Taskforce on Climate-related Financial Disclosures 2023 Report

Introduction

This statement sets out the approach of the Trustee of the QinetiQ Pension Scheme ("the Scheme") to monitoring and mitigating climate-related risks and to assessing climate-related opportunities.

The Scheme's purpose is to pay pension benefits to members. The investment strategy has been designed to provide a smooth journey path towards the Scheme's long-term objective. The strategy aims to provide funding level stability whilst achieving a strong probability of paying member's benefits as they fall due. A key priority for the Trustee is ensuring that the Scheme's investment managers are cognisant of the climate-related risks and opportunities both where they might be material to the success of the scheme and the growing importance of responsible investment to scheme beneficiaries, in financial markets and engaging with those managers about their action plans to mitigate those risks and take advantage of those opportunities.

TCFD Reporting

We believe that climate change is a systemic risk and an immediate concern. To achieve a sustainable future and to safeguard economic growth, we believe that concerted global action is required to tackle the climate crisis. We believe that improved transparency on climate-related matters will lead to improved investment decisions and member outcomes. Therefore, the Trustee has implemented an engagement framework whereby they request that managers outline how climate-related considerations are integrated into their investment processes and what actions they are taking to ensure that they are achieving best practice.

The Trustee Board supports any initiative that helps improve disclosures and enhances transparency. The Taskforce on Climate-related Financial Disclosures ("TCFD") framework provides a structure for asset owners, such as the Scheme, to outline the steps taken to identify, manage and monitor climate-related risks and opportunities. The framework is designed to increase comparability but allow sufficient flexibility to communicate the specific approach adopted by each entity.

Background

The Taskforce on Climate-related Financial Disclosures (TCFD) was commissioned in 2015 by Mark Carney as Chair of the Financial Stability Board. The TCFD was asked to develop voluntary, consistent climate-related financial disclosures that would be useful in understanding material climate-related risks. In 2017 the TCFD released its recommendations for improved transparency by companies, asset managers, asset owners, banks, and insurance companies with respect to how climate-related risks and opportunities are being managed.

Guidance was also released to support all organisations in developing disclosures consistent with the recommendations, with supplemental guidance released for specific sectors and industries, including asset owners. For the pensions industry, relevant guidance has been produced by the Pensions Climate Risk Industry Group (PCRIG).

The Task Force's report establishes recommendations for disclosing clear, comparable and consistent information about the risks and opportunities presented by climate change. Their widespread adoption will ensure that the effects of climate change become routinely considered in business and investment decisions. There is recognition that organisations are on a learning curve associated with assessing and integrating climate risks as well as meeting the expectations of the TCFD reporting framework. Adoption of these recommendations will also help better demonstrate responsibility and foresight in their consideration of climate issues, leading to smarter, more efficient allocation of capital, and helping to smooth the transition to a more sustainable, low-carbon economy. Hence, we are committed to monitoring good practice to learn and develop our approach.

The Task Force divided climate-related risks into two major categories: risks related to the transition to a lower-carbon economy; and risks related to the physical impacts of climate change. The TCFD report[1] noted that climate-related risks and the expected transition to a lower-carbon economy affect most economic sectors and industries, however, opportunities will also be created for organisations focused on climate change mitigation and adaptation solutions. The report also highlights the difficulty in estimating the exact timing and severity of the physical effects of climate change.

The Task Force structured its recommendations around four thematic areas that represent core elements of how organisations operate: governance, strategy; risk management; and metrics and targets.

The four overarching recommendations are supported by recommended disclosures that build out the framework with information that will help investors/stakeholders understand how reporting organisations assess climate-related risks and opportunities. The disclosures are designed to make TCFD-aligned disclosures comparable, but with sufficient flexibility to account for local circumstances.

This is our first disclosure in accordance with the requirements of TCFD and represents conversations through to 30 June 2023. This statement is expected to evolve over time as our approach to responsible investment integration develops.

This report provides detail of our actions against the four pillars set out by the TCFD:

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

As well as developing our own reporting for TCFD, we expect our underlying investment managers to be aligned with TCFD. We will continue to monitor and actively encourage this through our regular reporting and ongoing dialogue with the Scheme's managers. The below pages detail our climate risk disclosures.

[1] https://assets.bbhub.io/company/sites/60/2021/10/FINAL-2017-TCFD-Report.pdf

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Summary of this year’s report

Over the last 12 months through to 30 June 2023, the Trustee has taken steps to assess and measure the climate-related risks present within the Scheme’s investment strategy and to explore the options available to mitigate these risks. The Trustee believes that responsible investment issues can have a material impact on the long-term performance of investments and therefore integrating ESG factors and climate-related risks into investment processes should lead to better long-term returns for Scheme assets.

An important part of the mitigation of climate risks will be reducing the greenhouse gas emissions of the Scheme’s assets over time. Given the importance of the transition to a low-carbon economy, the Responsible Investment Working Group (“RIWG”) discussed a framework for setting a Net-Zero target and the pros and cons for setting an earlier target date. The RIWG concluded that alignment to the Sponsor’s Net-Zero commitment was the preferred starting point. QinetiQ has committed to becoming a Net-Zero company by 2050 or sooner. Furthermore, the Sponsor has set an interim target of reducing Scope 1 and Scope 2 GHG emissions by 50% by 2030. Given the expected timescales for the Scheme, it was agreed that the Scheme would focus primarily on the interim target as this was more aligned to the Scheme’s long-term objective. The Trustee will continue engaging with the Scheme’s investment managers to gather the relevant data to achieve this objective. Through our existing engagement meetings, we have seen varied responses from managers across different asset classes. We aim to continually liaise with our managers to improve data coverage and data transparency. The Trustee expects different parts of the portfolio to follow different trajectories as it works towards this aim.

The key highlights and findings from the 2022/23 TCFD report are set out below:

Governance

The Trustee has overall responsibility for managing, assessing and addressing climate-related risks faced by the Scheme. Various sub committees have been developed to ensure sufficient time can be allocated to important topics such as climate-related risks and opportunities. Furthermore, the Scheme receives support from the Sponsor and its investment, actuarial and covenant advisers. We have established a governance policy that sets out the roles and responsibilities for all relevant parties and have designed robust processes to ensure that climate-related risks and opportunities are appropriately managed.

Strategy and risk management

Over the last 12 months, the Trustee has held engagement meetings with the Scheme’s investment managers and discussed the different physical and transitional climate-related risks present within the investment strategy. The Trustee has discussed the expected impact of these risks over different time horizons and the steps that may be taken to address them. The Trustee has also engaged with the investment managers over how well they are positioned to take advantage of climate-related opportunities.

During the year, we incorporated climate risks (alongside other risk factors) into our decision-making. Climate risks were considered when we explored the planned long-term switch from illiquid credit into liquid credit.

We also carried out scenario analysis to test the resilience of the Scheme’s funding position under a range of possible scenarios. The analysis undertaken provided us with sufficient comfort that our current strategy has a high degree of resilience to climate change. We used climate scenario analysis to test whether there would be any meaningful impact in climate risks from the planned evolution of the strategy. The analysis confirmed that the proposed incremental de-risking within the investment strategy will result in the Scheme retaining a high degree of resilience to climate-related risks. In addition, we have worked with the Sponsor to understand their own climate plans and any impact climate change could have on their ability to support the Scheme – this included discussions on how climate-related risks could result in a weakening of the covenant position for the Scheme.

Further discussions on managing climate-related risks will be undertaken as part of the 2023 actuarial valuation and will be captured in next year’s report.

Metrics and targets

We are working with all the investment managers to receive climate data on an ongoing basis to enable the Scheme to monitor how absolute carbon emissions and emission intensity is evolving over time. The table below summarises the latest position reached with each of the Scheme's investment managers.

Asset class	Manager	Current approach
Private Equity	Adams Street	Data availability means that the Scheme focuses on WACI[2] data. This information is available quarterly and the manager provides commentary explaining any shifts in output.
Synthetic Equity	Insight	Limited guidance is currently available with respect to reporting against derivatives (including equity derivatives). Current guidance from the manager is to exclude equity derivatives from reporting. The Scheme will continue to monitor best practice and update its approach accordingly.
Private Debt	HPS	The manager has partnered with an ESG software specialist to calculate emissions data. Information spanning absolute emissions; emissions intensity and data quality is provided on an annual basis. Commentary explaining how the position has evolved is also provided by the manager.
	Partners Group	The manager has provided Scope 1 & Scope 2 absolute emissions and WACI figures. Key area of engagement is to explore the feasibility of improving data coverage and quality.
	Ares	The manager has engaged with Novata to provide emissions data. Initial levels of engagement have been good with most borrowers being able to report Scope 1 & 2 emissions.
CRE Debt	DRC	The manager has illustrated that Scope 1 & 2 emissions are not relevant for this asset class. The manager is currently in the process of calculating Scope 3 emissions and we hope to include this information in future reports.
	M&G	Our engagement with M&G has indicated that their preference is to use actual data from borrowers. However, many borrowers are unable to provide this information. M&G are exploring the appropriateness of using estimated emissions data via the PCAF emission factor database.
LDI	Insight	The manager provides climate data on a quarterly basis. The information provided for the LDI portfolio solely considers government bonds, index-linked gilts and gilt derivatives.
Asset backed securities	Insight	The manager has developed a process for estimating UK RMBS emissions. The manager has undertaken post code analysis to determine a baseline position.

[2] WACI: Weighted average capital intensity. Please see Appendix 2 for further information.

The remainder of this report provides further detail articulating how the Trustee is meeting its fiduciary responsibilities to its Scheme members from a TCFD perspective.

Signed on behalf of the Trustee:

Huw Evans, Trustee Chairman

27 September 2023

Governance

How we retain oversight of climate-related risks and opportunities

The Scheme's Responsible Investment Policy sets out the Trustee's key RI beliefs and the approach that will be taken to implement those beliefs. The Policy was last updated in January 2022 and will be reviewed periodically. Continued engagement with investment managers and participation in training sessions enable the Trustee to remain up to date on best practice and the latest ESG developments. These discussions are used to review the appropriateness of the Scheme's existing RI beliefs and policies.

