

Royal Ordnance Pension Scheme TCFD Report

31 March 2024

Executive Summary

This report has been produced by the Trustee of the Royal Ordnance Pension Scheme (the "Scheme") and its advisers under the requirements of the Occupational Pension Schemes (Climate Change Governance and Reporting) regulations 2021. As part of these regulations, the Scheme is legally required to produce formal disclosures in line with the recommendations of the Task Force on Climate-Related Financial Disclosures ("TCFD"). This report covers the period from 1 April 2023 to 31 March 2024 ("the Scheme year"). The Scheme currently has c.£1.2bn of assets.

This report covers the following four areas of the Climate Change Governance framework:

- **Governance:** the arrangements that have been put in place around climate-related risks and opportunities.
- **Strategy:** the potential impacts of climate-related risks and opportunities on the strategy, covenant and financial plans of the Scheme.
- **Risk Management:** how the Trustee identifies, assesses, and manages climate-related risks and opportunities.
- **Metrics and Targets:** the metrics and targets used to assess and manage climate-related risks and opportunities.

All analysis in the report is provided by the Scheme's Responsible Investment ("RI") adviser, Redington Ltd ("Redington"), and the data in the report is provided by the Scheme's Investment adviser Hymans Robertson LLP ("Hymans Robertson").

Governance

Whilst the Trustee has overall responsibility for all investment decisions of the Scheme, certain responsibilities regarding climate policy and strategy are delegated to the Funding and Investment Committee ("FIC") with input from its investment adviser, Hymans Robertson, and its RI adviser, Redington. The Trustee expects investment managers to consider financially material environmental (including climate change risks), social and governance matters in investment decision making. The Trustee also expects investment managers to practise good stewardship which includes engaging with issuers of debt or equity on financially material environmental, social or governance ("ESG") issues. The Trustee has assigned its investment advisers to engage with the managers on its behalf for this purpose and inform the Trustee of any relevant updates. Members of the Trustee Board and the FIC also hold an annual "manager day" where they meet with their investment managers, with ESG matters forming part of that meeting discussion. The Trustee's RI Advisor, Redington, completes a quarterly assessment of the services provided and how they align to strategic objectives set for the adviser.

Strategy

The Trustee considers climate-related risks and opportunities across short-, medium-, and long-term time periods relevant to the Scheme's investment and funding strategy. These risks are primarily assessed via climate scenario analysis of the Scheme's assets and liabilities (as at 30 June 2022) and an assessment of the sponsoring company's exposure to climate-related risks and opportunities.

Risk Management

The Trustee acknowledges that the Scheme is exposed to climate change-related risks. The Trustee manages these risks through conducting and reviewing climate change scenario analysis, receiving reporting including carbon emissions from their RI adviser, and expects investment managers to integrate climate change risks into their approach. The Scheme's investment adviser also plays a key role in creating a dialogue with the managers on climate risk. Climate-related risks have begun to be integrated into the Scheme's wider risk management framework, with the Trustee engaging with investment managers to assess their approach to ESG integration and climate-related risk assessment. Redington provides annual climate related reporting on a fund-by-fund basis on the Scheme's portfolio level exposure to climate-related risks. The aim of these measures is to help enable informed decision-making and effective management of climate related risks for the Scheme.

Metrics and Targets

On an annual basis, the Trustee monitors and reports the Scheme's total carbon emissions¹, carbon footprint², data quality³ and the output of the portfolio alignment SBTi metric⁴. These metrics will be reported on as at the Scheme's year-end (31 March 2024) within this report. The Trustee will use the results to identify the climate-related risks and opportunities which are relevant to the Scheme. Follow-up actions may include, for example, engaging with fund managers who have material carbon intensity levels or with other industry participants, exploring opportunities for climate resilience and adaptation and updating investment guidelines for managers where the Trustee has discretion to make such changes. The Trustee has also set an aspirational net-zero target, with an interim target to decrease the carbon footprint of the segregated Buy & Maintain credit portfolio by 50% by 2030 (subject to the Trustee's fiduciary and financial objectives).

The following pages summarise the Trustee's current position compared to the recommendations set out by the TCFD as set out in the Occupational Pension Schemes (Climate Change Governance and Reporting) regulations 2021.

¹ Represents the total share of Scope 1, Scope 2 and Scope 3 carbon emissions a fund is responsible for.

² Measurement of the CO₂e emissions of a fund per million pounds invested using Scope 1, Scope 2 and Scope 3 emissions.

³ Data quality, quantified using the MSCI Climate Metrics Coverage, reports the proportion, by value, of a fund for which carbon metrics are available from MSCI. This is reported by each fund and aggregated at the Scheme level.

⁴ SBTi examines whether a voluntarily disclosed company's decarbonisation target is aligned with a relevant science-based pathway. The scores are binary with a "yes" or "no" assessment.

1. Governance

The Trustee is responsible for running the Scheme in the best interest of its members and for all investment issues relevant to the Scheme, including the oversight and management of RI and the risks and opportunities related to climate change. The Trustee recognises that ESG factors are financially material to investment risks and returns and should be considered within the Trustee's fiduciary objectives.

The FIC is a sub-committee of the Trustee Board that has delegated responsibility to consider Scheme funding, investment and covenant matters. The Trustee uses the subject matter expertise of the FIC before considering any investment related decisions for Trustee approval. The FIC's composition is determined by the Trustee. In addition to appointed Trustee members, the Committee invites certain members of the in-house Trustee Pensions Team and its external advisers to provide support in deliberations and/ or attend quarterly meetings.

The FIC considered climate change risks and opportunities in detail and provided the Trustee with frequent updates along with several recommendations. As detailed in Section 2 "Strategy", climate-related scenario analysis was assessed by the FIC during the first Scheme year captured by TCFD requirements (1 April 2022 to 31 March 2023), enabling them to understand and consider climate-related factors. In addition, the Trustee approved the "Socially Responsible Investment and Corporate Governance" section within the Statement of Investment Principles ('SIP'), which can be found online at <https://www.baesystems.com/en-pensions/defined-benefits/royal-ordnance-pension-scheme>. This provided the framework for its incorporation of ESG and stewardship considerations into the investment strategy, objectives and policies of the Scheme.

The Trustee received training on RI throughout the year from its RI adviser and members of the Trustee board are also expected to devote time to self-learning. In addition to the Trustee and the FIC, other relevant people that support the Scheme receive training on climate risks and opportunities, as necessary. Over the year to 31 March 2024, the Trustee received training on stewardship regulations and updates to TCFD reporting. The Trustee also received quarterly updates on relevant discussions that have taken place at the Scheme's sub-committee meetings. The FIC added climate related risks into the Scheme's risk register, which is discussed alongside the Scheme's other risks at each quarterly meeting. Any new risks are proposed by the Scheme's advisers for discussion before being included in the register. By including climate-related discussions and training at the quarterly FIC meetings and including climate risks alongside investment risks in the Scheme's risk register, the FIC has ensured robust climate-related discussions have taken place to confirm an understanding of advice received.

The Trustee encourages open and frequent communication between all relevant people who work on the management of climate-related factors. The Scheme's advisers and service providers have worked closely in the preparation of this report, encouraging the sharing of data and analysis between all parties.

