significant environmental, social and corporate governance (ESG) issues.

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

We carry out a qualitative risk assessment of the asset classes in which each of the Sections are invested in. From this we identify which climate-related risks could have a material impact on each Section of the Scheme. We also identify available climate-related opportunities.

To help us with our assessment, we surveyed our investment managers asking them to rate the climate-related risks and opportunities they believe their funds are exposed to.

From this the Trustee has worked with its investment advisers to identify which climate-related risks and opportunities could have a material impact on each Section of the Scheme over the relevant time-horizons. All the information used for this analysis is based on information provided by the investment managers of the Scheme.

At the time of writing, some of the Scheme's investment managers have not been able to provide a formal response to the questionnaires for the risk assessment, including managers of the Scheme's infrastructure investments. However, the infrastructure managers did provide some high-level information on how they approach climate risk and opportunity management which we have considered as part of our analysis.

With our investment advisers, we are engaging with all managers to set expectations on the availability of this information in the future to assist with the management of climate-related risks and opportunities for the Scheme.

It is important for us and our stakeholders to keep in mind that the asset allocation of each Section is subject to change. Over time, this may mean that the Scheme's climate risk exposures and the time horizons over which these are significant may also be subject to change.

Trustee update

In 2023, we asked our managers to review the risk assessments previously provided and notify us of any material changes.

Whilst there were no material changes to any of the existing mandates, changes to the investment strategy over the year has meant that we have gathered some new assessments for the new equity strategies being used by the Scheme.

Their climate-related risks assessment can be found in the Appendix.

How the risk assessment works

Risk categories

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

Transition risks are associated with the transition towards a low-carbon economy. For example, shifts in policy technology or supply and demand in certain sectors.

Physical risks are associated with the physical impacts of climate change on companies' operations. For example, extreme temperatures, floods, storms or wildfires.

Ratings

The analysis uses a RAG rating system where:

Red denotes a high level of financial exposure to a risk. **High priority**

Amber denotes a medium level of financial exposure to a risk. **Medium priority**

Green denotes a low level of financial exposure to a risk. **Low priority**

Note: *each assessment is on an asset class and strategy specific basis and so assessments for different asset classes are not directly comparable.*

Time horizons

We assessed the climate-related risks and opportunities over multiple time horizons considering the liabilities of the Scheme and its obligations to pay benefits. We decided the most appropriate time horizons for the Scheme are:

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

Opportunities

As well as risks, climate change and the transition to a greener economy is expected to create investment opportunities. We have also considered these opportunities at an asset class level based on the aggregation of responses received from the Scheme's underlying fund managers.

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

Climate-related risk assessment

Key conclusions

We recognise that the majority of all three Sections' assets are invested in assets with a low level of climate-related risk over all time horizons. In particular, the LDI investments (which form the majority of all three Sections' asset allocations) are considered to have consistently low levels of climate-related risks.

Where there are risks (e.g., some investments are deemed to have higher exposure to climate-related risks over the long-term), we are comfortable that:

- Generally, the risk exposure is low, with only equities being considered as having a high-level of transition risk exposure over the long-term;
- Exposure to these risks should reduce over time as the Sections move towards full funding and a lower risk investment strategy; and
- We have employed managers who are appropriately considering these risks (and climate related opportunities) on an ongoing basis in order to manage risk on our, and the Scheme's beneficiaries, behalf.

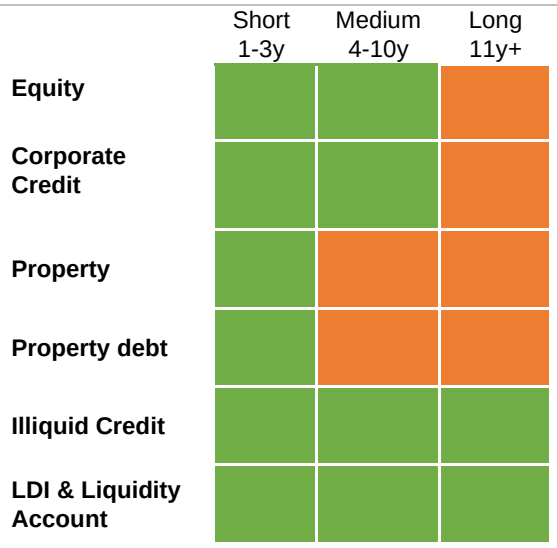
We are comfortable that no immediate action is needed following our qualitative risk assessment but will continue to consider the management of climate-related risks and opportunities as part of our ongoing review of the Scheme's strategy and our appointed investment managers.

The tables overleaf summarise the transition and physical risks for each asset class each Section of the Scheme is invested in. Please see the Appendix for a detailed assessment for each asset class.

Note: The information set out below is based on information provided by the Scheme's appointed investment managers. Where there are multiple investment managers appointed for investments in a single asset class, our investment adviser has accumulated the manager responses.

SPP, SRP & SMP*

Physical Risks

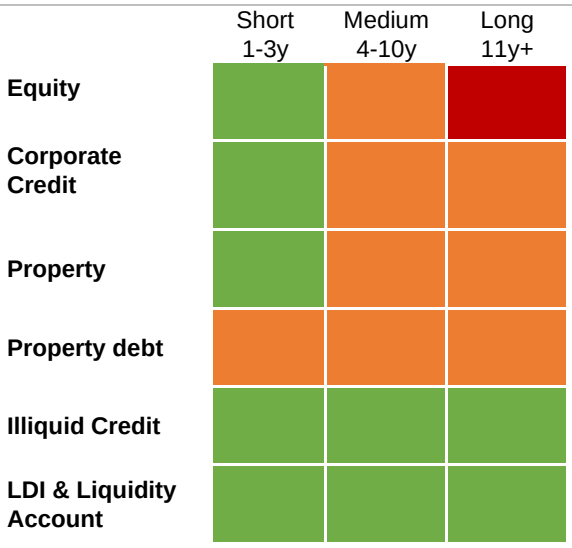


Infrastructure *Not provided*

Source: Aon.
*All asset classes are applicable for all three Sections, except for equity which the SMP Section is not invested in.

- Risks are generally increasing over the longer-term although all are considered to be a medium or low level of risk exposure, with no areas of high exposure.
- For equity investments, we believe that physical risks are likely to become more significant and affect companies' profitability through impacts on supply chains and physical infrastructure.
- Increasing risks of extreme weather events and changes to weather patterns over the long-term could also lead to more regular and higher financial costs for issuers in the corporate credit market due to the impact on asset bases or business disruption. Again, we believe this is a medium-level risk.
- In the medium and long-term, the physical effects of changing climate, including the heating or cooling of buildings in changing climates present potential material financial impacts for the property sector.
- In the medium- and long-term, a majority of properties within the property debt portfolio are exposed to heat risk which has the potential to cause a medium financial impact.

Transition Risks



Infrastructure *Not provided*

Source: Aon.
*All asset classes are applicable for all three sections, except for equity which the SMP Section is not invested in.

- Equity values, especially of companies in high-carbon sectors such as utilities and industrials, are more likely to be exposed to financial risk impacts related to climate change over the medium- and long-term, with many high emitters at risk of squeezed profit margins and asset stranding. We have selected a fund which should reduce the Scheme's exposure to this but recognise that it remains a risk.
- Corporate credit investments are considered to be less affected by transition risks than equity investments but are still considered to have a medium risk exposure.
- Over the long-term, the property investment manager expects to see significant transformations across the industry driven by societal demands, regulatory change, and the need for investors to demonstrate and deliver environmentally and socially responsible performance outcomes, presenting a medium risk.
- In the long-term, for property debt, as more businesses commit to becoming Net Zero by 2030 or 2050, occupiers will increasingly demand Net Zero buildings. As none of the buildings in the portfolio are Net Zero compliant yet, the buildings could lose occupiers as a result. An amber rating has been applied as a result.