The Trustee Board has ultimate responsibility for the setting and implementation of the Scheme's RI policy. This includes ensuring that the Scheme's governance processes are sufficient to ensure the proper management of climate-related risks facing the Scheme. The Trustee has a clear governance structure with dedicated sub-committees. The existing governance structure enables the Scheme to make decisions in an effective manner.

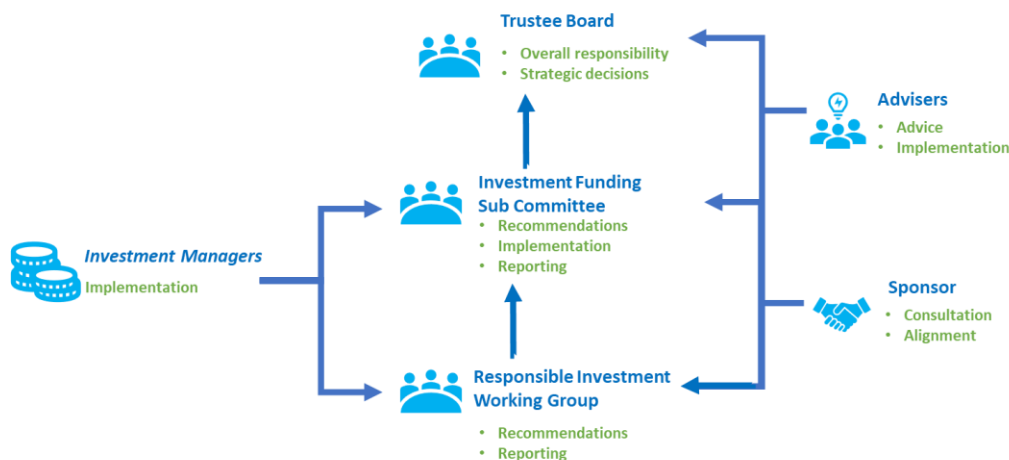
We have an Investment and Funding Sub Committee ("IFSC") that oversees our integrated risk management approach. This covers actuarial, covenant and investment strategy matters. The IFSC reports to the Trustee Board. The IFSC has access to Sponsor representatives and receives periodic updates from the Sponsor.

In 2021, we established a RIWG with a distinct Terms of Reference and reporting lines. The RIWG includes the Chair of Trustees and has Sponsor representation. The creation of the RIWG meant that sufficient time and resource was spent on RI issues, including climate change, by individuals of appropriate seniority.

The Trustee, IFSC and RIWG receive advice and support regarding ESG and climate-related matters from their Investment Adviser and Actuarial Adviser. The Investment Adviser is responsible for embedding climate-related risks and opportunities into investment decisions. Through the RIWG, we maintain an ongoing dialogue with the Sponsor to ensure all parties are aware of the current approach for assessing, managing and monitoring climate-related issues.

The Trustee, IFSC and RIWG received regular training from their advisers throughout the year on climate-related risks and opportunities – over the last 12 months, specific training on climate scenario modelling was undertaken. As such, the Trustee is satisfied that they have sufficient knowledge and understanding to take climate-related issues into account appropriately in their decision making for the Scheme.

The Trustee oversees climate-related risks and opportunities relevant to the Scheme through its governance processes and maintains a governance document. This document summarises the key responsibilities for each party from a policy, strategy and monitoring perspective. The current governance structure of the Scheme and key relationships is illustrated in the chart below.



Roles and responsibilities in assessing and managing climate-related risks and opportunities

The Trustee Board is ultimately accountable for assessing and managing climate-related risks and opportunities. However, it is the responsibility of the supporting Committees to develop knowledge and understanding and propose policies and processes for Trustee Board approval. The Trustee Board receives updates throughout the year from the various sub committees and formal updates at each quarterly Trustee meeting. We have produced a governance policy that sets out the roles and responsibilities of the various parties.

Investment Funding Sub Committee (IFSC)

The Trustee delegates implementation of its overall investment strategy to the IFSC, including the implementation of the Scheme's RI Policy. The IFSC is expected to incorporate RI considerations into its management of the Scheme's assets, identifying and managing ESG related risks and opportunities in all areas including asset allocation decisions, manager appointments and its monitoring of the Scheme's current investment managers.

Responsible Investment Working Group (RIWG)

The RIWG is a subgroup of the IFSC. The RIWG meets at least once a quarter, aiming to carry out all tasks required to enable the Trustee to:

- Act in line with the beliefs and principles set out in the Trustee's agreed RI policy.
- Continue to progress towards becoming more active in all areas of RI.
- Meet the requirements of the new climate-related regulations that come into force from October 2022.

Trustee Executive Service Team

The Trustee Executive Service Team, at Hymans Robertson, support the RIWG in the arranging of meetings and taking forward agreed actions between RIWG meetings.

Investment Advisers

The Scheme's Investment Advisers, Hymans Robertson, are responsible for assisting the RIWG and the IFSC to embed climate-related risks and opportunities into all investment decisions. They provide advice and training to the RIWG and IFSC regarding regulatory requirements and are expected to incorporate RI considerations into any advice regarding any strategy changes or manager appointment. The Trustee reviews their investment adviser regularly and this review includes an assessment of their skills and experience for supporting the Trustee on climate-related issues. The Trustee has also set their investment adviser a set of objectives that are reviewed on an annual basis. These include a specific objective on assisting the Trustee in monitoring climate metrics and engaging with asset managers to assess climate-related risks and opportunities.

Actuarial Advisers

The Scheme's Actuarial Advisers, Aon, are responsible for identifying any RI considerations that should be incorporated into the Scheme's funding strategy. The Trustee reviews their actuarial adviser regularly and this review includes an assessment of their skills and experience for supporting the Trustee in mitigating climate-related risks from an actuarial perspective.

Investment Managers

The Scheme's investment managers are expected to integrate ESG considerations, to the extent possible, into their management of each of the Scheme's mandates. The managers are expected to provide frequent reporting on ESG topics and provide updates at the regular manager meetings.

Scheme sponsor

The Scheme's sponsor QinetiQ Group Plc maintains its own ESG strategy, objectives, and action plan. The Trustee, through the RIWG, aims to maintain an ongoing dialogue with the Sponsor to ensure both parties are aware of each other's approach in this area. To help achieve this objective, the RIWG includes one RI-focussed representative from the Scheme's sponsor.

The below table sets out the key actions each party will take to manage ESG risks - including climate risks.

	Setting policy and governance structure	Education	Strategy	Monitoring
Trustee	Overall ownership of RI Policy and incorporation of RI considerations into Scheme management. Assess all other parties against expectations and actions delegated to them.	Ensure all members of the Trustee Board feel they have the information and education required to fulfil their role.	Approve ESG related targets for the Scheme as a whole and individual investment mandates.	Approve key RI metric reporting requirements. Understand the Investment Advisers' rating processes for managers. Approve the Scheme's annual TCFD report.
IFSC	Maintain the Scheme's RI Policy. Determine membership and Chair of the RIWG.	Ensure all members of the IFSC feel they have the information and education required to fulfil their role.	Review the manager's ESG approach versus best practice Review whether adequate processes have been implemented to manage risks. Consider ESG related targets for the Scheme as a whole and individual mandates that are proposed by the RIWG.	Regularly assess the activities of the RIWG. Assess each manager's RI capabilities to determine if that manager's approach is aligned with the Trustee's RI policy.
RIWG	Develop and manage a plan to ensure compliance with TCFD requirements.	More granular training on new regulatory requirements and RI developments to ensure appropriate understanding. Identify training requirements for the IFSC and Trustee.	Discuss and understand managers' RI approach. Ensure managers understand QinetiQ's ESG strategy and reporting expectations. Oversee the identification of ESG risks / opportunities by the investment managers. Propose ESG related targets for the Scheme.	Identify key RI metric reporting requirements. Agree reporting processes against agreed metrics and targets. Understand the Investment Advisers' rating processes for investment managers. Review the Scheme's annual TCFD report.

	Setting policy and governance structure	Education	Strategy	Monitoring
Trustee Executive Service Team	Assist with implementation of agreed RI actions. Ensure adequate resources are in place to deliver RI commitments agreed by the IFSC and Trustee.		Consider capacity constraints when discussing the possibility of going beyond minimum compliance from an RI perspective	Assist with design and production of the Scheme's annual TCFD report.
Investment Advisers	Assist RIWG with updates to policy.	Advise RIWG on regulatory requirements. Help identify and provide training as required.	Integrate RI considerations in review of strategy and risk management frameworks. Support the RIWG in determining ESG targets for the Scheme as a whole and individual mandates.	Provide information and views on investment manager's RI processes. Carry out Annual RI Review. Assist in preparing the Scheme's annual TCFD report.
Actuarial Advisers	Assist RIWG with update to policy focussing on actuarial aspects.	Help identify and provide training as required.	Incorporate RI considerations into funding and integrated risk management conversations.	
Investment Managers		Ensure that they have the correct awareness or education in place. Help identify opportunities in which they could support in the Trustee	Manage each mandate in line with agreed RI objectives and constraints (where applicable) and any agreed targets set by the Trustee. Identification of ESG risks / opportunities as part of their investment process. Effective stewardship of Scheme assets.	Provide relevant RI reporting to RIWG and IFSC. Provide updates on RI policies where relevant.
Scheme Sponsor	Inform Trustee of Sponsors RI objectives and key actions.			

Strategy

The climate-related risks and opportunities we have identified over the short, medium and long-term

We define climate risk to be the potential impact on future financial returns that may arise from climate change. Climate risk is typically split into two parts:

- Transition risk: for example, the impacts that may arise from policy change and technological advancement; and
- Physical risk: the risk from changing weather patterns or the greater frequency/severity of extreme events

We are a long-term investor. Our current long-term target is to achieve full funding on a solvency basis by 2032. The policy response to a changing climate will present both risks and opportunities to long-term investors. Therefore, climate change is likely to be a material consideration to the delivery of our long-term objective and so it is crucial we manage climate risk appropriately.

In the context of our journey planning and investment horizon, we have defined short, medium and long-term as follows:

- Short term: In line with our actuarial valuation cycle - 3 years
- Medium term: long-term objective staging post – currently 6 years to 2028
- Long term: consistent with our long-term funding target date – currently 10 years to 2032

As the Scheme continues along its journey plan, the above timescales will be re-assessed and amended over time as appropriate.