The Trustee expects its external advisers to help assess the different climate-related risks and opportunities to which the Scheme is exposed. To be comfortable that their advisers are taking appropriate steps to assess risks and opportunities of climate change, advisers completed quarterly assessments on service provision. The FIC questioned its advisers to ensure RI assessments are accurate and relevant. For example, the FIC debated their previously chosen time horizons at the March 2024 FIC meeting and ultimately determined to amend their medium-term time horizon, to ensure it remains up to date and relevant to the Scheme.

The Trustee received climate-related scenario analysis on the Scheme as set out under Section 2 "Strategy". However, the Trustee acknowledges the criticisms and restrictions that are evident around scenario analysis methodology in the industry, explained in more detail in the following section. The Trustee, therefore, does not rely solely on the information produced by the scenario analysis to make any strategic decisions.

2. Strategy

The Trustee considers climate-related risks and opportunities and their potential implications for the Scheme's investment and funding strategy over the short, medium and long term. As part of this, it receives scenario analysis relating to the Scheme's assets, liabilities and covenant. This, along with wider climate-related analysis, helps to ensure that climate-related factors are incorporated throughout the Trustee's funding and risk management processes, from strategic asset allocation to manager selection and portfolio monitoring, as well as considering potential risks to the covenant of the Scheme.

The Trustee recognises the increasing scrutiny of climate modelling and scenario analysis. This scrutiny has highlighted that current methodologies may not fully account for the short- and medium-term climate risks the Scheme could face and may have limited reliability and usefulness as a decision-making tool. As such, the Trustee does not rely solely on this analysis to inform its strategic decision-making. The scenario analysis highlights that climate change risks exist, and the Trustee believes that appropriate risk management steps should be taken to address and limit potential impacts. The Risk Management section explains this further.

Given the Trustee's desire to remain aligned with emerging good practice, the Trustee is considering this topic with its RI adviser. The Trustee will remain informed on developments and will continue to look for opportunities to alter its approach to scenario analysis and climate modelling as methodologies change. As approaches are still developing, the methodology used for the analysis in this report has not changed significantly versus last year's report.

The Trustee received climate-related scenario analysis on different aspects of the Scheme from the following advisers.

Table 1: the Scheme's scenario analysis providers

Scheme component	Provider of climate scenario analysis
Assets	Redington (Responsible Investment adviser)
Liabilities	Hymans Robertson (actuary and investment adviser)
Covenants	PwC (covenant adviser)

The Trustee is conscious that, given the diversified nature of the Scheme's investment portfolio, the source of climate-related risks is likely to be varied. The main known risks to the Scheme are transition risk, and physical risk, which are described below and included in the three climate scenarios detailed in Section 2.1 and 2.2. It is important to note that these are not the only risks that schemes will face and there are many others that are either unknown, or not yet considered in climate analysis due to the difficulty in quantifying the risk.

- **Physical risks**, i.e. those that arise from both gradual changes in climatic conditions and extreme weather events; and
- **Transition risks**, i.e. risk of re-pricing which would occur as part of the move to a low-carbon economy.

The regulations require the Trustee to consider climate-related risks and opportunities over different time horizons. Therefore, the Trustee considers the potential impact of these on the Scheme's funding strategy over the short-, medium-, and long-term. For example:

- Short-term risks and opportunities may include stock price movements resulting from increased regulation addressing climate change (i.e. mostly transition risk).

- Over the medium term, it is expected that there will be changes in consumer spending habits following changes in technology, such as the uptake of electric vehicles or a reduction in overseas travel; there may also be greater levels of physical damage to real assets (i.e. some transition and some physical risk).
- Longer-term risks may include physical damage to real assets as a result of rising sea levels for coastal property or infrastructure assets; there may be opportunities for outperformance for organisations that put in place strategies to mitigate these potential risks well in advance of them materialising (i.e. higher levels of physical risk than over the medium or short-term).

Table 2: the time horizons monitored by the Trustee

Time Horizon	Years	Rationale
Short Term	0 - 3 years	This aligns with the Scheme's three-year actuarial valuation cycle and helps the Trustee capture the more immediate climate risks and opportunities to the Scheme. Risks/opportunities include: carbon prices, regulation and changes in consumer behaviour.
Medium Term	4 – 11 years	This is aligned with the Scheme's target full funding date of 2035 on a gilts + 0.3% p.a. basis and demonstrates the importance of significant climate data improvements over the next decade. Risks/opportunities include: carbon prices, regulation, changes in consumer behaviour, extreme weather events and competitive pressures.
Long Term	20 – 25 years	This is broadly aligned to the mid-point of the Scheme's liability profile and helps the Trustee to better consider the potential impact of physical risks. Risks/opportunities include: regulation, changes in consumer behaviour, competitive pressures, weather events, food price inflation and commodity scarcity.

2.1 Climate scenarios

This analysis is considered alongside other factors when the Trustee sets the Scheme's strategic asset allocation. This helps to determine whether investment strategy changes are likely to have a positive or detrimental impact on the Scheme's climate risk profiles.

The Trustee, on an ongoing basis, assesses the impact of the identified climate-related risks and opportunities on the Scheme's investment strategy and funding strategy. In order to assess the impact on the Scheme's assets, the Trustee undertook scenario analysis consistent with the PRA's Life Insurance Stress Tests ("the PRA stress test scenarios"), as recommended by the Pensions Climate Risk Industry Group ("PCRIG") in 2022 and, acknowledging the limitations and scrutiny mentioned earlier in this report, has chosen not to update it this scheme year. Further detail on the methodology is covered in appendix A. The stresses are designed to show what the worst-case impact on the value of the Scheme's assets would be in the following scenarios:

- **Fast Transition:** Abrupt transition to the Paris-aligned goal occurring in three years (temperature increase kept below 2 degrees Celsius relative to pre-industrial levels).
- **Slow Transition:** Orderly transition to the Paris-aligned goal occurring by 2050 (temperature increase kept below 2 degrees Celsius relative to pre-industrial levels).
- **No Transition:** A no-transition scenario occurring in 2100 (temperature increase in excess of 4 degrees Celsius relative to pre-industrial levels).

The results of the scenarios inform the Trustee how resilient the investment strategy may be with regards to different climate change outcomes. To understand the impact of climate change on the Scheme, the Trustee engaged with the Scheme Actuary and Investment Consultant, Hymans Robertson, to understand how the

scenarios described above will impact the liabilities of the Scheme. The scenarios used for the asset-side analysis are comparable to those used for the liability-side analysis, allowing a funding level impact to be determined. Further detail may be found in Appendix A.

The Scenario Analysis will be reviewed annually, whereby the Scheme’s RI adviser and investment adviser, will discuss with the FIC whether the scenario analysis should be refreshed or not. This resulting decision will then be brought to the Trustee for agreement. Trustees are required to update climate scenario analysis following any changes that are expected to materially alter the results – for example, material changes to the investment strategy or significant improvements in data availability and climate scenario analysis methodologies.