- There is one investment manager appointed by the Trustee for the Scheme's illiquid credit investments. The manager notes that most of the portfolio's current deals mature within five years, which gives it the ability structure future deals to address more gradual changes in weather pattens as they emerge and resulting in low risk ratings being applied across both physical and transition risks.
- For the Scheme's LDI investments, developed market governments are least likely to be impacted in terms of expected returns by climate risks. This is because most governments in developed markets are members of climate change mitigation initiatives and have set carbon reduction targets. Therefore, they are unlikely to be greatly affected by risk premium adjustments and reallocations.

Climate-related opportunities

We expect our investment managers to integrate ESG considerations, including consideration of climate-related issues, into their investment processes as we understand that climate change can have a material financial impact on our investments.

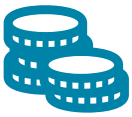
We also recognise that climate change can give rise to various investment opportunities. We have engaged with our investment managers to understand what climate-related opportunities are available within the asset classes the Scheme invests in. The following opportunities may not all be included in the Scheme's current portfolio, as the selection and retention of investments is delegated to our appointed investment managers.

We will continue to monitor the emergence of these opportunities and engage with our investment advisers as required to understand how these could be used to assist us in achieving our objective in line with our Scheme's long-term targets, and we expect our investment managers to take advantage of such opportunities where consistent with their mandate and objectives.

It is important to note that as the Sections continue to move towards a fully funded position, an increasing proportion of the Scheme's assets will be invested in matching assets (i.e., government bonds) where there are currently more limited climate-related investment opportunities.

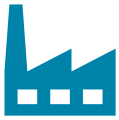
Cleaner energy

Green power generation, clean technology innovation, sustainable biofuels. Our equity managers have identified vehicle electrification and renewables as a potentially significant opportunity as they start to become cheaper relative to conventional alternatives.



Investments

Green bonds offer a large opportunity in the corporate credit space as they allow lenders to engage with investors to achieve a wide range of sustainability linked goals. It is also possible to invest in transitioning companies e.g., supporting companies in the process of setting science-based targets.



Energy and materials efficiency

Advanced materials, building efficiency, power grid efficiency will be of particular importance for the Scheme's property and property debt investments. It is possible that there will be higher rental premiums from assets with Energy Performance Certificates of A or above or high green building certification.

Biodiversity

The Scheme's property debt manager has identified biodiversity enhancing measures as an opportunity:
"As many portfolio assets have large spaces surrounding the buildings e.g., public or private realm, opportunities to identify biodiversity enhancing measures, such as green walls or roofs which also mitigate pluvial flood risk and heat stress." As measures and metrics are developed in order to measure nature-related impacts, the Trustee will look to monitor these.

Source: Managers

It was also noted by the Scheme's investment managers that while technology solutions may help with the transition to a low carbon economy, these may bring elevated costs and potentially high risks of failure, especially in the short run if technology is yet unproven and not cost effective.

As part of our ongoing work to integrate climate-related risks and opportunities into the Scheme's investment, during the Scheme year, we replaced our equity funds with strategies that track low-carbon and/or improved-ESG-score benchmarks.

How resilient is the Scheme to climate change?

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

Quantitative analysis was carried out for the SMP and SRP Sections. Separate analysis was not carried out for the SPP Section, because we believe that due to the similarity in investments and funding, reasonable conclusions can be drawn for this Section based on the results for the SRP Section.

The analysis for both Sections looks at three climate change scenarios. We chose these scenarios because we believe that they provide a reasonable range of possible climate change outcomes. The climate scenarios are compared to a "base case" scenario. The base case reflects current market expectations and pricing for both investment returns and climate-related outcomes.

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

Aon also established a "base case" scenario against which the three climate change scenarios are compared. The base case reflects current market expectations and pricing for both investment returns and climate-related outcomes.

Trustee update

Climate scenario analysis must be carried out at least every 3 years, with an annual review in interim years.

In 2023, we reviewed the scenario analysis first completed in 2022 and we are comfortable that the analysis remains appropriate for this year's report. Although inflation expectations have changed since the analysis was initially carried out, we do not expect this to materially change the results given the high level of inflation hedging in place. There have been no significant changes to the liability profile of the Scheme, the modelling techniques, significant shift in policy implementation to tackle climate change or asset data availability.

Whilst we have made minor changes to the investment strategy (investment into passive equities and disinvestment away from active equities) we do not expect this to significantly alter the outcomes of our existing analysis.

	1	2	3
	Base scenario	**No transition**	**Disorderly transition**	**Orderly transition**
	+1.5ºC – 2.4ºC	**+4ºC**	**<3ºC**	**1.3ºC - 2 ºC**
	Emission reductions start now and continue in a measured way in line with the objectives of the Paris Agreement and the UK government's legally binding commitment to reduce emissions in the UK to net zero by 2050.	No further action is taken to reduce greenhouse gas ("GHG") emissions leading to significant global warming.	Limited action is taken, and insufficient consideration is given to sustainable long-term policies to manage global warming effectively.	Immediate and coordinated action to tackle climate change is taken using carbon taxes and environmental regulation.

Source: Aon.

SMP Section

Overall, we are comfortable with the level of resilience exhibited by the SMP Section's investment portfolio and we are not going to make any changes to the investment strategy or funding strategy as a result of this analysis.

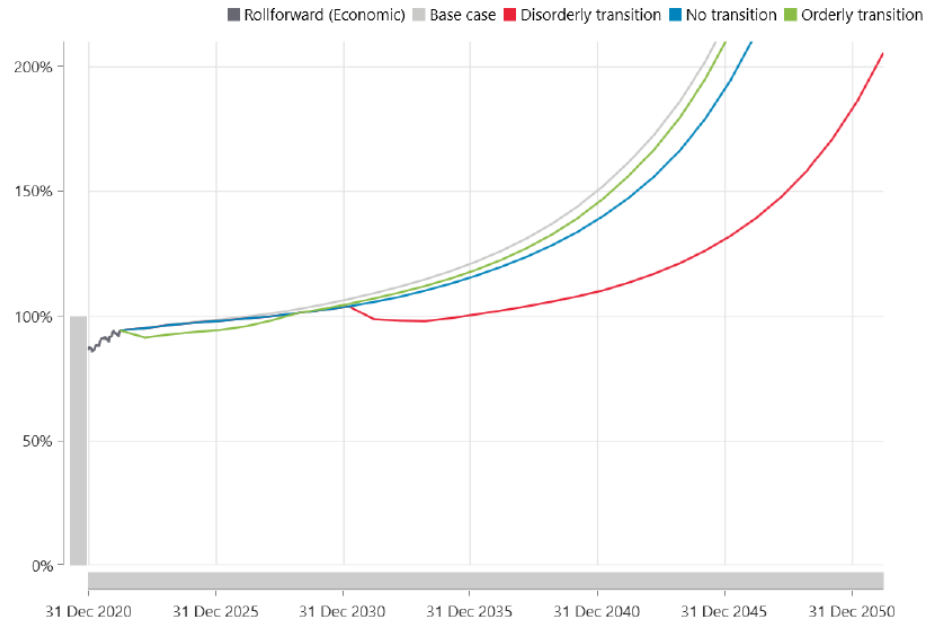
The chart below shows what could happen to the SMP Section's funding level under the various scenarios and time horizons, with each line representing a different scenario. The funding level is a measure of how much surplus assets (or deficit) the Scheme has above the cost of the pension liabilities.

The chart shows what might happen to the funding level based on the Section's strategic asset allocation. We also carried out analysis for the current asset allocation and the results were not materially different.