Through our risk assessment process and scenario modelling, we expect transition risks to feature more prominently over shorter-time periods. This view is predominately driven by the likely escalation in climate change regulation over the short to medium term. Over longer-term periods, we expect physical risks to feature increasingly. Both transition and physical climate risks will impact the Scheme during its lifetime.

We assess climate-related risks at an overall strategy level and at an individual mandate level. The table below sets out a summary of the key risks currently identified and monitored by the RIWG for each area of the Scheme's strategy.

Risk areas	Climate Risks			
	Identified Risks	Impact		
		Short term	Medium term	Long term
Investment	Investment managers do not take account of climate risks. Investment mandates are overly exposed to climate risk. Limited data from investment managers from a climate risk reporting perspective.	Low	Low	Medium
Funding	Longevity impact from climate change and potential uncertainties in the funding assumptions introduced by climate risk. The impact from climate risk on longevity is likely to take some time to emerge and hence more meaningful risk over the longer term.	Low	Low	Medium
Covenant	Inability to keep pace with changing global policies from a climate change perspective. Sponsor not meeting climate targets and implications on contracts and profitability	Low	Medium	Medium

Please note that the level of risk is assessed after expected mitigating action.

In addition to the top-down assessment, we also assess the key risks and opportunities facing each asset class from a bottom-up perspective. The table overleaf summarises the key risks and opportunities identified and monitored by the RIWG.

Climate risks by asset class

<table>
<tr><th colspan="7">Climate risks</th><th>Opportunities</th></tr>
<tr><th rowspan="2">Asset Class</th><th rowspan="2">Climate Risk Category</th><th rowspan="2">Identified Risks</th><th colspan="3">Impact (RAG)</th><th rowspan="2">Mitigation</th><th rowspan="2">Identified Opportunities</th></tr>
<tr><th>Short term impact</th><th>Medium term impact</th><th>Long term impact</th></tr>
<tr><td rowspan="2">Private Equity</td><td>Physical</td><td>Extreme weather events (droughts, floods, wildfires, hurricanes).
Longer term trends (sea-level rises, temperature increases).
Allocation to energy / utilities / industrial sectors.</td><td rowspan="2">Medium</td><td rowspan="2">Low</td><td rowspan="2">Low</td><td>Scenario analysis
Stress testing
Risk Appetite</td><td rowspan="2">Not applicable given run-off period and no plans to recommit to private equity.
The IFSC is exploring exit options for the Scheme's private equity holdings to improve the liquidity position of the Scheme's investment strategy.</td></tr>
<tr><td>Transitional</td><td>Policy changes.
Policy implementation differences across locations/industries.
Tail of portfolio not evolving quickly enough to meet evolving best practice.</td><td>Active engagement with multiple levels of stakeholders
Incorporate climate risk into firm's evaluation processes</td></tr>
<tr><td></td><td colspan="6"></td><td></td></tr>
</table>

Climate risks							Opportunities
			Impact (RAG)				
Asset Class	Climate Risk Category	Identified Risks	Short term impact	Medium term impact	Long term impact	Mitigation	Identified Opportunities
Direct Lending	Physical	Extreme weather events – may impact some specific industries and locations. Air quality / pollution / water contamination / scarcity are key themes. Exposures to companies with long supply chains and risk of supply chain disruption.	Medium	Medium	Medium	Use of proprietary ESG assessment tool ESG sustainability linked loans Carbon footprints are requested for new investments	Continued use of sustainability linked loans. Identifying assets that stand to benefit from long-term transformative trends. Focus on low-carbon investments, and avoiding certain sectors expected to suffer because of climate risk. Continued use of sustainability linked loans.
	Transitional	Lack of actual company climate data disclosure. US policy around disclosure generally lagging Europe. Technological development or regulatory changes making existing companies less attractive.				Active engagement with companies with poor ratings Climate-related due diligence based on the climate-related factors identified by the Sustainability Accounting Standards Board (SASB) for specific industries	

Climate risks							Opportunities
Asset Class	Climate Risk Category	Identified Risks	Impact (RAG)			Mitigation	Identified Opportunities
			Short term impact	Medium term impact	Long term impact		
Real estate debt	Physical	Acute physical climate-related risks. Flash flooding / drought / heat stress / storm risk are key themes.	Medium	Medium	Low	Instruct 3rd parties to undertake building survey and environmental risk assessment to buildings involved in loans made	Potential reduction to ongoing operational costs due to improved energy efficiency and on-site renewable energy generation. Significant opportunity to demonstrate a leading approach to rapidly evolving climate-related risk. Transition risks provide opportunities to deploy new capital and source potentially attractively priced investment opportunities with reputable sponsors.
	Transitional	Increasingly stringent government regulation and market defined standards on building energy and carbon efficiency (asset stranding risk). Changing occupier requirements on building carbon and energy performance (asset stranding and rate of asset depreciation risk).				Monitoring existing and forthcoming regulatory requirements Equity cushion provides downside protection against depreciation risk Continued due diligence and engagement on energy performance and efficiency of buildings	

Climate risks							Opportunities
Asset Class	Climate Risk Category	Identified Risks	Impact (RAG)			Mitigation	Identified Opportunities
			Short term impact	Medium term impact	Long term impact		
Asset Backed Securities	Physical	Extreme weather events (e.g., wildfires, floods) increasing risk to collateral.	Medium	Medium	Medium	ESG questionnaires sent to every issuer to understand these risks Use post code data to build picture of carbon emissions within residential mortgages and adjust exposure accordingly	Range of new green ABS bonds in the market. Increase in number of 'Green' ABS deals conducted this year with expectation this will continue.
	Transitional	Reputational risks				Liaising with all ABS managers around standardising and improving the quality of data (working with ICMA)	

<table>
<tr><th colspan="7">Climate risks</th><th>Opportunities</th></tr>
<tr><th rowspan="2">Asset Class</th><th rowspan="2">Climate Risk Category</th><th rowspan="2">Identified Risks</th><th colspan="3">Impact (RAG)</th><th rowspan="2">Mitigation</th><th rowspan="2">Identified Opportunities</th></tr>
<tr><th>Short term impact</th><th>Medium term impact</th><th>Long term impact</th></tr>
<tr><td rowspan="2">Hedging Portfolio</td><td>Physical</td><td>Long term increases in temperatures generating pressure on the economy in general which would feed through to the mandate.</td><td rowspan="2">Low</td><td rowspan="2">Low</td><td rowspan="2">Medium</td><td>ESG assessment - creditworthiness of banks</td><td rowspan="2">Green gilts provide the mandate with a climate-related opportunity where the bonds they buy are specifically linked to the financing of green initiatives.</td></tr>
<tr><td>Transitional</td><td>Policy and legal risks.

Technology risk as new no carbon technologies are rolled out.

Government not meeting its climate objective</td><td>Engagement through banks and DWP

Considering engaging directly with the government</td></tr>
</table>

How climate-related risks and opportunities impact the Scheme's business, strategy and financial planning

The systemic nature of climate change risk has the potential to reduce returns across all asset classes and will have a macro-economic impact that could affect the entire Scheme. Equally, the need to transition to a low-carbon economy and the innovation which that will require presents several investment opportunities.

As detailed in the governance section, over recent years we have dedicated considerable time and resource to ensuring that climate risk is appropriately embedded within our investment processes. This has largely been in the form of engaging with investment managers; scrutinising their processes and reporting and analysing the resilience of our strategy to climate-related risks. For example:

- The IFSC have held meetings with each of the Scheme's investment managers as part of their broader engagement framework – this has focussed on what action plans are in place to mitigate emerging ESG risks; how the managers are evolving their processes to achieve best practice and what steps the managers are taking to improve data quality.
- Considered long-term and interim Net-Zero targets for the Scheme taking into consideration the Trustee's RI beliefs and the approach adopted by the Sponsor from a Net-Zero perspective.
- Analysed what climate-related targets would be appropriate based on data availability, intended direction of travel from an asset class perspective and the Scheme's RI policy.
- Included specific references to ESG and climate-related risks within the objectives of the Trustee's investments advisers.
- Considered climate scenario analysis following the completion of the recent investment strategy review.

Looking ahead, the Scheme will continue to place a high degree of importance on identifying, managing and monitoring climate-related risks. This is evident by the Scheme's business plan and clear focus on responsible investment matters including climate change.

How resilient is our investment strategy to climate change risks?

To test the resilience of the Scheme's investment strategy to climate risk, we undertook expanded climate scenario analysis based on the Scheme's assets and market conditions as at 31 March 2023. This analysis was done following the investment strategy review conducted by the Scheme's Investment Advisers.

The analysis focussed on the impact that specific climate scenarios could have on the Scheme's ability to achieve its long-term objective. Furthermore, this modelling considered the short-term impact on funding level risk. To test resilience, we looked at how different success and risk metrics varied under the alternative strategies modelled and the implications of difference climate-related stressed scenarios.

The scenario analysis was carried out using a model produced by the Scheme's Investment Adviser. The scenario analysis considered the impact under three scenarios, which differ by how quickly and decisively the world responds (or fails to respond) to climate change. In the table below we summarise these scenarios:

Immediate Transition	Delayed Transition	No/limited transition
Concerted policy action starting now e.g., carbon pricing, green subsidies Public and private spending on "green solutions" Improved disclosures encourage market prices to shift quickly Transition risks in the short term, but less physical risk in the long term Assumes a high likelihood of achieving an emissions trajectory consistent with limiting the average global temperature increase to at or below 2°C The intensity of the disruption is high and immediate	No significant action in the short-term, meaning the response must be stronger when it does happen Shorter and sharper period of transition Greater (but delayed) transition risks but similar physical risks in the long term Assumes a high likelihood of achieving an emissions trajectory consistent with limiting the average global temperature increase to at or below 2°C The intensity of the disruption is high and in the medium term	No or little policy action for many years Growing fears over ultimate consequences leads to market uncertainty and price adjustments Ineffective and piecemeal action increases uncertainty Transition risks exceeded by physical risks Assumes a very low likelihood of achieving an emissions trajectory consistent with limiting the average global temperature increase to at or below 2°C. The intensity of the disruption is very high and in the long term.