Since the completion of the most recent scenario analysis (completed during the 1 April 2022 to 31 March 2023 Scheme year), there have been no changes that would be expected to meaningfully alter the results of the analysis. As such, the Trustee decided not to update the scenario analysis this year. The Trustee will review the suitability of the scenario analysis again during the next Scheme year. However, updated analysis on the covenants has been produced by the Scheme’s covenant adviser, PwC. The Trustee has therefore decided to update the covenant scenario analysis.

2.2 Asset, liability, and funding level scenario analysis results as of 30 June 2022

This analysis will be considered alongside other factors should the advisers propose any changes to the Scheme’s strategic asset allocation. The table below summarises results of the scenario analysis across the Scheme’s assets and liabilities, combining this into an impact on Scheme funding level.

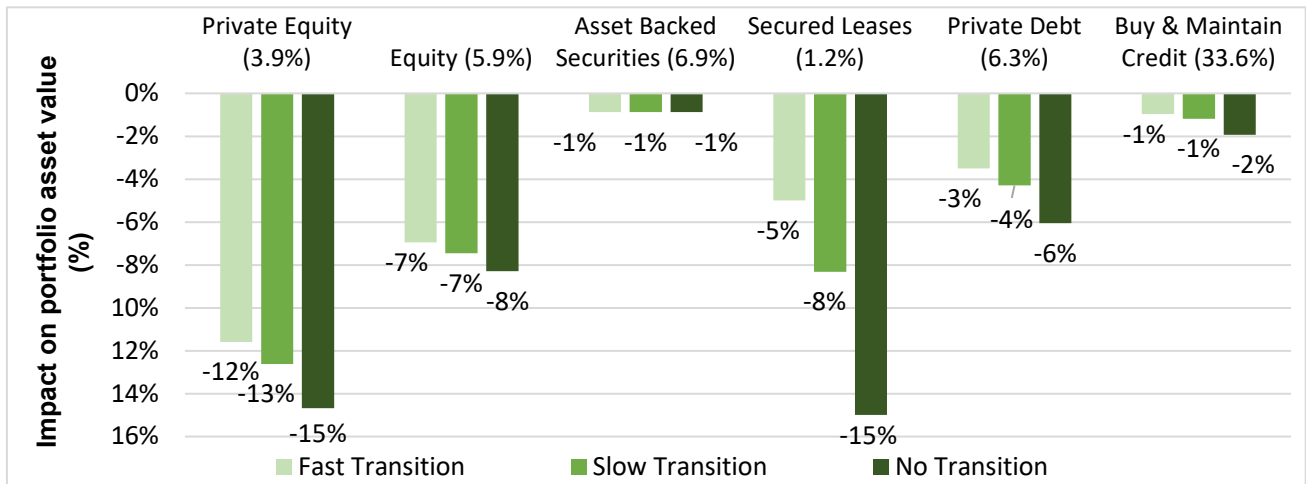
Table 3. Summary results of the Scheme’s scenario analysis on a Gilts + 0.3% p.a. basis as at 30 June 2022

	Impact on Scheme Assets (£, %)	Impact on Scheme Liabilities* (£, %)		Total Impact on Scheme Surplus/Deficit and Funding Level (£, %)	
		Excluding Mortality	Including Mortality	Excluding Mortality	Including Mortality
Fast Transition	- £23.1m - 1.6%	- £66.0m - 5.1%	- £14.4m - 1.1%	+ £42.9m + 4.1%	- £8.7m - 0.6%
Slow Transition	- £29.5m - 2.1%	- £23.0m - 1.8%	- £74.6m - 5.8%	- £6.5m - 0.3%	+ £45.1m + 4.3%
No Transition	- £47.3m - 3.3%	- £52.0m - 4.0%	- £129.5m - 10.0%	+ £4.7m + 0.8%	+ £82.2m + 8.2%

*Liability impact with and without mortality has been provided by Hymans Robertson. Impact has been estimated using Skyval’s ‘What if’ functionality, based on 31 March 2021 Technical Provisions figures, with relative impact then applied to 30 June 2022 Technical Provisions

**Please note the percentage change denoted here is an absolute change in the Scheme’s funding level from the combination of the impact on Scheme assets and Scheme liabilities. For example, as at 30 June 2022, under the fast transition scenario including mortality, the modelling results in an estimated decrease in Scheme surplus of c.£8.7m which equates to an decrease in the funding level of 0.6%, from 110.3% to 109.7%.

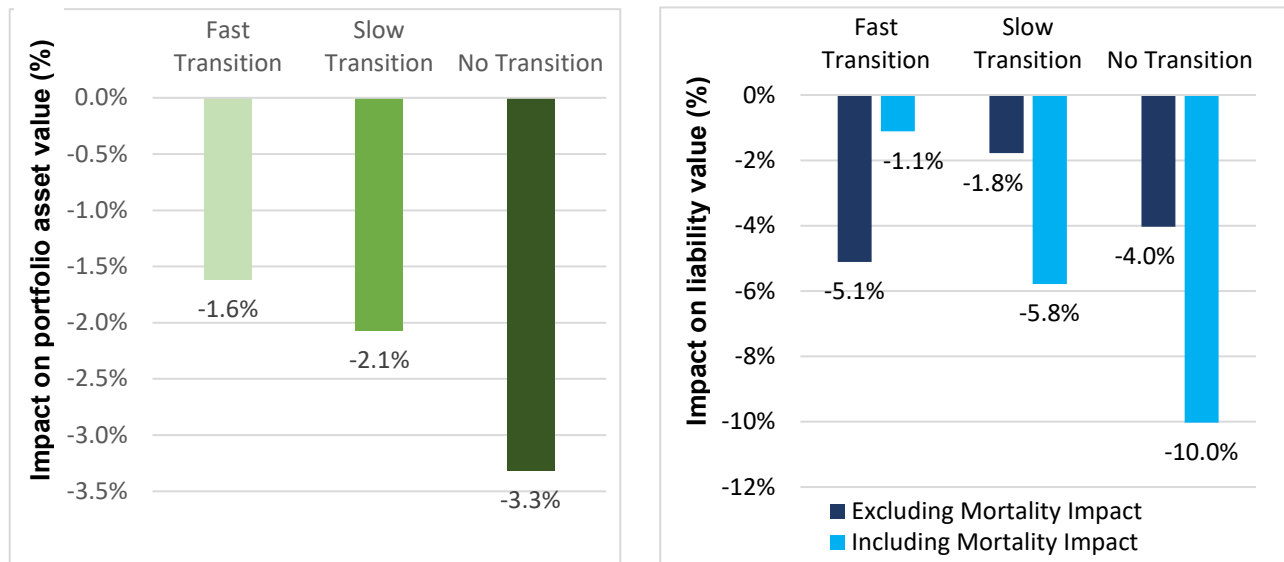
Figure 1. Change in asset value of the Scheme’s non-LDI assets (%) as at 30 June 2022



Certain information ©2023 MSCI ESG Research LLC. Reproduced by permission. Details on the assumptions used in the scenario analysis performed for the assets can be found in the appendices. LDI makes up 42.3% of the portfolio as at 30 June 2022.