Depending on the scenario, the funding level increases by varying degrees over the long run – but, notably, there is a marked lag in the funding level progression over time under the 'disorderly transition' scenario. Under some scenarios the funding level experiences sudden falls.

Funding level projections under each climate scenario

Strategic Asset Allocation



Source: Aon. Scenario projections as at 31 March 2022.
Note: Analysis shown is carried out based on the Section's economic liabilities. These are calculated taking no advance credit for investment performance and so can be seen to be a more prudent position than the Scheme's technical liabilities.

The SMP Section runs a diversified asset allocation, with the majority of the Section's assets invested in lower risk assets and with high levels of hedging against changes in interest rates and inflation. As a result, the climate change scenario analysis modelling shows that the Section's portfolio exhibits reasonable resilience under most of the climate change scenarios.

Outcomes are broadly similar under all scenarios over the short and medium-term, with the lower-risk assets expected to be impacted less by possible climate-related impacts (namely transition risks) over this period.

The worst-case scenario for the SMP Section is over the long-term time horizon (11+ years) under the ***disorderly transition***. Although initially, the funding level improves in line with the base case, after 10 years the funding level deteriorates sharply (as there are policies assumed to be brought in at this time which cause a material downward shock to asset prices) and does not recover by the end of the 30-year modelling period. The very limited action to reduce GHG emissions in earlier years, results in a much larger impact once action is belatedly taken. This results

in very poor asset returns over the longer term, particularly when comparing against the other scenarios. That said, while the Section is materially worse off vs the base case, the Section is still expected to remain in surplus throughout.

Deterioration of the funding level could place a strain on the Principal Employer if it has to make up a bigger shortfall through deficit contributions. It may also require the SMP Section to re-risk its portfolio in an effort to reach its funding target or extend the time frame for achieving full funding.

While we should consider the impact of these scenarios over the agreed time periods, it is worth keeping in mind that the SMP Section may have bought in the liabilities within the next 5 years.

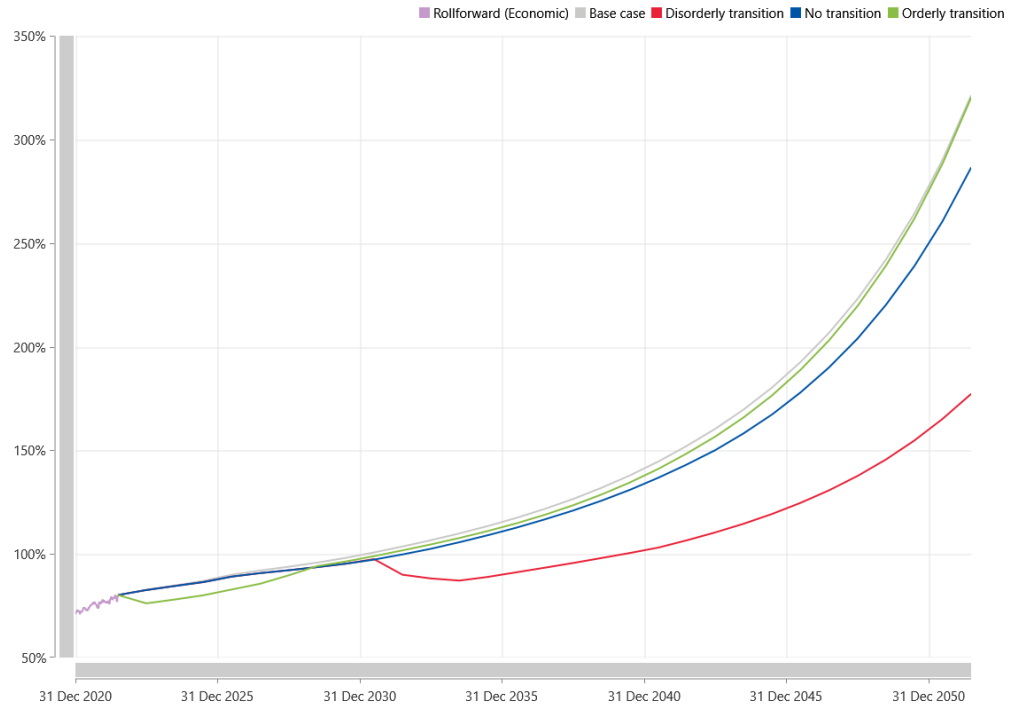
SRP and SPP Sections

Overall, we are comfortable with the level of resilience exhibited by the SRP and SPP Sections' investment portfolio and we are not going to make any changes to the investment strategy or funding strategy as a result of this analysis.

Similar to what is shown for the SMP Section above, the chart below shows what could happen to the SRP Section's funding level under the various scenarios and time horizons, with each line representing a different scenario. Given the similarity in the asset and liability profiles of the SRP and SPP Sections, the patterns and trends below are also considered to be reflective of the climate change scenario analysis for the SPP Section.

The chart shows what might happen to the funding level based on the SRP Section's strategic asset allocation. We also carried out analysis for the current asset allocation and the results were not materially different.

Funding level projections under each climate scenario
Strategic Asset Allocation



Source: Aon. Scenario projections as at 30 June 2022.
Note: Analysis shown is carried out based on the Section's economic liabilities. These are calculated taking no advance credit for investment performance and so can be seen to be a more prudent position than the Scheme's technical liabilities.

Similar to the SMP Section, the SRP and SPP Sections run a diversified asset allocation, with the majority of the Section's assets invested in lower risk assets and with high levels of hedging against changes in interest rates and inflation. Unlike the SMP Section however, the SRP and SPP Sections have some investments in higher reward, but riskier assets, like equities, although these form a relatively small part of the overall asset allocation.
The climate change scenario analysis modelling shows that the SRP Section's portfolio (in terms of the change in funding level) exhibits reasonable resilience under most of the climate change scenarios. Given their similarities, we believe this also holds true for the SPP Section.

The largest short-term risk faced by the Sections is reflected by the ***orderly transition*** scenario. This is due to high inflation and poor asset performance in early years having a pronounced negative impact on asset returns (particularly higher risk assets like equities) although this is followed by a material recovery in later years, bringing the funding level under this scenario back in line with the base case over the longer-term.

The worst-case scenario for the SRP and SPP Sections is over the long-term time horizon (11+ years) under the ***disorderly transition***. This is the same as the SRP Section where after 10 years, the funding level deteriorates sharply, leaving the Sections materially worse off relative to the base case. However, the Sections are still expected to be in surplus by 2040, albeit 10 years later than under the alternative scenarios modelled.

Deterioration of the funding level could place a strain on the Principal Employer if it has to make up a bigger shortfall through deficit contributions. It may also require the SRP and SPP Sections to either increase risk, or retain risk for longer in its portfolio, in an effort to reach their funding targets or extend the time frame for achieving full funding.

Modelling limitations

Please refer to the Appendix for further details in relation to the assumptions used for the scenario analysis and its limitations.

Risk management

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

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

Our process for identifying and assessing climate-related risks

We have established a process to identify, assess and manage the climate-related risks that are relevant to the Scheme. This is part of the Scheme's wider risk management framework and is how we monitor the most significant risks to the Scheme in our efforts to ensure that the benefits promised to members are provided for each Section whilst investing the Scheme's assets prudently.

Qualitative assessment

A qualitative assessment of climate-related risks and opportunities which is prepared by our investment adviser and reviewed by us.

Quantitative analysis

Climate scenario analysis, which is provided by our investment adviser and reviewed by us.

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

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

Trustee update

During the Scheme year, we monitored the stewardship activities of the Scheme's investment managers through the production of the Scheme's annual Engagement Policy and Implementation Statement ("EPIS"). We were comfortable with the stewardship activities being undertaken on our behalf and no further action was required.