Climate scenarios – Conclusions

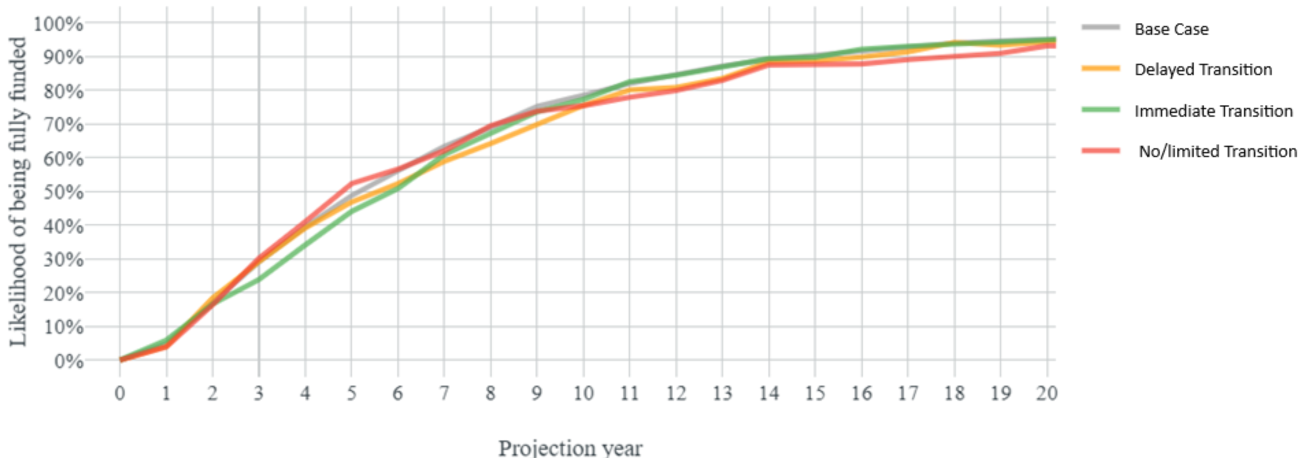
We considered two key outputs when monitoring the resilience of the Scheme under different climate scenarios:

- **Likelihood of success**: by this we mean the probability that the Scheme will be 100% funded (i.e., assets are at least equivalent to the liabilities) over time.
- **Downside risk**: by this we mean the possible fall in funding level over time in worst 5% of cases.

Likelihood of success

When monitoring the Scheme's resilience to increased volatility in financial markets driven by climate change scenarios, we categorise "high" resilience to mean less than a 5% deviation from the base case. This information is assessed from both a probability of success perspective and downside risk perspective.

The below graph sets out the results of the scenario analysis for the Scheme as at 31 March 2023. This analysis assumes that the current investment strategy remains in place throughout the projection period. Additional analysis which considers how the output changes if planned de-risking takes place is shown within the appendix.



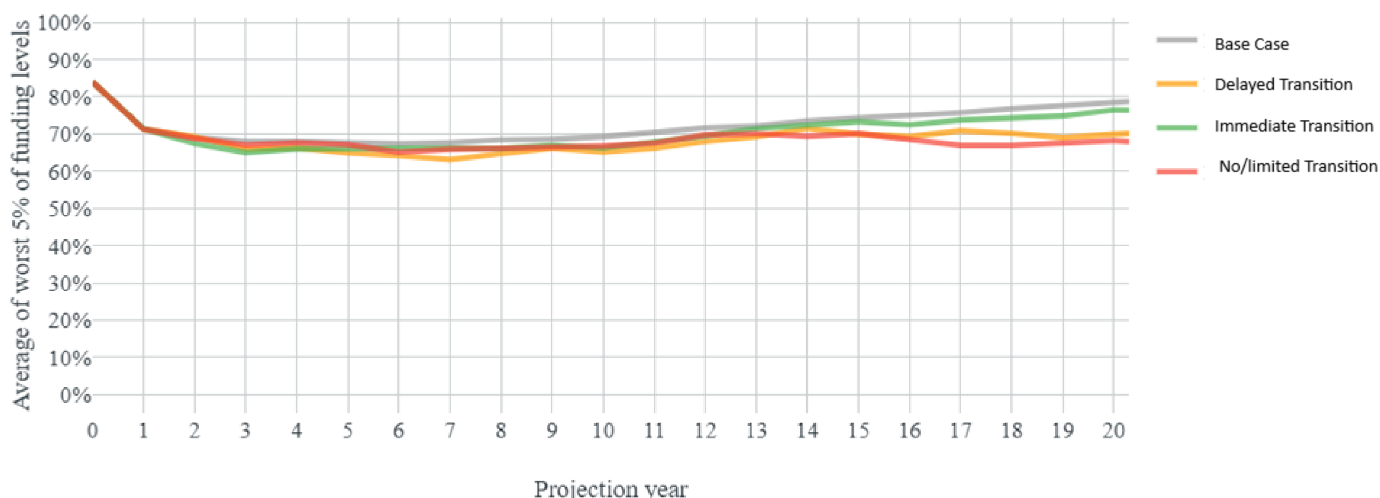
Under all climate scenarios analysed, there was minimal deviation in the expected probability of success of achieving the Scheme's long-term objective. This provided reassurance that the existing investment strategy has a high degree of resilience under the negative climate scenarios modelled.

Whilst the magnitude of the change from a probability of success perspective was relatively minimal, this does not imply that climate change will have little impact on future outcomes but instead indicates that the impact is already captured within the core asset liability modelling conducted on behalf of the Scheme.

The probability of success of achieving the Scheme's long-term objective reduces the most under the Immediate Transition scenario. This scenario assumes that immediate policy action happens and therefore the impact on outcomes happens now rather than in 20+ years' time. In addition, this scenario assumes that policy action to address climate change risk happens when the funnel of possible outcomes is at its narrowest and therefore the impact of these changes is going to be proportionately larger. It is important to note that if the "No/limited transition" scenario was to unfold then the 20-year projections at the 2044 valuation would be meaningful impacted from a climate change risk perspective.

Downside risk

We also monitored the funding level risk over the Scheme's short-term time horizon.



Despite introducing additional levels of volatility within the stressed climate scenarios, the funding level funnel of outcomes only marginally widened and therefore the downside risk was not materially different when analysing the stressed climate scenarios relative to the base case.

This analysis provided us with confidence that the current strategy has a high degree of resilience from a risk perspective relative to the specific climate scenarios modelled. Further information on the scenario analysis results is summarised within Appendix 1.

This analysis will be carried out on at least a triennial basis, alongside each investment strategy review. In addition, the Trustee will consider on an annual basis the merit of refreshing the climate scenario analysis and introducing additional stressed scenarios.

Risk Management

The processes we use for identifying and assessing climate-related risks

As part of the Trustee's responsibility for the setting and implementation of the Scheme's RI Policy, the Trustee takes steps to identify and assess climate related risks. Furthermore, the Trustee monitors how the management of these risks is integrated into the overall risk management framework for the Scheme. ESG and in particular climate-related risks can be identified by various parties including the RIWG, IFSC, Trustee, investment managers or the Scheme's advisers as part of the ongoing management of the Scheme. Information from several sources across several Scheme processes are used to help identify risks, and this includes the climate scenario analysis and climate-related metrics measured for the Scheme. ESG risks are identified as part of the following processes:

- **Individual mandates and investments –** The investment managers on behalf of the Scheme will undertake risk analysis at the individual asset level. The Scheme's investment managers are responsible for the identification and assessment of ESG risks, including climate-related risks and opportunities. Not only will investment managers be tasked with developing and implementing processes to identify existing ESG risks but also adopting a forward-looking approach to identify emerging risks. Investment managers will be expected to identify these risks to the Trustee in the following ways:
    - As part of their regular reporting.
    - During their presentations at regular manager engagement meetings.
    - By providing climate metric data in line with the TCFD requirements.
    - By providing any relevant scenario analysis.
- **Investment strategy reviews -** The Trustee will consider ESG risks as part of the Scheme's regular investment strategy reviews that are carried out alongside each Actuarial Valuation and on an ad hoc basis as required. The Scheme's Investment Advisers are expected to integrate ESG considerations into their strategy advice and to highlight any key risks that are included within any potential investment strategy. As part of this work the Trustee will carry out scenario analysis to assist in the identification and measurement of climate-related risks in the Scheme's overall strategy.
- **Considering asset classes –** When assessing new asset classes, potential ESG risks will be assessed and discussed as part of the training provided to the Trustee. Key ESG risks will be considered when comparing alternative options.
- **Selection of investment managers –** when appointing new investment managers, the Scheme's Investment Adviser will provide information and their view on each manager's ESG policy and capabilities. Each manager will also be asked to provide information on their own ESG risk management processes as part of the selection process. This information allows the Trustee to identify potential risks when comparing potential providers.
- **Valuation and covenant review –** the Trustee will consider ESG risks as part of the triennial Actuarial Valuation process ensuring that this analysis considers the funding, covenant and investments risks in an integrated risk management manner. When assessing the employer's covenant, the Trustee will consider the ESG risks to the employer.

The process we use for managing climate-related risks

Management of climate-related risks has shaped our policies and processes. The Scheme's RI policy indicates the impact that climate risk can have on long-term returns and the importance of understanding how ESG factors can impact the Scheme's long-term objectives. The RI policy also outlines what expectations the Trustee has imposed on its investment managers with respect to embedding ESG considerations into their investment processes. The management of climate-related risks is achieved as follows:

- Engagement meetings with managers
- Discussions with Investment Adviser
- Climate Risk dashboard
- Risk register

We expect our investment managers to exercise good stewardship practices to help reduce climate-related risks. We expect engagement with underlying company entities to take place on our behalf and receive periodic updates from the managers via the engagement meetings to ensure that the desired climate-related themes are being discussed and sufficiently acted on.

The manager engagement meetings enable the Trustee Board to analyse how the Scheme's investment managers are embedding climate change considerations into their investment processes and provides a platform for the Trustee Board to challenge the approach conducted by the managers. At each engagement meeting, the manager is asked to provide case studies on how they have engaged with companies from an ESG perspective and what actions are being taken to mitigate the key ESG risks facing the mandate.