While the assets are broadly diversified across asset classes, some exposures are modelled as being more prone to climate risk than others. The chart above models the asset class contributions to the overall climate risk of the portfolio. According to the analysis, the downside risk is mainly derived from the Scheme’s private and listed equities, as well as the secured leases. The Scheme’s largest non-LDI asset class is Buy & Maintain credit, which is modelled as exhibiting relatively little climate-risk exposure regardless of scenario.

Figure 2. Change in asset value of the Scheme’s growth assets and liability values (on a Gilts + 0.3% p.a. basis) including and excluding mortality impact (%) as at 30 June 2022

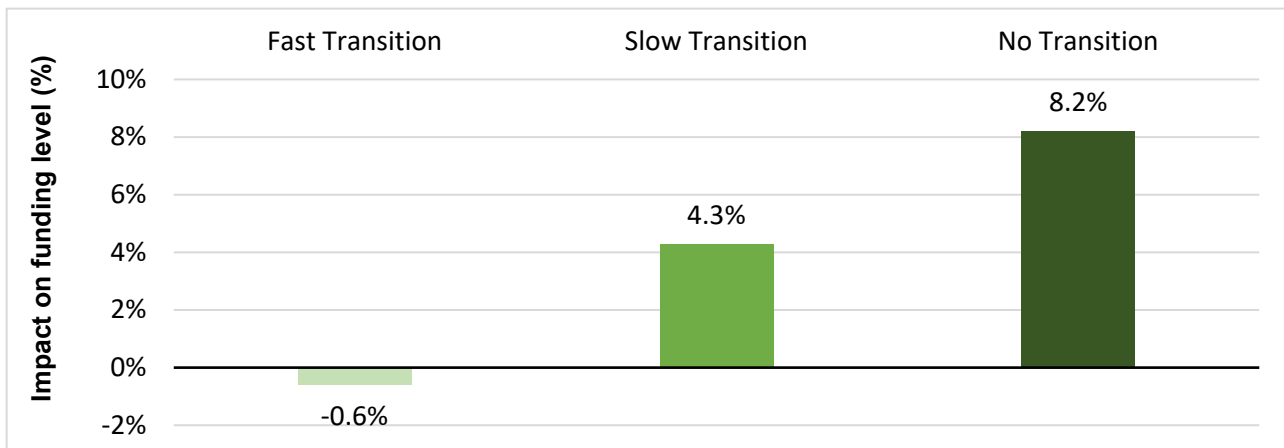


Certain information ©2023 MSCI ESG Research LLC. Reproduced by permission. Details on the assumptions used in the scenario analysis performed for the assets and liabilities can be found in the appendices.

The “No Transition” scenario is modelled with the greatest negative effect on the Scheme’s assets, as no transition to a low-carbon economy is assumed, the modelled climate-risk exposure is entirely physical risk as temperature rises are assumed to continue unabated. In all scenarios the impact on Scheme assets is modelled as being relatively modest (a -3.3% fall in value or smaller) for several reasons:

- The Scheme is well diversified and has limited exposure to higher-risk, carbon-intensive industries; and
- The Scheme is mature and has over 70% of its portfolio in “Matching” assets (Liability Driven Investments and Buy & Maintain corporate bonds) which have lower exposure to climate-risk.

Figure 3. Change in funding level incl. mortality impact (%) on a Gilts + 0.3% p.a. basis as of 30 June 2022



The funding level analysis assumes the liability interest rate and inflation impacts are hedged exactly by the LDI assets. Certain information ©2023 MSCI ESG Research LLC. Reproduced by permission.

The net impact on the assets and liabilities excluding mortality is modelled to be positive, or close to zero, in all three transition scenarios. When mortality is included in the model, there is a net gain in both the slow transition and no transition scenarios, with a small net loss in the fast transition scenario.

Including the impact on mortality, the worst scenario for the Scheme’s funding position is modelled to be the fast transition scenario, resulting in a fall in the funding level of the Scheme by c.0.6%. It’s important to note that member life expectancy is assumed to improve in this scenario and global temperature increase is curbed quickly. This is the best scenario for the planet but is modelled to cause a fall in Scheme funding level.

The assumptions and limitations of the liability scenario analysis may be found in the appendices.

2.3 Covenant Scenario Analysis

The Scheme’s covenant is driven primarily by two sponsoring employers: BAE Systems Global Combat Systems Munitions Limited (“Munitions”), which employs over 50% of the Scheme members, and BAE Systems plc, which employs almost 15% of Scheme members. These figures are both as at the end of 2022, which was the latest available data. As the ultimate parent, BAE Systems plc has access to all the value generated from its subsidiaries, collectively referred to here as “the Group”.

This section is divided into two: the first covers the Group (which includes BAE Systems plc), with the second focusing on Munitions. The approach is consistent with how the Scheme’s covenant adviser approaches the covenant assessment.

In 2022, the covenant adviser performed a detailed employer covenant review of the Scheme, which included an assessment of the climate-related risks and opportunities. This helped the Trustee consider the climate-related risks versus mitigating actions taken by all sponsoring employers, and to understand the opportunities that may arise from the transition to a low-carbon economy, which their businesses could take advantage of.

For the Scheme’s TCFD report covering the year ended 31 March 2024, the covenant adviser leveraged the information from its 2022 covenant review and factored in relevant updates from the Group’s 2023 annual report (published March 2024).

The covenant adviser will continue to regularly assess climate-related risks and opportunities, reporting to the Trustee Board no less frequently than triennially. The covenant adviser uses publicly available disclosures from the sponsoring employers as the basis of its assessment, supported by conversations with management when appropriate.

The Group

The covenant adviser's view of the Group is that climate-related risks are important considerations in the short and medium-term, and it is also noted that the Group has identified climate change and the environment as a principal risk within its annual report. However, the covenant adviser considers these risks to be less material to the covenant than other commercial and geopolitical factors.

The Group has worked with consultants to support the production of a net-zero strategy and delivery of a net-zero implementation programme. If implemented in a timely manner, the net-zero strategy is expected to mitigate short-term covenant impacts.

Overall, the Group aims to achieve net-zero operations by 2030, and a net-zero value chain (which includes the emissions from all suppliers and products) by 2050. These targets continue to be aligned with the UK government's commitment to achieving net zero carbon emissions (Scopes 1, 2 and 3) by 2050. They also align with, or exceed, the goals of their key customers. Since the Scheme's TCFD report for the year ended March 2023, it is noted that the Group's peers have revised their net zero targets, bringing them more in line with the Group's (net zero for Scope 1 and 2 emissions by 2030, as at July 2023). Achieving net-zero by 2050 will be a significant challenge for the Group and could change the way defence is delivered. This challenge will however be shared by the Group's customers and peers.

The covenant adviser highlighted that the short-term risk is tied to the costs and execution of the Group's net-zero strategy. Failure could escalate decarbonisation costs and affect medium-term operations. In the next decade, transition risks may emerge from heightened customer expectations and competitors' advancements in low-carbon technologies. Regulatory risks, especially expanded carbon pricing, may also increase expenses. Long-term risks include the physical impacts of evolving weather patterns.