Our climate risk management framework

We recognise the long-term risks posed by climate change and believe that these risks will have an impact on the Scheme's investment over the Scheme's time horizon. We have therefore taken steps to integrate climate-related risks into the Scheme's risk management processes.

We have a climate risk management framework to manage climate-related risk and opportunities. The climate risk management framework, set out in the tables below, clearly describes who is involved, what is done and how often. We delegate a number of key tasks but retain overall responsibility and final approval.

Activity	Responsibility	Adviser / supplier support	Frequency of review
Climate change governance framework *(this document)*	JIC	Investment adviser	Annual
Publish TCFD report	JIC	Investment adviser	Annual
Training on climate related issues	-	Investment adviser	At least annual
Review adviser objectives to ensure advisers have appropriate climate capability, and bring important, relevant and timely climate-related issues to the Trustee's attention	Trustee	Investment adviser	Annual
Ensure investment proposals explicitly consider the impact of climate risks and opportunities	JIC	Investment adviser	Ongoing
Ensure that actuarial and covenant advice adequately incorporate climate-related risk factors where they are relevant and material	Trustee	Scheme Actuary, Covenant adviser	Triennial
Engage with the investment managers to understand how climate risks are considered in their investment approach, and stewardship activities are being undertaken appropriately	JIC	Fund managers, Investment adviser	Annual
Undertake quantitative scenario analysis to understand the impact of climate related risks	JIC	Investment adviser	Triennial
Identify the climate-related risks and opportunities for investment & funding strategy and assess their likelihood and impact.	JIC	Investment adviser	Annual
Identify, assess and manage key climate related risks	JIC	Investment adviser	Annual

Include consideration of climate-related risks in the Scheme's other risk processes and documents, such as the risk register and the SIP, and regularly review these.	JIC	-	Annual
Review continued appropriateness of metrics	JIC	Investment adviser	Annual
Obtain data for metrics	JIC	Investment adviser	Annual
Agree/review target	JIC	Investment adviser	Annual

Trustee update

We monitor the above activities as part of our ongoing management of the Scheme's climate-related risks and opportunities, which includes monitoring and reviewing of progress against the Scheme's climate change risk management plan. In 2023, we:

- Received additional training and carried out climate change scenario analysis for the SRP and SPP Sections;
- Reviewed our advisers to ensure they continued to have appropriate skills to advise on climate-related matters;
- Refreshed our analysis of climate related risks and opportunities were analysed during the year. With support from our investment adviser, we asked all managers to rate the climate-related risks and opportunities they believe the Scheme's investments are exposed to. Alongside this, we also reviewed the appropriateness of the climate change scenario analysis carried out within the Scheme's initial TCFD disclosures and are comfortable that the analysis remains relevant for the current reporting year. The conclusions of all our analysis are included in the Strategy Section of this report;
- Sought to ensure that any investment decisions we made appropriately consider climate-related risks and opportunities within the context of the Scheme's wider risk & returns requirements and are consistent with the climate change policy as set out in the SIP. This included our decision to change the funds used to implement our equity allocation for the SRP and SPP sections to funds that explicitly account for ESG (including climate) related factors as part of the investment process;
- Collected metrics data to understand the Scheme's current portfolio emissions, carbon intensity and the degree of portfolio alignment to global carbon emissions targets. We also reviewed the continued appropriateness of these metrics and our target which is related to these metrics to ensure it remains appropriate for the Scheme. More details can be found in the Metrics and Targets Section of this report.

Assessing our managers

To assess our managers' abilities to manage climate-related risks, we asked them nine questions designed by the Pensions Climate Risk Industry Group[1] which help trustees do just that. The questions cover a range of topics including the managers' approaches to climate management, whether they produce their own TCFD reporting, their ability to conduct climate scenario

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

analysis, their engagement policies, and their ability to provide climate-related data.

Key conclusions

We received responses from all investment managers. Some of the key highlights include:

- All investment managers bar one produce TCFD-aligned reports;
- This year, only two investment managers were unable to report on carbon metrics, compared to four investment managers last year; and
- All investment managers have now set net zero-aligned targets.

We will continue to engage with our investment managers to understand any changes to the management of the Scheme's assets, including the integration of climate related risk analysis, improvements in carbon reporting and net zero and the associated timescales involved with these.

Metrics & Targets

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

Our climate-related metrics

We use some quantitative measures to help us understand and monitor the Scheme's exposure to climate-related risks. Measuring the greenhouse gas emissions related to our assets is a key way for us to assess our exposure to climate change.

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

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

Scope 1

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

Scope 2

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

Scope 3

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

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

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

Our climate-related metrics

In our first year of TCFD reporting, we decided what metrics to annually report on. These are described below. This year we reviewed the metrics and we believe they continue to be suitable for us to report against.

Total Greenhouse Gas emissions

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

Carbon footprint

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

Data quality

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

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

Portfolio alignment

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

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

In the tables below are the climate-related metrics for the Scheme's assets of each section. Metrics have been shown separately for each asset class in recognition that different calculation methods may have been used for each (e.g., sovereign investments) and so aggregating the metrics could be misleading.

The Scheme's climate-related metrics

SPP

Asset class	%	Year	Data quality		Total GHG emissions (tCO_2e)		Carbon footprint (tCO_2e/£m)		BTM (%)
			Scopes 1 & 2	Scope 3	Scopes 1 & 2	Scope 3	Scopes 1 & 2	Scope 3	
LDI	**43%**	**2022**	**100%**	**0%**	**48,410**	**N/A**	**179[1]**	**N/A**	**N/A**
	35%	*2021*	*100%*	*-*	*62,329*	*-*	*244[1]*	*-*	*N/A*
Corporate Credit	**14%**	**2022**	**54%**	**11%**	**1,752**	**1,562**	**49**	**207**	**15%**
	29%	*2021*	*63%*	*-*	*16,025*	*-*	*75*	*-*	*15%*
Equity	***13%***	**2022**	**99%**	**98%**	**1,546**	**24,876**	**26**	**420**	**41%**
	15%	*2021*	*98%*	*-*	*2,446*	*-*	*21*	*-*	*46%*
Infrastructure	**11%**	**2022**	**100%**	**100%**	**1,109**	**2,789**	**22**	**55**	**Not available**
	3%	*2021*				*Not available*			
Property	**9%**	**2022**	**86%**	**86%**	**121**	**256**	**3.2**	**6.7**	**11%**
	7%	*2021*	*82%*	*-*	*211*	*-*	*3.9*	*-*	*Not available*
Illiquid Credit	**7%**	**2022**				**Not available**			
	4%	*2021*				*Not available*			
Property Debt	**3%**	**2022**				**Not available**			
	3%	*2021*				*Not available*			

Source: Investment managers / Aon. Data as at 31/12/2022.
***Notes:** "Data Quality" is the proportion of the fund for which emissions data is available, including estimated data. Scope 3 emissions are not available for 2021 because this is the first year of reporting Scope 3 emissions. Excludes cash investments and currency hedge given limited applicability to these investments.*
1. GHG Intensity (t/GBP million GDP nominal)