Following each engagement meeting, the Investment Adviser summarises the key climate-related risks identified and what areas should be prioritised from an engagement perspective. The prioritisation of different climate-related risks depend on a number of factors:

- Type of risk (transitional or physical);
- Materiality of risk (importance to asset class and significance within asset allocation)
- Likelihood of risk materialising (what threat does the risk event pose to the Scheme's long-term objective)

The prioritisation of risks uses a combination of qualitative and quantitative information provided by the investment managers. Once the priority order has been identified, the Trustee will then liaise with the necessary investment managers and request periodic updates as appropriate. Furthermore, the high priority risks that have been identified will be the focus of attention at future engagement meetings. Once sufficient information has been obtained, the Trustee will determine what action is appropriate to manage the identified risk.

This information is then included within the Scheme's climate risk dashboard (pages 12-16). This dashboard therefore acts as an action log outlining all the different risks identified, the perceived impact of these identified risks and what actions are going to be taken by the investment manager / underlying companies to manage these risks. This dashboard acts as a useful tool when carrying out subsequent engagement meetings with managers as it provides a clear summary of the key risks that have been identified and what the Trustee expects the managers to do to mitigate this risk.

How our processes for identifying, assessing and managing climate-related risks are integrated into our overall risk management framework

The Scheme's risk-management framework comprises a risk register, which is monitored on a quarterly basis, alongside supporting documentation such as the climate-risk dashboard that we have in place for the Scheme. Climate-related risks are included within the Scheme's risk register and across other risk management documentation as well as within the Scheme's dedicated climate risk dashboard.

Once risks are identified, they are then evaluated based on the overall threat posed to the Scheme. This helps the Trustee build up a picture of the Scheme's risks more widely and where ESG risks sit in the overall risk management framework.

Risks that are deemed to be high in likelihood, impact, or both after allowing for mitigating controls are deemed to take priority for future discussion at engagement meetings. The Trustee expects that any action taken to manage climate-related risks should introduce an additional control to mitigate the likelihood of a risk occurring or reduce the impact of a risk should it occur.

When best practice ESG risk management techniques have been established for an asset class then this should be used as precedent for all other managers within the space. This is particularly important for emerging risks that are deemed to be high in likelihood or impact.

The management of ESG risks is integrated into the Scheme's current processes in the following ways, with all risks considered in the context of the overall risks inherent in any strategy:

- **Monitoring current investment managers / Individual mandates and investments** - The Trustee expects its investment managers to manage the ESG risks identified within their own mandates by:
  - Integrating the analysis of these risks into the overall assessment of any potential investment.
  - Engaging with investee companies where material risks have been identified, to understand and encourage their management of ESG and, climate-related risks.
- **Setting strategy and choosing asset classes** – The Trustee determines whether exposure to any asset class should be reduced, increased or avoided in light of the ESG risks identified.
- **Selection of investment managers** – The Trustee considers whether or not to invest with managers whose mandates are expected to introduce an unacceptable level of risk or who do not have adequate processes for the identification and management of ESG risks.
- **Valuations and covenant reviews** –The Trustee will consider whether the funding strategy needs to be adjusted to reflect the key ESG risks identified. The Trustee will analyse whether the ESG risks highlighted by the covenant review can be offset by holding certain assets within the investment strategy.

The Trustee's expectations of the investment managers with regards to the integration of ESG risks are set out in the Scheme's Statement of Investment Principles (SIP). The Trustee monitors the ESG activities of all managers through regular reporting and meetings, as set out above.

The Trustee, through the IFSC and RIWG, engages with current investment managers where risks have been identified to agree a plan of action. This may include more regular monitoring of mandates at higher risk.

In addition, the Trustee, with the assistance of its Investment Advisers, prepares an annual Implementation Statement which assesses the engagement and voting activities of investment managers and is used to monitor managers' activities in this area.

Metrics and targets

Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process

We believe it is important to consider a variety of metrics, covering both forward and backward-looking metrics. We want the metrics monitored to be decision useful. We focus on metrics that provide information that help us better understand the risks faced and make informed decisions about the resulting actions to be taken.

This report focusses on the mandatory metrics which all pension schemes are asked to monitor and report against for TCFD purposes. We appreciate that no single metric is perfect and therefore we monitor a suite of metrics. This approach enables us to take a more holistic view of the risks facing the Scheme's investment strategy. This report focuses solely on carbon emission metrics but we understand the importance of monitoring broader environmental, social and governance metrics when engaging with the Scheme's investment managers.

The UK government has confirmed the requirement to measure and report a portfolio alignment metric in addition to the absolute emissions and emissions intensity metrics. This portfolio alignment metric is intended to be forward looking in its approach, seeking to measure the extent to which companies or assets are aligned with the changes necessary to meet the Paris Agreement.

Given the importance of understanding forward looking actions plans for the underlying companies held within the Scheme's investment mandates, we are supportive of this additional metric. We acknowledge that forward looking metrics can help us better understand the Scheme's carbon journey plan and how our investment exposure to climate-related risks and opportunities will evolve over time. The metrics considered within this report are summarised below:

Type	Metric	Measurement
Absolute Emissions Metric	Total Greenhouse Gas (GHG) emissions*	The volume of scope 1 and scope 2 emissions from the Scheme's assets – Measured in tons of CO2e.
Emissions Intensity Based Metric	Carbon footprint	The volume of scope 1 and scope 2 emissions per unit of capital invested from the Scheme's assets – Measured in tons CO2e per $m invested.
	Weighted Average Carbon Intensity (WACI) – assessment of the efficiency of portfolio carbon emissions	The volume of scope 1 and scope 2 emissions per unit of sales for each portfolio company, weighted by the size of allocation to each company within the Scheme's assets – Measured in tons CO2e per $m sales
Additional climate change metric (non-emissions based)	Data quality – A measure of the level of estimated and actual data available from the Scheme's managers.	Measured per mandate - % of mandate for which we have actual, estimated or no data
Portfolio alignment metric	Alignment to Net-Zero	Measured as the % of portfolio at year end with specific Net-Zero targets

*Scope 3 emissions have been included within separate reporting where possible

Emissions data we have gathered so far

When discussing emission metric reporting with the Scheme's managers, it has quickly become apparent that data availability is one of the biggest challenges facing the investment industry. This is particularly true for the Scheme's illiquid managers whereby there has historically been limited appetite from companies to provide this information.

Furthermore, some managers have identified that there has been limited guidance issued to certain sectors / asset classes from a calculation methodology perspective and no "best practice" has been identified. Therefore, some managers are reluctant to share emission data since materially different numbers can be determined solely based upon what methodology is followed. Subsequently, where information is available, we have summarised the calculation methodology followed to reduce the ambiguity associated with the numbers.

Given the importance that the Scheme places on monitoring emissions data, there has been numerous engagement meetings held across the investment strategy. Some of the key recent engagement meetings have been summarised in the below table:

Date	Manager	Topics discussed
25 May 2023	M&G – CRE Debt	PCAF database output, dwelling vs floor methodology, EPCs and building certification
16 May 2023	Insight – synthetic equity	Emission reporting for equity derivatives and latest guidance issued by industry bodies
14 March 2023	DRC – CRE Debt	Emission data availability, building certification and energy efficiency
8 March 2023	Partners Group – private debt	Emissions, board diversity, biodiversity and SFDR indicators
27 May 2022	Insight – LDI / ABS	Emissions reporting within LDI and how post code analysis can be used for RMBS
16 February 2022	Scottish widows – buy-in	ESG performance metrics and ESG compensation considerations
5 October 2021	HPS – private debt	Persefoni reporting and emissions methodology
1 September 2021	Ares – private debt	Key performance indicators across environmental, social and governance themes

In addition to the above engagement meetings, the Scheme's investment adviser, Hymans Robertson, regularly engages with the Scheme's investment managers. The purpose of these discussions is to understand how the managers are evolving their reporting capabilities and ensuring that the managers are adopting industry agreed best practice where possible.

The below sections outline our conversations with managers from an emission data perspective. Where limited data is available, we have outlined how we have engaged with managers on this topic and the target timescales for managers to provide this information. It is important to note that we have focussed our attention on asset classes that we expect will form part of the Scheme's long-term investment strategy.

Private equity

The Scheme made commitments to private equity funds between 2007 and 2010. Private equity funds typically have a term between 12 and 16 years and therefore most of the capital has been returned to the Scheme with only the tail of the portfolio remaining. Furthermore, the Scheme recently undertook an exercise exploring the merits of selling the Scheme's private equity holdings on the secondary market. After receiving best and final pricing from various buyers, the Trustee agreed to sell the private equity holdings managed by Goldman Sachs Asset Management but retain the private equity holdings managed by Adams Street Partners (ASP). The secondary market sale for the Goldman Sachs Asset Management private equity vintages was completed at the end of Q2 2023. Therefore, the Trustee has decided to only include information pertaining to ASP in this report.

Adams Street Partners

QinetiQ invests in 13 different private equity vintages managed by ASP. ASP has determined that due to low data coverage, they cannot report absolute carbon emissions or portfolio carbon footprint estimates at this time. However, they believe that they have sufficient data to report a meaningful estimate for the WACI metric. The below table summarises the WACI information for the Scheme's private equity mandates managed by ASP as at 31 December 2022:

Private equity vintages	*WACI* (measured as tCO2e per $1 million)*
2007 Non US Fund	141.7
2008 US Fund	90.7
2008 Non US Fund	115.3
2008 Direct Fund	273.7
2009 US Fund	111.6
2009 Non US Developed Fund	118.3
2009 Emerging Markets Fund	71.5
2009 Direct Fund	390.9
2010 US Fund	99.8
2010 Non US Developed Fund	185.3
2010 Emerging Markets Fund	69.2
2010 Direct Fund	254.9
Direct Co-Investment II Fund	1,254.7

*Weighted Average Carbon Intensity – Refer to Appendix 2 for full definition

The WACI across the Scheme's overall private equity portfolio managed by ASP is summarised in the below table. The table also outlines what types of data has been used to derive this WACI figure.

Metrics	*Adams Street private equity portfolio as at 31 December 2022*
WACI	313.6 tCO2e per $1 million
Data quality	Estimated = 95.5%; Unavailable = 4.5%

The high WACI figure for the Direct Co-Investment II Fund is primarily due to two energy portfolio companies representing a large share of the remaining portfolio. ASP have outlined that they anticipate exiting the two energy portfolio companies in 2024.