However, the net-zero transition presents an opportunity for the Group to create new revenue streams through more carbon-efficient products (including out-competing peers which fall behind) and services, and to reduce costs through energy and resource efficiency measures. The Group will however need to ensure it continues to make meaningful investments if it is to both protect itself from climate risks over the long-term and to take advantage of opportunities that arise.

Table 4: Material Physical and Transition climate-related Risks to the Group as per disclosures in the Group’s 2023 annual report.

The Group defines the time horizons for Physical and Transition climate-related risks as Short (less than two years), medium (three to ten years) and long-term (beyond ten years). The Group has not published guidance for how it quantifies “low” financial impact.

Risk	Group Response
<p>Physical Risk – Extreme weather events as well as chronic climate changes could negatively impact the Group’s direct operations and suppliers through e.g. facility damage, disruption to operations and increased mitigation costs.</p> <p>The Group expects the above to materialise over the short, medium and long term.</p>	<p>The Group has assessed the future physical risk of extreme weather on 140 priority sites, including financially quantifying the unmitigated damage and potential disruption losses. Risks have also been quantified for seven hazards in future periods to 2100 under three scenarios.</p> <p>The Group’s assessment also includes risk engineering reviews at site level and a quantification of current potential financial impacts. Any mitigation actions arising from the assessments are included within the business plan for each sector.</p> <p>The Group expects the financial impact of physical risks to be low.</p>
<p>Transition Risk: Regulation - The impact of tightening environmental laws and regulations in relation to carbon pricing globally.</p> <p>The Group expects regulation-related transition risks to materialise over the medium term.</p>	<p>Carbon pricing has the potential to increase operational costs via carbon taxes and levies to the business for energy and fuel use; and indirect taxes which are passed to the Group through purchased energy.</p> <p>The Group notes that its current decarbonisation strategy and operational low carbon pathway, is expected to lower its exposure to carbon taxes. In addition, the Group monitors environmental laws and regulations in relation to carbon pricing, including any potential financial impacts on the Group.</p> <p>The Group expects the financial impact of regulatory transition risks to be low.</p>
<p>Transition Risk: Technology - The cost of switching to lower-emission heating technology.</p> <p>The Group expects Transition risks related to technology to materialise over the medium to long term.</p>	<p>Switching to alternative energy will reduce emissions but needs substantial investment for site upgrades and the technology is costly and still maturing. In the UK, the Group is exploring the long-term use of renewable heat pumps for its decarbonisation plan and keeps track of technological progress to achieve net-zero goals. The anticipated financial risk from technology shifts is considered minimal.</p>

The Group expects the above risks to materialise over the short, medium and long-term, however this could be revised once the Group has completed and published its scenario analysis and additional impact assessments.

Table 5: Transition Opportunity, which the Group expects to materialise over the medium term. Note the information below is taken from the 2023 annual report.

Opportunity	Group Response
<p>Products - The transition to a low carbon economy presents opportunities for the Group and continued innovation will be required to provide solutions to existing and new customer bases.</p> <p>The Group expects the opportunity outlined above to materialise over the medium term.</p>	<p>To decarbonise by 2050, the Group will need to ensure that its products and services support a decarbonisation pathway, achieved by advancing the efficiency of its products and services in the short term and transitioning to lower or zero emissions products and technology over the longer term. The Group will require continued investment in R&D.</p> <p>The Group has been engaging with its customers to understand their decarbonisation pathways including the challenges they face regarding operational effectiveness and availability.</p>

BAE Systems Global Combat Systems Munitions Limited

In its Group assessment, the covenant adviser noted that ESG and climate-related risks and opportunities are more medium/long-term in nature, and as confirmed with management, that assessment also applies to Munitions. Through conversations with Munitions management, the covenant advisor also notes the following:

1. Opportunities are being worked through to help the Group reach its 2030 net-zero carbon target and these are being considered in a holistic manner, to ensure a maximum return on investment. These include an update to the steam delivery network at the Group’s munition sites in the UK in 2023.
2. Munitions has not been set any ESG or wider net-zero ambitions/targets.
3. There may be limited changes undertaken in Munitions, if greater returns can be realised elsewhere in the Group. The reverse is also true, and Munitions could be set several targets if the Group felt there would be a material payback towards the overall 2030 net-zero target.
4. The Next Generation Munitions Solution Programme with the Ministry of Defence (“MoD”), which commenced on 1 January 2023, does not contain any ESG or climate-related clauses, however management expects it to become more relevant in future contract renewals/agreements with the MoD. Management also confirmed there are no other Munitions customers raising ESG or climate-related clauses/conditions as part of contract negotiations, as of March 2024.

The covenant adviser concludes that ESG is becoming increasingly important for a variety of stakeholders to the Munitions’ business and Group. Overall, the covenant adviser considers the climate-related risks and opportunities of Munitions to be broadly aligned to those of the Group, and that they are also likely to materialise over a similar timeframe (i.e. medium/longer-term, as defined by the Group).

Having reviewed the analysis provided in both covenant sections above, the Trustee is currently satisfied that the sponsoring employers are developing strategies to address the anticipated risks and opportunities arising from climate change. Therefore, the Trustee sees no reason at present to alter the Scheme’s funding strategy as a result of this covenant analysis.

Instead, it will continue to review the approaches of the sponsoring employers in light of the risks and opportunities that their businesses are exposed to, performing formal analysis triennially or sooner following meaningful changes that could affect the covenant or the Schemes’ funding strategies. The Trustee also

acknowledges that there may be scope to further develop covenant analysis in the future and will continue to monitor for developments in methodology.

2.4 Summary

The scenario analysis performed on the different components of the Scheme has provided the Trustee with insights into the climate risks and opportunities that the Scheme faces and the resilience of the investment and funding strategies. Whilst the Trustee does not see a need to make changes as a result of the analysis performed, the analysis has helped to inform the Scheme's target and has helped the Trustee to determine where to focus engagement efforts for reducing portfolio climate risk.

The Trustee believes that the current level of climate risk is acceptable given the Scheme's lower-risk investment strategy and wider risk tolerance (the funding level fall in a fast transition scenario including the impact of mortality is modelled to be less than 1%). The Trustee acknowledges that there will likely be some improvements that they could make to the process and the Trustee keeps up to date on developments.

3. Risk Management

3.1 Climate Risk monitoring and management

The Trustee aims to integrate climate change into the Scheme's wider risk management. ESG risk sits alongside investment, demographic, liquidity and sponsor risk in the Scheme's SIP. The risk management process is underpinned by:

1. The Trustee's belief that climate change risk is likely to be a financial risk affecting the Scheme's investments.
2. The Trustee aspires to invest in a way that is aligned with the goals of the Paris Agreement (limiting global temperature rises to well below 2°C above pre-industrial levels by 2050).
3. The belief that engagement is the best approach to manage climate risk, with a preference to engage with companies to persuade them to manage their exposures to climate-related risks and opportunities. With disinvestment being used as a last resort if companies fail to make appropriate effort to adapt.

Climate-related risks and opportunities are considered in terms of physical risks and transition risks. The Trustee uses tools to assess and manage climate-related risks and opportunities, including climate metrics, examples of which are covered in this section.