SRP Section

Asset class	%	Year	Data quality		Total GHG emissions (tCO_2e)		Carbon footprint (tCO_2e/£m)		BTM (%)
			Scopes 1 & 2	Scope 3	Scopes 1 & 2	Scope 3	Scopes 1 & 2	Scope 3	
LDI	**41%**	**2022**	**100%**	**N/A**	**39,689**	**N/A**	**179[1]**	**N/A**	**N/A**
	37%	*2021*	*100%*	*-*	*53,450*	*-*	*244[1]*	*-*	*N/A*
Infrastructure	**15%**	**2022**	**100%**	**72%**	**4,912**	**18,108**	**81**	**412**	**2.6%**
	6%	*2021*	*6%*	*-*	*1*	*-*	*0.7*	*-*	*2.6%*
Corporate Credit	**14%**	**2022**	**51%**	**13%**	**1,407**	**1,464**	**49**	**207**	**14%**
	27%	*2021*	*59%*	*-*	*12,080*	*-*	*76*	*-*	*14%*
Equity	***12%***	**2022**	**99%**	**98%**	**1,195**	**19,223**	**26**	**420**	**41%**
	15%	*2021*	*97%*	*-*	*1,943*	*-*	*22*	*-*	*46%*
Property	**9%**	**2022**	**87%**	**87%**	**96**	**197**	**3.2**	**7**	**11%**
	7%	*2021*	*82%*	*-*	*171*	*-*	*3.9*	*-*	*Not available*
Illiquid Credit	**6%**	**2022**				**Not available**			
	4%	*2021*				*Not available*			
Property Debt	**3%**	**2022**				**Not available**			
	3%	*2021*				*Not available*			

Source: Investment managers / Aon. Data as at 31/12/2022.
***Notes:** "Data Quality" is the proportion of the fund for which emissions data is available, including estimated data. Scope 3 emissions are not available for 2021 because this is the first year of reporting Scope 3 emissions. Excludes cash investments and currency hedge given limited applicability to these investments.*
1. GHG Intensity (t/GBP million GDP nominal)

SMP Section

Asset class			Data quality		Total GHG emissions (tCO_2e)		Carbon footprint (tCO_2e/£m)		BTM (%)
	%	Year	Scopes 1 & 2	Scope 3	Scopes 1 & 2	Scope 3	Scopes 1 & 2	Scope 3	
LDI	**62%**	**2022**	**100%**	**N/A**	**11,636**	**N/A**	**179[1]**	**N/A**	**N/A**
	51%	*2021*	*100%*	*-*	*24,937*	*-*	*244[1]*	*-*	*N/A*
Corporate Credit	**16%**	**2022**	**74%**	**Not available**	**806**	**Not available**	**46**	**Not available**	**0%**
	27%	*2021*	*65%*	*-*	*3,900*	*-*	*73*	*-*	*16%*
Infrastructure	**9%**	**2022**	**100%**	**48%**	**1,962**	**7,414**	**144**	**1,125**	**5%**
	6%	*2021*	*8%*	*-*	*1*	*-*	*0.7*	*-*	*5%*
Illiquid Credit	**6%**	**2022**				**Not available**			
	5%	*2021*				*Not available*			
Property	**5%**	**2022**	**94%**	**94%**	**27**	**46**	**3.7**	**6.3**	**12%**
	7%	*2021*	*81%*	*-*	*54*	*-*	*3.9*	*-*	*Not available*
Property Debt	**3%**	**2022**				**Not available**			
	3%	*2021*				*Not available*			

Source: Investment managers / Aon. Data as at 31/12/2022.
***Notes:** "Data Quality" is the proportion of the fund for which emissions data is available, including estimated data. Scope 3 emissions are not available for 2021 because this is the first year of reporting Scope 3 emissions. Excludes cash investments and currency hedge given limited applicability to these investments.*
1. GHG Intensity (t/GBP million GDP nominal)

Commentary

As per last year, LDI emissions are by far the biggest contributor to each Section's **total GHG emissions**. This is mainly down to the LDI investments being a large proportion of the total asset allocation but also reflects that a different method is used to calculate the emissions associated with LDI versus other asset classes. The LDI portfolio contains mainly UK government bonds. Carbon metrics for UK government bonds are based on the total GHG emissions for the whole of the UK. By contrast, carbon emissions for equities, for example, are based on the emissions associated with the underlying companies invested in, which are typically smaller than the whole UK economy. This means the carbon metrics for LDI are higher than other assets.

We do note however that the overall emissions from the Sections' LDI portfolios have fallen – this is driven by a reduction in the carbon footprint (as in 2022, the overall emissions of the UK were lower) as well as a reduction in all Sections' assets due to market movements.

Generally, **data quality** is strong, with the data quality being strongest for equity and LDI investments, followed by property investments (over 80%). There is still no emissions data available for the property debt and illiquid credit funds, but as noted, this is an industry-wide issue. Given these asset classes account for a small percentage of the Scheme's overall assets, we do not believe any further action or escalation is required.

A significant increase in the carbon footprint for infrastructure can be observed however this is driven by improvements in data availability since 31 December 2021. We also recognise that there has been a small increase in the carbon footprint of our equity investments. However, this is small and the carbon footprint is still well below the broad equity market (as measured by the MSCI World Index), indicating a lower exposure to climate-related risks.

For this year's report, we have also gathered information on **Scope 3 emissions**. Where these have been provided, we note that they are significantly higher than Scope 1&2 emissions. This is as expected given Scope 3 emissions consider the full value chain. However, when aggregating Scope 3 emissions across the Scheme care must be taken due to the high likelihood of double counting as well as reliance on predominantly estimated (rather than reported) figures.

The Scheme's equity investments have the highest degree of **portfolio alignment** (just over 40%). Positively, we expect this to increase to c.55% in our next TCFD report, following changes made to the underlying funds used with the SPP and SRP equity investments in 2023.

Between 31 December 2021, and 31 December 2022, we made changes to the underlying funds used within the Sections' corporate credit allocations. This has driven some of the changes shown between the 2021 and 2022 metrics in the tables above, including a reduction in carbon footprint for this asset class.

Notes on the metrics data

Our investment adviser collected information from the Scheme's investment managers about their greenhouse gas emissions and then collated this information to calculate the climate-related metrics for each Section's portfolio of assets.

Availability of data

- 3 managers (one of our corporate credit managers and two infrastructure managers) were unable to provide Scope 3 emissions.
- Our illiquid credit and property debt managers did not provide any information. Whilst this is disappointing, this is an industry-wide issue and can be expected given the nature of these funds.
- Carbon data for the Scheme's cash investments and currency hedging has been excluded from the analysis due to the nature of the funds meaning that carbon data is not relevant to these investments.
- Two of our three infrastructure managers were unable to provide portfolio alignment data.

No estimates have been made for missing data.

Because not all the Scheme's managers were able to provide all the requested data, the reported emissions metrics do not include all the Scheme's GHG emissions. This means the metrics may show the Scheme's GHG emissions to be lower than they really are.

We expect that in the future better information will be available from managers and this improvement will be reflected in the coming years' reporting. We plan to engage with our managers that were unable to supply emissions data to communicate our expectations for future reporting.

How we collected the data

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

Notes on the metrics calculations

There isn't an industry-wide standard for calculating some of these metrics yet and different managers may use different methods and assumptions. These issues are common across the industry and highlight the importance of climate reporting to improve transparency. We expect that in the future better information will be available from managers as the industry aligns to expectations and best practice standards.

The carbon metrics

The table below shows for each asset class the broad approach used for calculating each metric.

Metric	Approach
Carbon footprint	Provided by the investment managers
Total GHG emissions	Calculated using carbon footprint information: *carbon footprint x £m Scheme assets invested in the fund x data quality*
Data quality	Provided by the investment managers
Portfolio alignment	Provided by the investment managers

Looking to the future
Our climate-related target

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

In our first year of reporting, we set a carbon footprint reduction target. We are engaging with our managers to encourage them to reduce their own carbon footprints and ensure their decarbonisation plans align with the Scheme's target.

Trustee update

Each year we review the suitability of the target we have set. Following a review in 2023, we believe the current target continues to be suitable.