Across all vintages, the WACI figure for the Scheme's private equity holdings with ASP has slightly increased over the last twelve months. The increase is predominately attributable to the change in the relative weight of companies with high emission outputs (i.e., Energy & Natural Resources) over the course of 2022. This can be seen within the below sector analysis:

	30 September 2019		31 December 2022	
	Weight	WACI	Weight	WACI
Business Services	10.0%	44.8	5.6%	46.4
Consumer	10.1%	74.3	11.3%	78.2
Energy & Natural Resources	14.6%	1236.5	20.8%	1308.4
Financial Services	5.5%	26.0	6.3%	25.9
Healthcare	9.3%	32.7	7.8%	31.3
Industrial	4.0%	173.1	3.5%	97.6
IT	44.3%	26.3	43.2%	22.4
Other	2.2%	30.3	1.5%	45.5

This sector allocation evolution can be explained by the fact that the private equity portfolio is in run off and therefore only the tail of the portfolio remains. ASP have confirmed their existing exit plans for the holdings within the Energy & Natural Resources sector and have outlined that they are actively exploring alternative exit options should they be sufficiently attractive from a financial return perspective. It is important to note that the Scheme is monitoring secondary market pricing for the Scheme's private equity holdings and these assets are not expected to form part of the Scheme's long-term strategy.

The above information solely focuses on WACI figures. ASP have outlined that to generate estimates for absolute emissions, they would need meaningful revenue data for a relatively high proportion of the overall portfolio, which they typically do not have (useful revenue data is typically only available for buyout funds). Hence, they do not believe that estimates for absolute emissions will be particularly meaningful. On the WACI figures, this is based on estimation factors from the primary industry classification of a given underlying investment, which ASP have high coverage for across all strategies.

Synthetic equity

The Scheme holds a combination of equity derivatives to achieve its desired equity exposure. In 2017, the Trustee agreed to convert its physical equity holdings into synthetic equity exposure to achieve a more capital efficient solution. Specifically, this enabled the Scheme to retain its desired equity exposure whilst holding sufficient capital in a shared collateral pool to increase the Scheme's target interest rate and inflation hedge ratio. In 2020, the Trustee introduced downside protection within its equity exposure given the uncertain market backdrop and the preference to ensure a smoother journey path towards the Scheme's long-term objective. Subsequently, the Scheme evolved its synthetic equity mandate by introducing equity options – this enabled the Trustee to shape the returns associated with the Scheme's equity exposure. The Scheme has retained the structured equity approach over the last couple of years.

Insight synthetic equity

Whilst it is relatively commonplace for emission data to be readily available for physical public equity mandates, there has been limited guidance released with respect to reporting emissions for equity-based derivatives.

The Trustee has discussed whether carbon emissions should be applied to equity-based derivatives. The Scheme solely has economic exposure to equity markets and therefore doesn't provide any financial capital to equity markets – in turn, it can be argued that the Scheme has no ownership of any underlying equity holdings and therefore no emission data should be attributed to the Scheme.

The Trustee has discussed this with the investment manager, Insight, who have indicated that there is limited guidance currently available with respect to reporting against derivatives (including equity derivatives). However, the guidance available suggests that these instruments should currently be excluded from an emissions reporting perspective. Insight has illustrated that they will engage with industry bodies to establish best practice with respect to reporting on equity-based derivatives and update the Trustee Board periodically.

Based upon the information and guidance available, the Trustee has not reported against emission metrics for the Scheme's synthetic equity mandate. We will continue to liaise with Insight to assess the appropriateness of providing emissions information for future reports.

Private debt

The Scheme has implemented a private debt portfolio which spans multiple investment managers and is well diversified from a vintage, geographic and sector perspective. The nature of private debt investing means that emissions data has been challenging to acquire but the Trustee, with support from their investment advisers, has engaged with each manager to evolve their reporting and better monitor the emissions attributed to the companies held within the various private debt mandates.

HPS

HPS has evolved its RI reporting capabilities immensely over the last couple of years. Specifically, HPS has worked with Persefoni, an ESG software vendor that specialises in climate disclosure, to estimate the carbon emissions of the investments held in the Scheme's private debt investments.

Persefoni has applied the Partnership for Carbon Accounting Financials ("PCAF") methodology to calculate estimated emissions from the investment activities of the underlying companies during the measurement period. The PCAF methodology is based on the Greenhouse Gas Protocol standards.

The analysis undertaken approximates the carbon emissions of the portfolio companies held in the private debt mandates based on the industry / geography classification provided by HPS. The actual carbon emissions of the portfolio companies may be higher than the approximation derived from this methodology. The data provided by HPS was expressed at a total mandate level and therefore adjustments have been made to reflect the Scheme's proportionate share. The data included within the below table solely looks at Scope 1 and Scope 2 emissions.

Metrics as at 31 December 2022	HPS SLF 2016 portfolio
Total carbon emissions	3,543 tCO2e
WACI	108.7 tCO2e/$M revenue
Data quality	Estimated data = 100%

The WACI figure for the Scheme's HPS SLF 2016 portfolio has slightly increased over the last twelve months. This can be explained by the fact that the mandate is in run off and only the tail of the portfolio remains. HPS has confirmed that the top 5 emitters contribute 82% of Scope 1 and 2 emissions for the overall portfolio. Exit plans are in place to unwind these positions over the next 12 – 18 months. It is important to note that the WACI figure is broadly in line with the WACI figure for the comparable leveraged loan index and meaningfully lower than the WACI figure for the comparable US High Yield index.

Metrics as at 31 December 2022	HPS SLF V portfolio
Total carbon emissions	6,915 tCO2e
WACI	63.8 tCO2e/$M revenue
Data quality	Estimated data = 100%

The total carbon emissions and WACI for the HPS SLF V mandate has fallen meaningfully over the last 12 months. The primary reason for this reduction in absolute carbon emissions and carbon emissions intensity can be attributed to the changes in portfolio composition over the last twelve months. The fund remains within its investment period and therefore HPS has been deploying more capital into attractive opportunities which are aligned with their specific beliefs. The loans acquired over 2022 has meant that the sector allocation is now more in line with the desired target portfolio, i.e., a reduction in the consumer discretionary allocation, and hence the absolute emissions and emissions intensity figures have fallen.

It is important to note that the WACI figure for HPS SLF V is also lower than the comparable leveraged loan index and meaningfully lower than the WACI figure for the comparable US High Yield index.

Persefoni has followed the PCAF methodology to classify the quality of data input used. Specifically, data quality is categorised into 5 groups based upon accuracy, precision and usefulness of information when determining associated emissions of an organisation.

Data quality 1 and 2 are classified as reported emissions by an organisation. Data quality 3 is classified as estimated emissions based on physical activity of an organisation. Data quality 4 uses economic-activity-based revenue methodology to estimate emissions and Data quality 5 uses economic-activity-based asset-turnover ratio to determine emissions. Persefoni has confirmed that Data Quality 4 & 5 input factors have been predominately used to determine the estimated emissions for HPS SLF 2016 and HPS SLF V.

HPS has also provided carbon emissions and WACI figures allowing for Scope 3 emissions. This information has been summarised below:

Metrics as at 31 December 2022	HPS SLF 2016 portfolio
Total carbon emissions (including Scope 3)	9,385 tCO2e
WACI (including Scope 3)	287.7 tCO2e/$M revenue
Data quality	Estimated data = 100%

Metrics as at 31 December 2022	HPS SLF V portfolio
Total carbon emissions (including Scope 3)	19,526 tCO2e
WACI (including Scope 3)	181.3 tCO2e/$M revenue
Data quality	Estimated data = 100%

Currently, HPS do not monitor whether portfolio companies are aligned to specific Net-Zero targets. HPS has indicated that they initially focussed on emissions reporting and are exploring integrating Net-Zero alignment monitoring within future reporting. **The Trustee will continue to engage with HPS on the carbon emissions generated from the private debt mandates and their plans for introducing Net-Zero reporting.**

Partners Group

Partners Group has collated TCFD information for their Sustainable Finance Disclosure Regulation (SFDR) Article 8 funds - which includes MAC VI & MAC VII. The Scheme made a commitment to the Partners Group MAC IV private debt mandate and given the inception date of this fund; Partners Group is not intending to obtain SFDR Article 8 classification for this mandate.

Partners Group is aiming to report on all mandatory SFDR fund level performance assessment indicators by 30 June 2023 for their SFDR Article 8 funds and intending to provide as much information as possible for private debt portfolios that are not classified under Sustainable Finance Disclosure Regulation. The below summarises some of the indicators that Partners Group intend to incorporate into future reporting:

- Greenhouse gas emissions (scope 1 & 2)
- Weighted average carbon intensity
- Forward looking targets

Partners Group were able to provide some emissions data at a total vintage level as at 31 December 2022. This information was used to estimate the Scheme specific emission data and this information has been summarised in the below table.

Metrics as at 31 December 2022	Partners Group MAC IV
Total carbon emissions	20,897 tCO2e
WACI	27.1* tCO2e / £m revenue
Data quality	35% reported** and 65% unknown

**The WACI figure is based solely on the reported emissions available. **All data has been reported by the underlying portfolio companies. Only includes reported Scope 1 and 2 carbon emissions at a Scheme level.*

The MAC IV mandate is currently in its realisation phase. To improve the portfolio coverage for these emission metrics, Partners Group has highlighted that they will continue to engage with borrowers with respect to providing more detailed emissions related information. Partners Group has highlighted that data coverage metrics could be skewed as private debt vintages mature as underlying loans are repaid and the number of holdings within the mandate decreases.

Partners Group has considered joining the Science Based Targets initiative (SBTi) and they continue to evaluate the merits of signing up to this initiative. While SBTi has released an initial framework for private equity, there is still no guidance for private debt. Partners Group's focus at this time is to actively engage with their portfolio companies to drive sustainable practices and decarbonisation.