This report contains relevant climate metrics as set out under the Department for Work and Pensions ('DWP') adoption of the recommendations of the TCFD and includes total absolute carbon emissions, carbon footprint, the Trustee's selected non-emissions-based metric (data quality) and the portfolio alignment SBTi metric. The Scheme's RI adviser and investment adviser are required to advise on and provide objective assessments of differing approaches to RI to help the Trustee decide on a suitable RI strategy and adopt appropriate RI objectives for the Scheme. The Trustee assesses the advisers quarterly against objectives, including climate related objectives, to ensure that assurance is provided to the Trustee that the advisers are meeting its expectations. The RI objectives selected for the Scheme are detailed under the "Targets" section of "Section 4: Metrics & Targets" within this report.

The Trustee also aims to take advantage of climate-related opportunities where this is expected to improve the risk/return profile of the Scheme and if aligned with the Trustee's fiduciary duty. The RI adviser helps the Trustee identify and manage the risks and opportunities the Scheme faces. Climate change reporting will highlight asset classes that may perform well in different climate-related scenarios. At the level of individual investments, the Trustee requires its investment managers to consider climate-related opportunities (as well as risks) when making investments and engage with portfolio companies to encourage them to take advantage of relevant opportunities. To aid the monitoring of this, the FIC monitor progress against the Scheme's interim target (described in "Section 4: Metrics & Targets") as part of the reporting that they receive from their RI adviser.

The Scheme's investment adviser, Hymans Robertson, monitors the investment managers on behalf of the Trustee and rates them on their responsible investment capabilities. This monitoring of managers forms part of the objectives against which the adviser is assessed against, so that the Trustee can satisfy itself that the adviser is carrying out effective monitoring on their behalf. In their most recent review of managers, they noted that all managers as at Scheme year end, are signatories to the Principles for Responsible Investment ("PRI"). Other criteria such as integration of climate policies into the manager's strategic decisions is considered by the adviser. Based on the information received from the Scheme's managers, Hymans Robertson are comfortable that all of the Scheme's managers integrate considerations of ESG issues into their investment process.

The process for identifying new and emerging climate risk originates from both the Scheme's RI adviser, Redington, as well as the investment adviser, Hymans Robertson, through their knowledge of the Scheme's underlying assets. Any clear, emerging climate related risks will be brought to the FIC for discussion. Should the FIC agree that the identified risk merits Trustee discussion or action, it will recommend this to the Trustee. Finally, the Trustee has introduced climate change-related risks into the Scheme risk register to address the key climate change-related risks that may impact the Scheme, the possible impacts of these risks, and what actions are carried out to aid in mitigating these risks. Therefore, climate related risks are subject to the same risk management framework as other risks that the Scheme faces, such as governance risks. The Trustee then rates if the mitigating actions address the risks adequately or not. The register is reviewed by the Scheme's advisers quarterly to ensure it remains appropriate, relevant, and drives action. As part of the review, the risks are considered both in terms of their likelihood of occurrence, as well as the materiality of the impact if the risk were to occur.

Examples of climate-risk monitoring and integration by the Trustee over the Scheme year includes:

1. The FIC, on behalf of the Trustee, met with their investment managers during an annual "manager day" meeting. As part of this, the ESG criteria of the managers was discussed.
2. The Trustees chose 'Climate Change' as their key area of focus in relation to investment stewardship. This theme was selected by assessing its relevance to the Scheme and its members, the financially material risks and opportunities it poses, and the relative maturity and development of thinking within the industry that allows for ease of integration into the Trustee's approach.

3.2 Engagement and voting

The Trustee believes that engagement and voting are core components of sound risk management. Engagement is aimed at ensuring companies manage the physical and transitional risks that climate change poses. Direct engagement with underlying companies in which the Trustee owns shares and/or debt is carried out by the Scheme's investment managers including the exercising of rights (including voting rights) attached to investments in accordance with their guidelines. The Trustee encourages its investment managers to

engage with investee companies and promote adherence to best practice in corporate governance. The Trustee monitors managers at least annually on their engagements and will continue to have open dialogue with managers on the expectations in regard to stewardship and engagement efforts.

Engagement examples by the Scheme's investment managers are shown below to demonstrate the activities that have taken place on behalf of the Trustee over the Scheme year.

- **BlackRock (Equities and Buy & Maintain credit), c.6.0% of total Scheme assets within the equity portfolio and c.22.4% of total Scheme assets within the credit portfolio as at 31 March 2024**
 - This engagement example has been selected as it relates to the Trustees chosen key Stewardship Theme, Climate Change.
 - **Barclays:** Barclays Plc (Barclays) operates as a bank holding company that provides retail banking, credit cards, corporate and investment banking, and wealth management services. BlackRock has engaged regularly with Barclays over the last several years to discuss a variety of business relevant matters that, in its experience, support companies' ability to deliver long-term financial returns over time. This has included the discussion of corporate governance, and the company's approach to material sustainability-related risks and opportunities.
Proposed at Barclays' 2022 AGM was a management proposal requesting shareholder approval on the company's Climate Strategy, Targets and Progress during the year. This followed successive proposals being submitted by shareholders for a vote at the 2020 and 2021 AGMs. In BlackRock's assessment, Barclays has made progress in developing, implementing, and disclosing its plans to address a transition to a low-carbon economy.
BlackRock continues to be encouraged by Barclay's responsiveness to shareholder feedback and momentum with its initiatives. BlackRock continues to engage with Barclays board, executive and sustainability teams to further understand its approach to climate-related risks and opportunities, including opportunities to further enhance reporting.

- **PGIM (Buy & Maintain credit), c.11.1% of total Scheme assets as at 31 March 2024**
 - This engagement example has been selected as it relates to the Trustees chosen key Stewardship Theme, Climate Change.
 - **SUMITOMO MITSUI FINANCIAL GROUP INC:** SMFG explained its environmental initiatives to PGIM, focusing its response on climate change, and its initiatives related to society and governance. In May 2023, SMFG published its commitment to achieving zero loan balance to the thermal coal mining sector in OECD countries by 2030, and by 2040 in non-OECD countries. SMFG has already set a target of zero loan balance for coal fired power generation, and by adding the thermal coal mining sector, the company has further strengthened its phase out strategy for the coal sector. As for social initiatives, Sumitomo Mitsui Banking Corporation ("SMBC") Group Human Rights Report was issued on May 29 to enhance information disclosure. SMFG also explained about their governance initiatives, including the appointment of a global adviser who was involved in the formulation of Sustainable Development Goals ("SDGs") at the United Nations, to further deepen discussions on sustainability. PGIM will continue to monitor the effectiveness of corporate governance and the progress of ESG related initiatives.

- **Barings (Private Debt) c.13.2% total Scheme assets as at 31 March 2024**
 - This engagement example has been selected as it relates to the Trustees chosen key Stewardship Theme, Climate Change, given that the criteria set up with the company in question includes reducing emissions.