GHG Emissions Reduction target

Reduce the carbon footprint of the Scheme's equity and corporate credit funds by:

50%

By 2030

Vs 31 Dec 2021 baseline

Scope 1 and 2 emissions only. Covers all Sections of the Scheme.

Our target excludes LDI Investments given limited ability to influence sovereign investments and so initially covers only corporate credit and equity investments, where there is already data of a reasonable quality.

Our progress towards the target

The tables below show the equity and corporate credit year-on-year progress.

Equity

Section	31 December 2021	31 December 2022	
SPP	21.4	26.0	21% rise
SRP	21.8	25.9	29% rise

Corporate credit

Section	31 December 2021	31 December 2022	
SPP	75.0	48.8	35% fall
SRP	76.3	49.3	35% fall
SMP	72.7	46.1	37% fall

Whilst the increase in carbon footprint for equities is disappointing, the current footprint is still significantly lower than the broad market benchmark. Given the

rise in carbon footprint is small in absolute terms, we remain confident in meeting our longer term targets.

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

Steps we are taking to reach the target

To continue to progress towards our target, we plan take the following steps:

- We will engage with the Scheme's managers, with support from our investment adviser, to understand their decarbonisation plans and encourage best practice reporting.
- Any new fund manager selections will also consider the carbon footprint and wider climate-related risks and opportunities associated with the prospective investment strategy.

In 2023, changes were made to the SRP and SPP equity portfolios, where we have opted to invest in index-tracking funds that account for ESG risks (including climate change risks) in the portfolio decision making process.

One of the new funds applies a screen to reduce exposure to securities which are considered to have undesirable ESG and/or carbon intensity characteristics.

The second new fund aims to provide exposure to developed and emerging markets while reflecting significant ESG issues. As part of the manager's commitment to address climate change, companies that fail to meet the manager's minimum standards in low carbon transition and corporate governance standards may be excluded from the Fund.

Whilst these investment changes may cause the carbon footprint of the Scheme's equity investments to rise in the short-term (as they invest across a larger number of underlying companies than the previously used investment strategies), we are comfortable that it will remain well below the broader equity market as a whole and that the new funds' strategies are aligned with our overall goal of managing climate-related risks.

Appendices

Glossary

Governance	refers to the system by which an organisation is directed and controlled in the interests of shareholders and other stakeholders.[2] Governance involves a set of relationships between an organisation's management, its board, its shareholders, and other stakeholders. Governance provides the structure and processes through which the objectives of the organisation are set, progress against performance is monitored, and results are evaluated.[3]
Strategy	refers to an organisation's desired future state. An organisation's strategy establishes a foundation against which it can monitor and measure its progress in reaching that desired state. Strategy formulation generally involves establishing the purpose and scope of the organisation's activities and the nature of its businesses, taking into account the risks and opportunities it faces and the environment in which it operates.[4]
Risk management	refers to a set of processes that are carried out by an organisation's board and management to support the achievement of the organisation's objectives by addressing its risks and managing the combined potential impact of those risks.[5]
Climate-related risk	refers to the potential negative impacts of climate change on an organisation. Physical risks emanating from climate change can be event-driven (acute) such as increased severity of extreme weather events (e.g., cyclones, droughts, floods, and fires). They can also relate to longer-term shifts (chronic) in precipitation and temperature and increased variability in weather patterns (e.g., sea level rise). Climate-related risks can also be associated with the transition to a lower-carbon global economy, the most common of which relate to policy and legal actions, technology changes, market responses, and reputational considerations.[6]
Climate-related opportunity	refers to the potential positive impacts related to climate change on an organisation. Efforts to mitigate and adapt to climate change can produce opportunities for organisations, such as through resource efficiency and cost savings, the adoption and utilization of low-emission energy sources, the development of new products and services, and building resilience along the supply chain. Climate-related opportunities will vary depending on the region, market, and industry in which an organisation operates.[7]

[2] A. Cadbury, Report of the Committee on the Financial Aspects of Corporate Governance, London, 1992.
[3] OECD, G20/OECD Principles of Corporate Governance, OECD Publishing, Paris, 2015.
[4] TCFD, Recommendations of the Task Force on Climate-related Financial Disclosures, 2017
[5] TCFD, Recommendations of the Task Force on Climate-related Financial Disclosures, 2017
[6] TCFD, Recommendations of the Task Force on Climate-related Financial Disclosures, 2017
[7] TCFD, Recommendations of the Task Force on Climate-related Financial Disclosures, 2017

Greenhouse gas emissions scope levels[8]	Greenhouse gases are categorised into three types or 'scopes' by the Greenhouse Gas Protocol, the world's most used greenhouse gas accounting standard. Scope 1 refers to all direct GHG emissions. Scope 2 refers to indirect GHG emissions from consumption of purchased electricity, heat, or steam. Scope 3 refers to other indirect emissions not covered in Scope 2 that occur in the value chain of the reporting company, including both upstream and downstream emissions. Scope 3 emissions could include: the extraction and production of purchased materials and fuels, transport-related activities in vehicles not owned or controlled by the reporting entity, electricity-related activities (e.g., transmission and distribution losses), outsourced activities, and waste disposal.[9]
Value chain	refers to the upstream and downstream life cycle of a product, process, or service, including material sourcing, production, consumption, and disposal/recycling. Upstream activities include operations that relate to the initial stages of producing a good or service (e.g., material sourcing, material processing, supplier activities). Downstream activities include operations that relate to processing the materials into a finished product and delivering it to the end user (e.g., transportation, distribution, and consumption).[10]
Climate scenario analysis	is a process for identifying and assessing a potential range of outcomes of future events under conditions of uncertainty. In the case of climate change, for example, scenarios allow an organisation to explore and develop an understanding of how the physical and transition risks of climate change may impact its businesses, strategies, and financial performance over time.[11]
Net zero	means achieving a balance between the greenhouse gases emitted into the atmosphere, and those removed from it. This balance – or net zero – will happen when the amount of greenhouse gases add to the atmosphere is no more than the amount removed.[12]

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

Appendix – An explanation of climate risk categories

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

Transition risks

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

Policy and legal

Examples

Increased pricing of GHG emissions

Enhanced emissions-reporting obligations

Regulation of existing products and services

Potential financial impacts

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

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

Technology

Examples

Cost to transition to lower emissions technology

Unsuccessful investments in new technologies

Potential financial impacts

Write-offs and early retirement of existing assets

Capital investments in technology development

Costs to adopt new practices and processes

Market

Examples

Changing customer behaviour

Uncertainty in market signals

Increased cost of raw materials

Potential financial impacts

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

Abrupt and unexpected increases in energy costs.

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

Reputational

Examples

Stigmatisation of sector

Increased stakeholder concern or negative stakeholder feedback

Potential financial impacts

Reduced revenue from decreased demand for goods and services.

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

Reduced revenue from negative impacts on workforce management and planning

Physical Risks

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

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

Appendix – Climate-related risk assessment – in detail

Equities
Relevant to the SPP and SRP sections only

Physical Risks

The tables below reflect the manger's assessment for the overall asset class rather than the specific funds the Sections invest in.

	Acute	Chronic
Short	G	G
Medium	A	G
Long	A	A

Source: Underlying manager(s)

Physical risks are relatively geographically concentrated and long term in nature, and, in the short-term, are not expected to have material financial impact.

In the medium term, acute physical risk exposure is expected to increase.

Over the long-term, the manager believes that chronic physical risks are likely to become significant. Heat stress, rising sea levels and changes to weather patterns are likely to affect companies' profitability through impacts on supply chains and physical infrastructure.

Transitional Risks

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

Source: Underlying manager(s)

If the world were to transition in an orderly manner, in the short-term, there would need to be significant climate policy change with equity values likely to see some volatility.