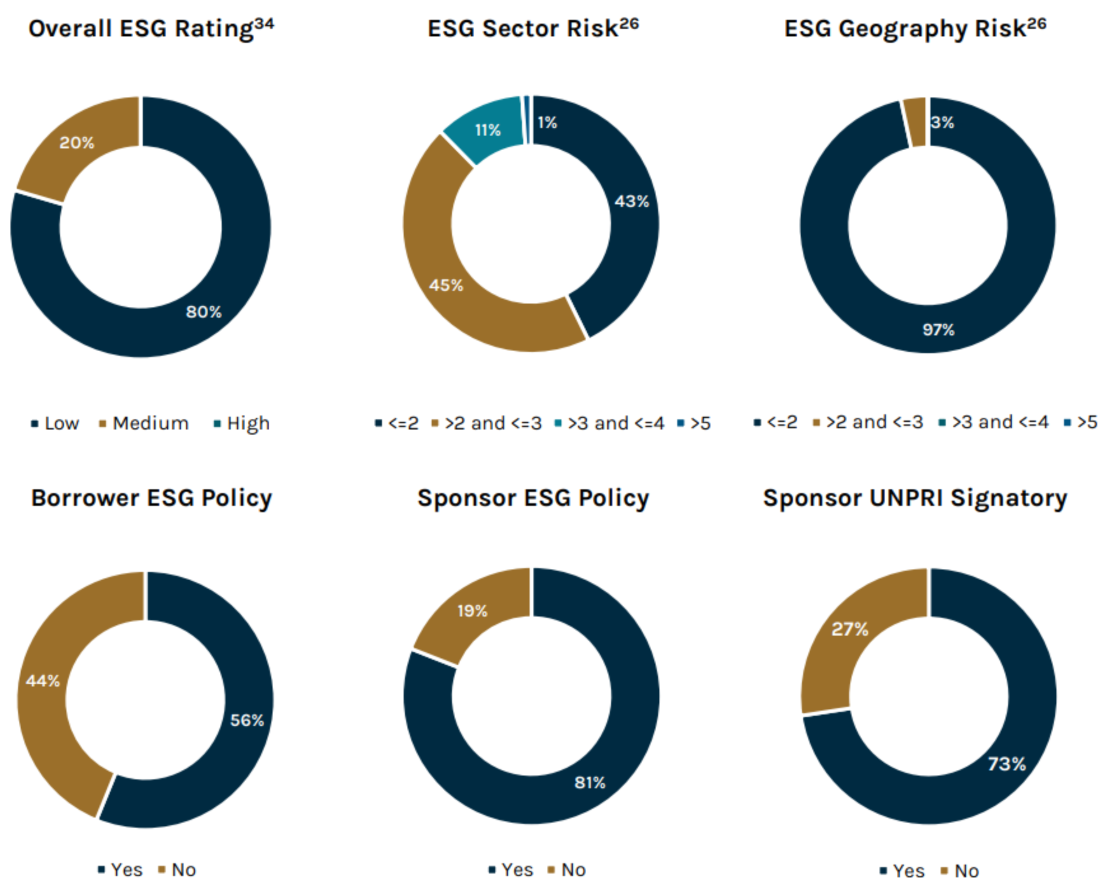
Partners Group is an active member in Initiative Climate International (ICI), a global community of private equity firms and investors that seek to better understand and manage climate risks and opportunities; and via this organization are working to better understand the SBTi's private equity guidance and help develop private debt guidance.

Partners Group also monitors the proportion of the mandate that has forward looking targets and a climate strategy in place. Based upon information as at 31 December 2022, c26% of the mandate had climate-related forward-looking targets.

The Trustee Board, via their investment adviser, is continuing to engage with Partners Group on the provision of further emissions data and other social and governance metrics. **The Trustee will incorporate additional metric information into future reporting once this becomes available from the manager.**

Ares

Ares has undertaken a gap assessment against TCFD's four pillars to identify areas of improvement. This analysis included reviewing numerous frameworks and questionnaires which referenced over 300 different key performance indicators (KPIs). Throughout 2022, Ares filtered through 140+ environmental, 115+ social and 55+ governance KPIs and determined that there were c30 KPIs that were most applicable to European Direct Lending given the typical sector profiles of their portfolios. As at 31 December 2022, the key information reported by Ares has been summarised within the below charts.



Ares has also looked to integrate emissions and Net-Zero analysis within their future reporting. In Q4 2022, Ares initiated a pilot questionnaire in partnership with a third-party firm – Novata. This company was formed by more than a dozen private equity firms and pension funds to provide a platform for selecting ESG metrics. Ares believe that this platform will provide a meaningful step in delivering transparent and reliable data across their portfolios.

The questionnaire was delivered to all ACE V portfolio companies and achieved a high engagement rate of over 85%. Ares outlined that the indicative results showed positive signs with 77% of borrowers stating that they were able to report their Scope 1 and 2 greenhouse gas emissions through a combination of self-reporting and using Novata's emissions calculator. In addition, 70% of the borrowers that tracked emissions also had targets in place to reduce their carbon emissions over time.

Ares are currently reviewing the information received from the questionnaire and are engaging with Novata to integrate this information into future reporting. **Ares has indicated that they hope to provide more specific emissions reporting at the end of H2 2023 – the provision of emission reporting will be a key area of engagement over the next 12 months between Ares and the Trustee.**

Commercial real estate debt

The Scheme has implemented a commercial real estate debt portfolio via two different managers. The nature of commercial real estate debt investing means that emissions data is not readily available and does not necessarily provide helpful trend date. The Trustee, with support from their investment advisers, has engaged with each manager to understand what actions they undertake to assess environmental performance and how this can be integrated into regular reporting.

M&G

The Partnership for Carbon Accounting Financials (PCAF) launched its European building emission factor database in February 2022. This database provides GHG emission estimates for commercial real estate for specific regions. PCAF's mission is to facilitate alignment with the Paris Climate Agreement and aims to support investors in measuring and disclosing greenhouse gas emissions to create better transparency and accountability.

In March 2023, PCAF published some guidance on emissions reporting within real estate which has provided some helpful clarification in areas which was previously highly subjective. Specifically, it states that all emissions should be classified as Scope 3 emissions as Scope 1 and 2 emissions are not applicable for this asset class. This indicates that when emissions data for this mandate becomes available, it will not be directly comparable with the emissions data shared by the Scheme's other investment managers.

M&G has done some analysis to determine the magnitude of the difference between the estimates calculated using the PCAF emission factor database and calculating emissions using actual data received from borrowers (where available). The magnitude of the difference was quite significant and therefore M&G are undertaking further analysis before providing emissions data within their reports.

In an ideal world, M&G would use actual data from borrowers. However, when M&G has engaged with borrowers with respect to providing this information there has been a mixed reception. Even some of the most progressive borrowers (i.e., borrowers who are ahead of the curve when it comes to RI capabilities more broadly) are not currently able to provide emission information. Currently, the regulatory requirements imposed on investors and asset managers is not aligned with the regulatory requirements imposed on borrowers. This has resulted in some borrowers being reluctant to dedicate resources to these areas and provide the requested information.

We continue to believe that M&G should proactively engage with borrowers to acquire as much actual data as possible but should also be taking steps to provide estimated emissions data in the interim period. During our engagement meetings, M&G highlighted that the commercial real estate debt team has been liaising with the real estate team to better understand what reliance can be placed on the estimates derived from the PCAF emission factor database. Recent analysis has indicated that estimates using the PCAF database within the retail sector has not been particularly accurate. However, there is much more confidence in the estimates within the office sector. M&G has outlined that they are exploring providing estimated emissions for certain sectors but are currently unable to commit to a timescale for providing this information.

The nature of the asset class means that current carbon emissions data is not readily available. M&G has indicated their preference to use actual data from borrowers. However, many borrowers are unable to provide this information at present. The Trustee is engaging with the manager to improve their reporting disclosures as a priority, with M&G confirming that they are exploring the appropriateness of using estimated emissions data via the PCAF emission factor database.

DRC

When engaging with the investment manager on emissions data, DRC has stated that emissions from the CRE debt mandate does not fall into Scope 1 and Scope 2 requirements – instead all emissions would be classified as Scope 3. The definition agreed by the Trustee Board for calculating emission metrics solely focuses on Scope 1 and Scope 2 emissions (given the challenges in accurately determining Scope 3 emissions in the current market environment) and therefore any future reporting quoted by DRC will not be directly comparable with the information supplied by the other managers.

DRC has stated that they are now gathering data for new investments covering greenhouse gas emissions, energy efficiency, water pollution and building certification. DRC are aiming to collate this information by the end of this year where possible and therefore we will look to capture this information in next year's TCFD report.

Through the Scheme's engagement framework, DRC stated that "as a lender, they are not obliged to report on emission intensity metrics or data quality metrics". The Trustee, via their investment adviser, has repeatedly reiterated the Scheme's requirement to receive emissions data reporting where available. Furthermore, the investment adviser has outlined their experience with other CRE debt managers and how other managers within this asset class are currently in the process of undertaking analysis to provide estimated emissions data. In addition, the Trustee has queried whether the European building emission factor database could be used to provide estimated emissions for the CRE debt portfolio. The Trustee will continue to engage with DRC on emissions reporting and hopes to provide additional information in future reports.

With respect to Net-Zero reporting, DRC has outlined Savills' Net-Zero commitment. Specifically, they are targeting Net-Zero emissions (based on a 2019 baseline) by 2040 and are targeting a 50% reduction in emissions for AUM held for more than two years by 2030. From a portfolio perspective, DRC has indicated that they intend to set energy reduction targets across all assets – however, this commitment only applies to all assets in new commercial real estate debt funds that they manage from 2023.

Over the next 12 months, the Trustee intends to engage with DRC on providing tangible information that can monitor progress relative to the short-to-medium targets set from a Net-Zero perspective.

In summary, the manager has previously illustrated that they believe they are not obligated to provide carbon emissions data. As a priority, the Trustee is engaging with the manager to improve their disclosures and hopes to provide this information in future reports.

LDI

The Scheme's LDI portfolio is designed to manage interest rate and inflation sensitivity associated with the Scheme's liabilities. Subsequently, the Scheme purchases a combination of physical fixed and index-linked government bonds to hedge against movements in interest rate and inflation markets. In addition, the Scheme utilises derivatives to obtain the desired exposure in a capital efficient manner.