- **UK residential care and education group:** Barings liaised with management to develop the following:
 - ESG Ratchets: An ESG ratchet is a pricing mechanism used in loans, where companies agree on ESG goals with the lender and if the company meets the goal, the interest rate on the loan goes down. If the company doesn't meet the goal, the interest rate increases as a penalty.
 - 5 ESG criteria established at closing:
 1. The Group will calculate carbon emissions and seek to reduce them by 5% per annum on a per employee basis.
 2. Staff turnover below 30% in full year ending March 2023 and 2024 reducing to below 27.5% after March 2025.
 3. Above 90% compliance rate with mandatory training across all staff and above 65% across all care support workers (excess of regulatory requirements).
 4. Gender pay gap across the Group to be within 1.5%.
 5. Ratings provided by Ofsted and the Care Inspectorate Wales "Good" or "Outstanding" above 90% on average across all services (significantly above market).
- Barings will monitor progress of company against KPIs set and engage where considered appropriate.

4. Metrics & Targets

4.1 Metrics Introduction

DWP guidance for pension schemes submitting TCFD reporting suggests that the following metrics are chosen: an absolute emissions metric (total greenhouse gas emissions), a carbon intensity metric (carbon footprint), an additional non-emissions-based metric and a portfolio alignment metric.

Table 4. Summary of the Scheme's chosen metrics

DWP suggested metric	Metric selected	Rationale
Absolute emissions	Total carbon emissions	This is the absolute emissions metric recommended by the DWP.
Emissions intensity	Carbon Footprint	This is the emissions intensity metric recommended by the DWP.
Additional metric	Data coverage	This metric measures the percentage of Scheme assets which report acceptable climate risk data. This metric suits more mature, and low-risk, pension schemes like ROPS.
Portfolio Alignment	Science-based target initiative (SBTi)	This metric assesses if a company's disclosed decarbonisation target has been approved by the SBTi.

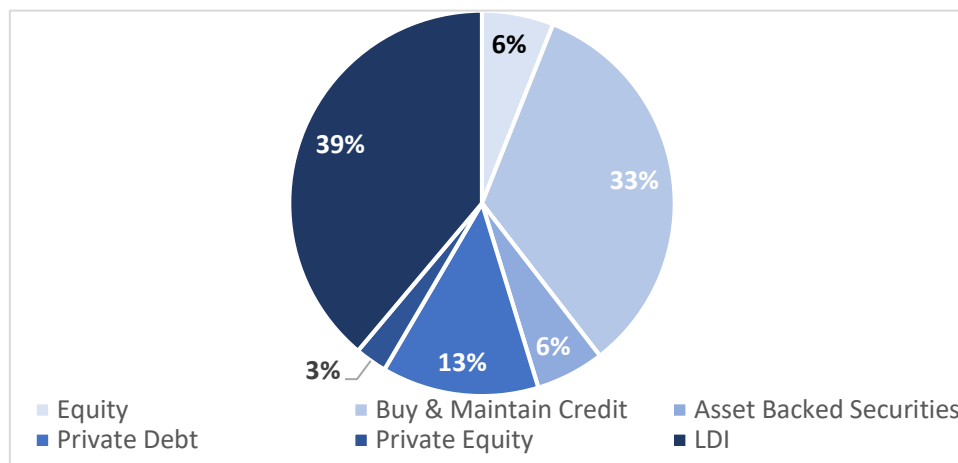
The chosen metrics are reviewed annually to ensure they remain appropriate for the Scheme. Given the changing landscape of climate metrics in investment settings, the Trustee may evaluate the need to revise or substitute metrics based on factors such as changes in data coverage, the availability of more reliable metrics and methodologies, or advancements in the industry. The outcomes obtained from these metrics enable the Trustee to identify climate-related risks and opportunities for the Scheme.

It is important to note that due to current modelling limitations, such as how to avoid double counting the emissions of government bonds and the emissions of other companies who operate within the UK economy, there is no clear consensus on how LDI emissions should be modelled. This analysis therefore excludes emissions from gilts, cash, and any derivative assets due to methodological challenges. The Trustee is aware this may change in the future as best practice evolves and remains open to revisiting this exclusion in the future as best practices evolve. Such a reconsideration would impact the results of the analysis presented in this report. Detail on the limits of the carbon metric analysis is included in the appendices.

The emissions-based metrics have been calculated using line-by-line portfolio holding information from the Scheme’s asset managers and climate data from the ESG data provider MSCI. Where it was not possible to reflect a fund using line-by-line emissions data analysis from the MSCI data feed (such as with private funds or funds that are illiquid in nature), the metrics have been proxied. This approach was applied wherever line-by-line data coverage for a particular fund was below 50%. The Trustee expects data availability to improve following wider adoption of climate metrics and greater industry consensus on appropriate methodologies. As this develops, the Trustee will review its approach to calculating climate metrics to ensure that the Scheme is aligned with industry best-practice. Going forward, the Trustee plans to use the results to identify the climate-related risks and opportunities that are relevant to the Scheme. For example, understanding where the carbon emissions are highest within the portfolio and engaging with relevant investment managers.

The Scheme asset allocation as at 31 March 2024 is shown below.

Figure 4. Scheme asset allocation as at 31 March 2024



4.2 Climate Metrics Results

Metric 1: Absolute emissions (Scope 1 & 2, and Scope 3) – Total carbon emissions (tonnes CO2 equivalent)

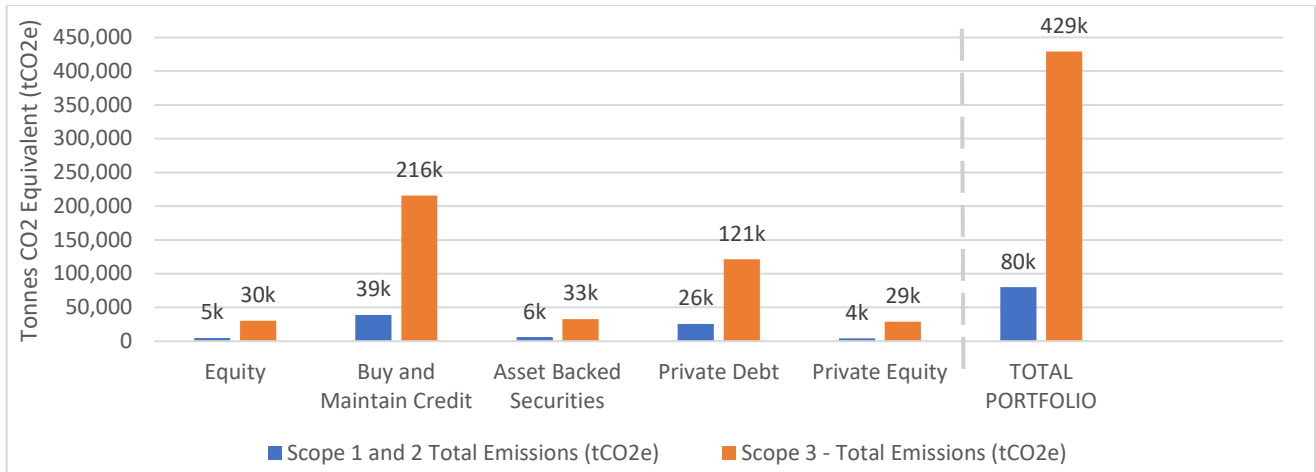
The Trustee has chosen total carbon emissions as the main metric for absolute emissions – the metric shows the total greenhouse gas emissions that are financed by the Scheme’s investments, also known as category 15 (investment emissions) in the Greenhouse Gas (‘GHG’) Protocol.