The medium-term is a crucial period for the climate transition, as time is running out to stay within global budgets for limiting global warming to below 2ºC. As a result, policy would further accelerate if the world orderly transitions with a significant expansion in carbon pricing across the globe. Equity values, especially of companies in high-carbon sectors such as utilities and industrials, are at risk during this period, with many high emitters at risk of squeezed profit margins and asset stranding.

Over the long-term, the manager envisions a large drop in demand for fossil fuels with potentially large financial repercussions at a global equity index level depending on companies' mitigative actions up until that point.

Overall, we do not believe that any immediate action is required regarding the climate-related risks relevant to the Scheme's equity investments:

- The equity investments form a relatively small (and decreasing) proportion of the SRP and SPP Section's portfolio;
- Over the year, changes have been made to the SRP and SPP equity portfolios, where we have opted to invest in index-tracking funds that explicitly account for ESG risks (including climate change) in the portfolio decision making process. This includes screening out the highest risk securities as well as reweighting towards lower risk companies;
- We note that the tables above show the manager's assessment for equities on the whole rather than the specific funds we have chosen to invest in. We expect the risks relevant to the Scheme's actual investments to be lower given the ESG-objectives these funds have in place.

Property

Physical Risks

	Acute	Chronic
Short	G	G
Medium	A	G
Long	A	A

Source: Underlying manager(s)

In the medium and longer term, the physical effects of changing climate present potential material financial impacts for the property sector, resulting in an amber rating. This includes the heating or cooling of buildings in changing climates, weather events and availability of water.

Transitional Risks

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

Source: Underlying manager(s)

Regarding transition risks, reputation risk is considered as the most significant short-term transition risk given the increase in interest from clients in this area.

In the medium and long-term, all areas are rated as a medium risk. While regulations over the next three years (short-term) are already well understood, they are expected to intensify over the medium to long-term resulting in an amber rating.

The phase out of fossil fuel dependent technology over the medium-long term (e.g., domestic gas boilers) could also pose a threat.

Over the long-term, the property investment manager expects to see significant transformations across the real estate and wider investment industry driven by societal demands, regulatory change and the need for investors to demonstrate and deliver environmentally and socially responsible performance outcomes.

We are comfortable that our appointed property manager is managing climate-related risks and opportunities on our behalf. However, given climate-related risks for this asset class are expected to increase over time, we will review this allocation (with a specific focus on climate-related risks) as part of our regular triennial review process.

Property debt

Physical Risks

	Acute	Chronic
Short	A	G
Medium	A	A
Long	R	A

Source: Underlying manager(s)

In the short to medium-term, the most acute physical risk is flooding and storms, with every single property having a medium risk or higher.

In the medium- and long-term, a majority of properties within the portfolio are exposed to heat risk causing a medium financial impact due to increase air conditioning costs and retrofitting requirements which could impact the price of the asset.

Transitional Risks

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

Source: Underlying manager(s)

In the short-term, there is a risk of investing in innovations too early in their development which could result in financial outlay of a technology which is not fully ready and likely mean the investor would need to invest in upgrading the technology at a later date.

The increase in brown discounts, which relates to the depreciation of properties due to them being less energy efficient or sustainable, is expected to increase in the medium term as tougher regulation on building codes and guidelines creates a two-tier market of sustainable and non-sustainable assets which can then impact sale price in the medium term. There is also likely to be an increased expectation for voluntary carbon offsetting which will further increase costs.

In the long-term, as more businesses commit to becoming Net Zero by 2030 or 2050, occupiers will increasingly demand Net Zero buildings to help them achieve these goals. Consequently, because none of the buildings in the portfolio are Net Zero compliant yet, it could lose occupiers as a result.

We are comfortable that no immediate action is required regarding the Scheme's Property Debt investments given the very small allocation to this asset class across the Sections of the Scheme.

Corporate Credit

Physical Risks

	Acute	Chronic
Short	G	G
Medium	G	G
Long	A	A

Source: Underlying manager(s)

Extreme weather events, changes to weather patterns and rising sea levels are already occurring and there is likely to continue to be localised impacts over the short to medium-term.

The longer-term risk of more extreme weather events and changes to weather patterns and sea levels appears high if climate change impacts are not addressed. This could lead to more regular and higher financial costs for issuers in the market due to the impact on asset bases or business disruption.

Transitional Risks

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

Source: Underlying manager(s)

The investment manager does not see any transitional risks in the short-term relating to policy, technology, the market and reputation.

In the medium-term, associated pressure from investors and government or regulatory policy is likely to result in pressure to reduce emissions. Whilst this is potentially material for some issuers, the overall impact of this transition at portfolio level is expected to be limited.

Requirements to invest in transition technology is expected to increase over the medium to long-term. Over the medium to long-term it appears likely that corporates will be required to transition brands and business models to maintain customer demand levels as climate pressure increase. Most sectors, especially higher GHG industries appear at high risk of reputational damage in relation to climate views and are expected to experience pressure to operate sustainably so this is viewed as an important financial risk area.

Similar to the Scheme's property investments, while there are no immediate climate-related concerns that need addressing, these risks are expected to increase over time and so we will review as part of our regular triennial review process. It will be important to employ managers that are actively considering climate-related risks and opportunities as part of the investment decision making process.

Illiquid credit

Physical Risks

	Acute	Chronic
Short	G	G
Medium	G	G
Long	G	G

Source: Underlying manager(s)

There is one investment manager appointed by the Trustee for the Scheme's illiquid credit investments. The manager notes that most of the portfolio's current deals mature within five years, which gives it the ability structure future deals to address more gradual changes in weather pattens as they emerge and resulting in mostly green risk ratings being applied.

Severe weather events will drive up defaults from individual or Small and Medium-sized Enterprise ("SME") borrowers, although exposure across the portfolio to these events is limited, again resulting in 'green' risk ratings being awarded.

Transitional Risks

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

Source: Underlying manager(s)

In the short-term, technology risk may result in higher-than-anticipated costs for the development of new technology as well as potential for increased defaults among SMEs focused on emerging sustainable technologies if those technologies are less effective or well-received than anticipated.

This remains a risk the medium and long-term as well as additional risks such as defaults for SMEs in the traditional combustion vehicle supply chain, borrowers who fail to keep up with technological advancements.

There are no material climate-related risks that need addressing for the Scheme's illiquid credit investments.

LDI portfolio

Physical Risks

	Acute	Chronic
Short	G	G
Medium	G	G
Long	G	G

Source: Underlying manager(s)

Transitional Risks

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

Source: Underlying manager(s)

The Scheme's LDI manager rated the risks for the LDI mandate to be low over all periods based on its climate-change scenario analysis. In terms of the money market funds held within the portfolio, these are largely insulated from physical risks across all time horizons due to their focus on the short-term financial instruments that they hold.	The Scheme's LDI manager rated the risks for the LDI mandate to be low over all periods based on its climate-change scenario analysis. In terms of the money market funds held within the portfolio, in the short-term, new regulation can have an immediate impact on money market funds, affecting how they operate and the types of instruments they can invest in. Over the long-term, a changing regulatory environment could significantly reshape the landscape for money market funds, possibly requiring them to adjust their strategies and holdings.

We recognise that sovereign investments (which make up the bulk of the LDI portfolio) require a different approach to other asset classes and that opportunities to engage with sovereign issuers on ESG issues, including climate, are more limited. Furthermore, macroeconomic factors such as interest rates, inflation and safe-haven flows take on greater importance, making ESG risk assessment (including climate risks and opportunities) more difficult.

The manager expects that developed market governments are to be least impacted in terms of expected returns by climate risks. This is because most governments in developed markets are members of climate change mitigation initiatives and have set carbon reduction targets. Therefore, they are unlikely to be greatly affected by risk premium adjustments and reallocations.