Insight currently provided quarterly metric reporting calculated on gilt exposure held in the LDI portfolio. The latest information available is summarised in the below table:

31 March 2023	Market value of long exposure (£m)	Absolute emissions tCO_2e
Funded gilts only	369	64,753
Gilts on repo / TRS	300	52,598
Combined gilt exposure	669	117,350

Metrics as at 31 March 2023	LDI portfolio
Total carbon emissions	117,350 tCO2e
Carbon footprint	175 tCO2e / market value of gilts in issuance
WACI	110 tCO2e / GK$m GDP
Data quality	Actual data = 100%*
Net-Zero target	N/A

*the climate data for the LDI portfolio solely considers government bonds, index-linked government bonds and gilt derivatives. This data excludes any interest rate swaps, inflation swaps, futures, cash and money market fund holdings.

Given the nature of the assets held in the LDI portfolios, the funds are performing in line with expectations from an emissions perspective. Insight also provide analysis on UK emission trends to provide some context to the emissions data reported on a quarterly basis.

Looking ahead, Insight state that the actual decarbonisation pathway for the UK might be slower than forecasted. In particular, c20% of current UK emissions is still produced by the energy sector and little decarbonisation has taken place in key sectors such as real estate and transport.

Insight is planning on working with the Partnership for Carbon Accounting Financials (PCAF) to establish a protocol for calculating emissions for swaps and other derivative instruments over the next 6-12 months. The willingness to work with the PCAF to determine best practice shows the desired engagement to improve data coverage is being achieved.

Asset backed securities

The Scheme has implemented a collateral waterfall framework which includes asset backed securities (ABS). These assets are held within the investment strategy to generate a return over cash and help reduce the deficit position. However, they are also held to support the Scheme's LDI portfolio when real yields rise, and additional capital needs to be transferred to the LDI portfolio to support the desired hedging position. Over 2022, the value of the Scheme's ABS holdings diminished meaningfully as capital was transferred from the ABS portfolio to the LDI portfolio following the sharp spike in real yields.

The Scheme intends to rebuild the allocation to ABS as and when distributions from the Scheme's illiquid mandates are made. Therefore, whilst the current allocation to ABS is minimal, the expectation is for this asset class to play an important role within the composition of the Scheme's long-term strategy. Therefore, the Trustee has liaised with Insight to determine what information can be provided from an emissions reporting perspective.

Insight has stated that they have initially focussed their attention on obtaining emissions data for UK RMBS and they are intending to share information within reports from H2 2023 onwards. To determine data for UK RMBS, Insight has undertaken post code analysis and liaised with various industry bodies to help establish best practice within this space. They are also working on expanding their coverage to CLOs and other secured finance assets over the coming months.

At the moment, no emissions reporting information is available within this asset class. Given the role that ABS is expected to have in the Scheme's long-term strategy, this will be a high priority engagement area for the Trustee.

The targets we have set to manage climate-related risks and opportunities

The Trustee has agreed to set a target in relation to data quality given the current low levels of data available and the importance of challenging managers to improve the proportion of actual data used in climate reporting. Given the composition of the portfolio and the long-term direction of travel, the Trustee agreed to focus on the Scheme's direct lending mandates. Specifically, **the Trustee agreed to target an overall portfolio coverage of at least 50% of the Scheme's direct lending mandates by the end of 2023**.

The Trustee, following a review conducted by the RIWG, has also agreed to adopt a new zero target of 2050. This approach was consistent with the RI beliefs of the Scheme and the approach adopted by the Sponsor. However, given the expected time horizon for the Scheme, it was agreed that we should focus on interim targets which were more aligned to the Scheme's direction of travel and **hence an interim target date of 2030 was agreed**. The exact mechanics of this interim target will be determined once the baseline position has been established. We expect to be able to provide further information in relation to this target in future reports.

We continue to discuss what targets are most appropriate to set to manage climate-related risks and opportunities and we will provide further information in our next TCFD report.

Appendix 1 – Scenario Analysis – Results and assumptions

Scenario analysis results

The below analysis considers the probability of success of being fully funded on a gilts flat basis over different time horizons and assumes that the current investment strategy remains in place throughout the projection period.

Probability of being 100% funded on gilts flat basis			
	Short term 3 years	**Medium Term 6 years**	**Long term 10 years**
Current strategy	**Base: 23%** Immediate Transition: **20%** Delayed Transition: **25%** No/limited transition: **23%**	**Base: 51%** Immediate Transition: **46%** Delayed Transition: **48%** No/limited transition: **52%**	**Base: 76%** Immediate Transition: **74%** Delayed Transition: **73%** No/limited transition: **73%**

The Trustee has agreed a long-term objective of being fully funded on solvency basis by 2032. Hymans Robertson has estimated that this objective broadly equates to being 102% funded on a gilts flat basis by 2032. Therefore, the scenario analysis was updated to reflect this probability of success target over a 10-year period.

Furthermore, the Trustee has agreed to incrementally de-risk the investment strategy by transitioning from illiquid credit into liquid credit once distributions become available. Therefore, additional analysis was undertaken to ascertain how different climate scenarios impact the probability of success of achieving the long-term objective allowing for the planned long-term de-risking of the investment strategy. The output has been shown in the below table:

Probability of being 102% funded on gilts flat basis		
	Current strategy	**Planned de-risking**
Long term 10 years	**Base: 74%** Immediate Transition: **73%** Delayed Transition: **71%** No/limited transition: **71%**	**Base: 63%** Immediate Transition: **61%** Delayed Transition: **60%** No/limited transition: **62%**

Under the three climate scenarios analysed, there was minimal deviation in the expected probability of success of achieving the Scheme's long-term objective of being 102% funded by 2032. This provided reassurance that the investment strategy is relatively resilient under negative climate scenarios.

The below table looks at how the downside risk for the Scheme differs under different climate scenarios.

Average Funding level of 5% worst case modelling outcomes			
	Short term **3 years**	**Medium Term** **6 years**	**Long term** **10 years**
Current strategy	**Base: 66%** Immediate Transition: **63%** Delayed Transition: **64%** No/limited transition: **65%**	**Base: 66%** Immediate Transition: **65%** Delayed Transition: **63%** No/limited transition: **64%**	**Base: 68%** Immediate Transition: **65%** Delayed Transition: **64%** No/limited transition: **66%**

The analysis has been conducted by Hymans Robertson. Their Economic Scenario Service (ESS) model produces stochastic projections for a wide array of asset class returns and other economic factors, which can be used as part of any quantitative risk management exercise. The ESS models are regularly updated to capture the latest market conditions and are maintained and documented by a specialist team. The models don't make explicit assumptions for climate change or any other economic/political factors like trade wars, pandemics, etc.

However, climate change can be factored in indirectly by weighting the existing ESS outputs to 'tilt towards' possible climate scenarios. For each climate scenario, each of the 5,000 trials run for the ALM exercise is assigned a specific weight – one weight per trial per model calibration date. Weights are determined to achieve higher volatility in the periods specified. In each scenario (immediate transition, delayed transition and no/limited transition), a disruptive period of high volatility is assumed. This disruption is either linked to the response to climate risk (transition risks) or the effects of it (physical risks). The specific volatility criteria used for each of the scenarios is summarised in the below table:

ESS input	Volatility criteria			
	Year 1-5	**Years 6-10**	**Years 11-15**	**Years 16-20**
Immediate Transition	Very high	Moderate	Moderate	
Delayed transition		Very high	High	
No/limited transition			High	Very high

The impact of climate change on longevity and sponsor covenant is **not** included in the analysis.

Appendix 2 – metric explanation

Absolute emissions

The formula for this metric attributes a share of each underlying investment's GHG emissions to the Scheme based on the Scheme's share of that investment, as follows:

$$\sum_{i=1}^{i=n} \frac{Scheme's\ value\ of\ asset_i}{Total\ equity\ and\ debt\ of\ asset_i} \times GHG\ emissions\ of\ asset_i$$

This metric is dependent on the issuer's disclosure of its GHG emissions. Whilst this metric is relatively straightforward to calculate and communicate, there is no normalisation between funds. Subsequently, it is important to consider carbon intensity metrics.

GHG emissions are categorised into 3 scopes:

- **Scope 1** – All direct GHG emissions from sources owned or controlled by the company (e.g., emissions from factory operations
- **Scope 2** – Indirect GHG emissions that occur from the generation of purchased energy consumed by the company
- **Scope 3** – Indirect emissions that arise as a consequence of the activities of the company, e.g., supply chains and the use and disposal of their products. These are sometimes the greatest share of a carbon footprint as it covers emissions associated with business travel, procurement, production of inputs, use of outputs, waste and water.

Carbon footprint

The carbon footprint is effectively the total GHG emissions normalised by the size of the portfolio. The formula used for this metric is as follows:

$$\frac{\sum_{i=1}^{i=n} \left(\frac{Scheme's\ value\ of\ asset_i}{Total\ equity\ and\ debt\ of\ asset_i} \times GHG\ emissions\ of\ asset_i \right)}{Current\ portfolio\ value}$$

This metric provides the Scheme with the ability to monitor relative carbon intensity at an overall strategy level, sector level and company level. However, this metric does not take into account differences in the size of companies and hence the importance to monitor this metric in conjunction with Weighted Average Carbon Intensity (WACI).

WACI

The weighted average carbon intensity measures the exposure to carbon intensive assets expressed in tons of CO2e per millions of pounds of revenue. The formula used for this metric is as follows:

$$\sum_{i=1}^{i=n} \left(\frac{Scheme's\ value\ of\ asset_i}{Current\ portfolio\ value} \times \frac{GHG\ emissions\ of\ asset_i}{Issuer's\ revenue_i} \right)$$

This metric relies on historical carbon data and analysis and therefore is backwards looking. This means that it doesn't take into account any action plans that companies have agreed to reduce their carbon emissions or achieve environmental objectives. Therefore, this metric needs to be reviewed in conjunction with forward looking metrics.

Portfolio alignment – Science Based targets

The proportion of the portfolio at year end whereby a specific Net-Zero target has been set.

Data quality

This metric measures the proportion of the portfolio for which high quality data is available. This looks at the proportion of the portfolio whereby emissions data has been verified, reported, estimated or unavailable.