Overall, both climate-related risks and opportunities relevant to the LDI portfolio are considered to be low in the current market, and so we are comfortable that no climate-related action is required in relation to the Scheme's LDI investments.

Infrastructure

None of the Scheme's infrastructure managers provided a formal response to the climate risk and opportunities questionnaire. We however believe that infrastructure risks are likely to be similar to those identified for the Scheme's property investments, given that there are some similarities between the two asset classes. This is supported by the responses from the investment managers who have noted that geography is a key driver of risks (particularly physical risks) and that transition risks (laws, regulations, technology and reputational) will also be material.

It has been identified that in order to address transition risks, a combined approach of substituting higher-emitting energy sources and transitioning assets towards net zero will be required.

One of the managers said that it is well positioned to serve as the conduits for a changing economy as each asset in its portfolio is prepared to capitalise on new market trends as they become feasible. Another manager stressed the physical resilience of its assets in the face of increased frequency of extreme weather events.

All infrastructure managers we have appointed have confirmed that these risks are considered as part of new investment considerations.

We are comfortable that no immediate action is required from a climate-risk perspective regarding the Scheme's infrastructure investments.

Appendix – Climate scenario modelling assumptions

The climate scenarios were developed by Aon and are based on detailed assumptions. They are only illustrative and are subject to considerable uncertainty. They consider the exposure of the Scheme to climate-related risks and the approximate impact on asset/liability values over the long-term.

Aon's model uses a deterministic projection of assets and liabilities, using standard actuarial techniques to discount and project expected cashflows.

It models the full yield curve as this allows for an accurate treatment of the liabilities and realistic modelling of the future distribution of interest rates and inflation. The parameters in the model vary deterministically with the different scenarios. Note no allowance is made for expenses, with modelled asset/liability cashflows left unaffected by these factors.

The liability update and projections are considered appropriate for the analysis. However, they are approximate and a full actuarial valuation carried out at the same date may produce a materially different result. The liability update and projections are not formal actuarial advice and do not contain all the information you need to make a decision on the contributions payable or investment strategy.

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

Investment risk is only captured in the deviance from the Base Case, but this is not the only risk that the Scheme faces; other risks include covenant risk, longevity risk, timing of member options, basis risks and operational risks.

The model has been set up to capture recent market conditions and views; the model may propose different solutions for the same strategy under different market conditions.

This report, and the work relating to it, complies with 'Technical Actuarial Standard 100: Principles for Technical Actuarial Work' ('TAS 100'). The model complies with TAS 100.

Other modelling assumptions for assets

Note that the allocations are assumed to remain unchanged through time and are subject to annual rebalancing, including the illiquid assets. In particular, the impact of any future de-risking of the investment strategy or buy-ins/buy-outs is not considered.

For the avoidance of doubt, any potential longevity risks associated with climate change scenarios are not considered for the purposes of the model.

The model does not make allowance for diversification explicitly within deterministic scenarios, so the returns quoted in this paper will differ from the return quoted if considering the same time horizons in stochastic space.

Appendix – Greenhouse gas emissions in more detail

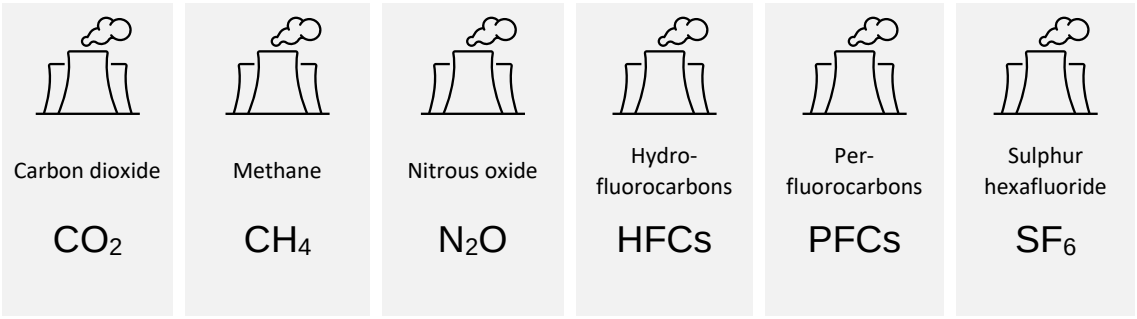
Greenhouse gases in the atmosphere, including water vapour, carbon dioxide, methane, and nitrous oxide, keep the Earth's surface and atmosphere warm because they absorb sunlight and re-emit it as heat in all directions including back down to Earth. Adding more greenhouse gases to the atmosphere makes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

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

The amount of greenhouse gases in the atmosphere has significantly increased since the Industrial Revolution. The Kyoto Protocol[13] identifies six greenhouse gases which human activity is largely responsible for emitting. Of these six gases, human-made carbon dioxide is the biggest contributor to global warming.

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

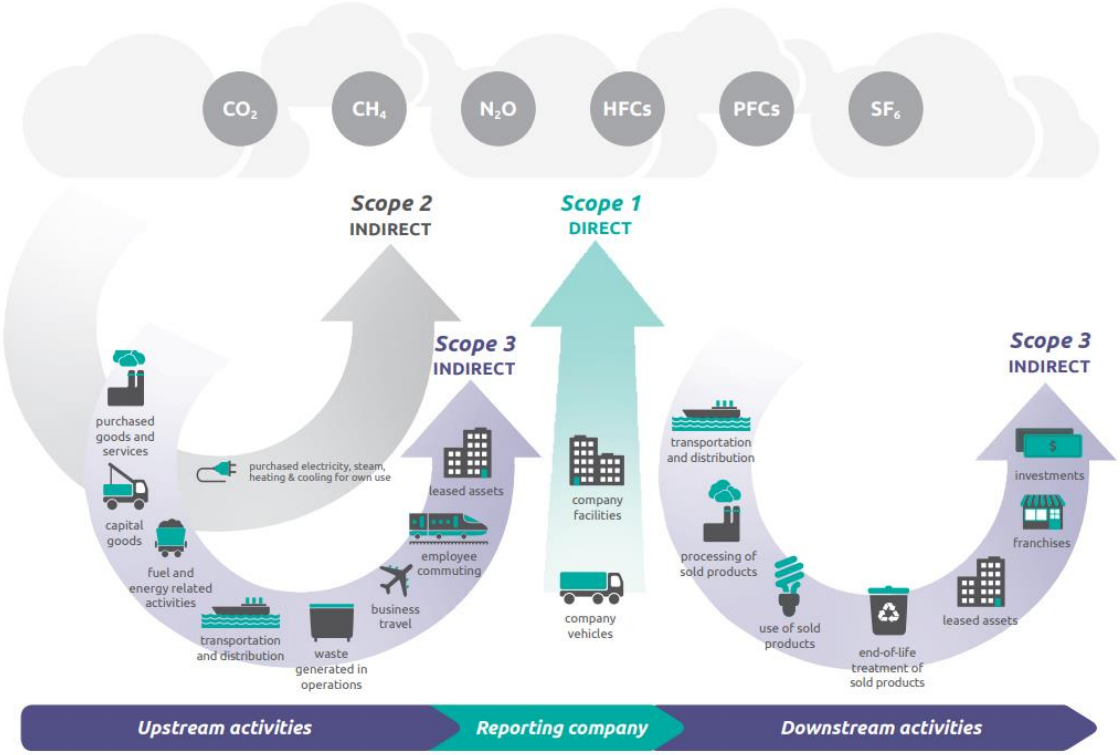
Six main greenhouse gases identified by the Kyoto Protocol



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

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

Overview of GHG Protocol scopes and emissions across the value chain



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