There are three scopes of carbon emissions:

- **Scope 1** emissions are direct emissions from an entity’s owned or operationally controlled sources;
- **Scope 2** emissions are those from the use of purchased energy by an entity;
- **Scope 3** emissions are indirect emissions from the use of company’s products, or any other emissions across its supply chain.

The absolute emissions of a mandate is naturally in part a function of its size, with larger mandates in terms of assets invested likely to have larger total emissions. Consistent with this relationship, the analysis showed that over half of the Scheme’s total scope 1 & 2 and scope 3 emissions are contributed by the two buy and maintain credit funds, this is proportionate to the size of the funds in the Scheme’s portfolio.

Figure 5. Total (absolute) carbon emissions for the Scheme as at 31 March 2024



Carbon metrics are proxied where there is insufficient data for funds. ESG and MSCI Carbon Metrics meet the current minimum UK DWP’s TCFD-aligned “Metrics and Targets” regulations. However, regulations are subject to change. Redington monitors developments closely. Certain information ©2024 MSCI ESG Research LLC. Reproduced by permission.

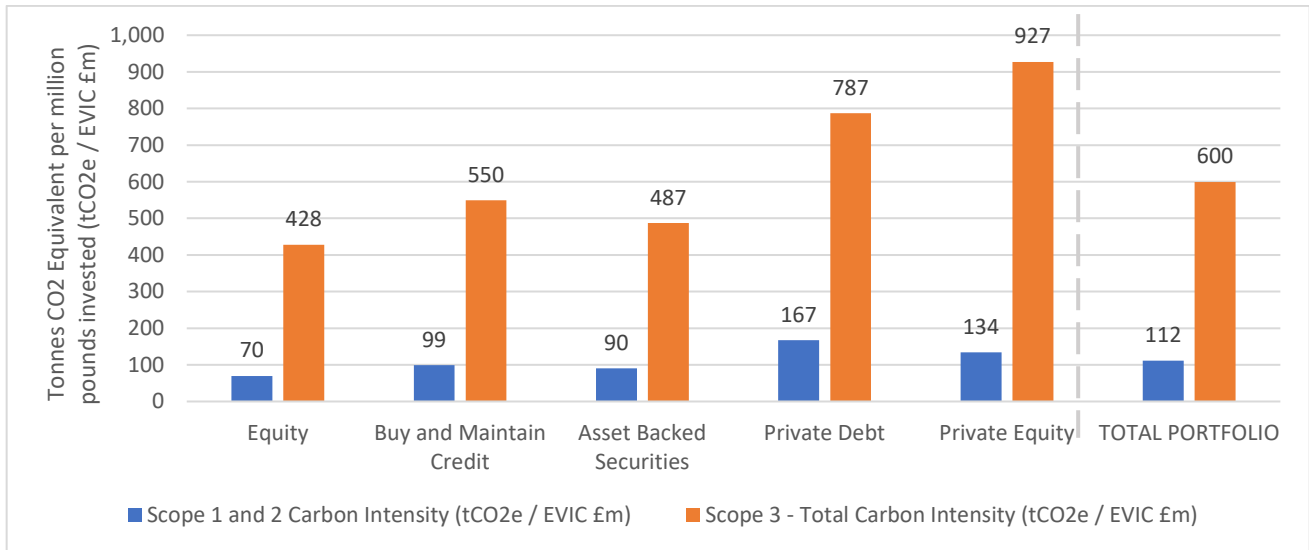
Key takeaway: of the Scheme’s assets, the two buy and maintain credit funds are responsible for the largest proportion of the Scheme’s total absolute carbon emissions, in line with their proportion of non-LDI assets. Total non-LDI scope 1 & 2 emissions have fallen c.8% over the Scheme year, driven by the buy & maintain portfolios.

Metric 2: Emissions intensity (Scope 1 & 2, and Scope 3) – Carbon footprint (tonnes CO2 equivalent per million pounds invested)

The Trustee monitors carbon footprint as its emissions intensity metric. Carbon footprint measures the carbon efficiency of a portfolio in terms of emissions per million pounds invested. It normalises the total carbon emissions for the value of the portfolio. As it shows the emissions per million pounds invested, the metric is comparable between investments of different sizes.

At a portfolio level, the emissions intensity measures are calculated as the average of the emissions intensity of the underlying holdings, weighted by the value of each holding. A portfolio with a high emissions intensity will have a steeper route towards decarbonisation than a less intensive one. Hence, measuring the emissions intensity across the Scheme is useful to gauge how difficult (or easy) it will be to progressively decarbonise its portfolios. Differences in portfolio emissions intensities are driven by differences in sector and company exposure. Portfolios with higher exposures to high-carbon sectors such as utilities, non-energy materials, energy and industrials tend to exhibit higher emissions intensities.

Figure 5. Carbon footprint for the Scheme as at 31 March 2024



Carbon metrics are proxied where there is insufficient data for funds. ESG and MSCI Carbon Metrics meet the current minimum UK DWP's TCFD-aligned "Metrics and Targets" regulations. However, regulations are subject to change. Redington monitors developments closely. Certain information ©2024 MSCI ESG Research LLC. Reproduced by permission.

Key takeaway: per million pounds invested, the Scheme's private debt holdings have the greatest scope 1 & 2 carbon footprint, whilst the private equity mandate is responsible for the highest of the Scheme's scope 3 carbon footprint.

Metric 3: Data coverage – Percentage of Scheme assets with acceptable climate data available

The Trustee monitors the data coverage of the Fund's emissions data which measures the proportion of each mandate within the Scheme's asset portfolio which produces acceptable quality climate data.

The tables below outline the portfolio-weighted (using the Scheme's respective allocation to each mandate as at 31 March 2024) proportion of holdings for which MSCI verified issuer reported emissions data was available for each mandate and a Fund-level total. The Trustee recognises that, although the emissions data is not verified by MSCI, the LDI portfolio accounts for a meaningful proportion of the Fund's total assets. As such, the total portfolio-weighted coverage achieved when the LDI portfolio is accounted for has also been included below.

Having clear data is vital for the Trustee to be able to base any decision making on, and clear climate data is important as the more data published by investments in the Scheme's portfolio means there is less reliance on proxies. The Trustee notes that data is currently only available for public companies, however, the climate metrics coverage for the public equity and credit mandates is very high. As the Scheme matures and reduces its exposure to investment risk, it is likely that the Buy & Maintain credit holdings will increase, which will also increase the Scheme's total climate metrics coverage. However, the Trustee will also look to engage with the Scheme's investment managers to help improve the data coverage going forward.

Table 5. Data coverage for the Scheme as at 31 March 2024

Fund	Valuation (Q1 24) (£m)	Climate Metrics Coverage
Private Equity	31.4	0.0%
Equity	70.5	98.6%
Asset Backed Securities	67.4	0.0%
Private Debt	154.3	0.0%
Buy & Maintain Credit	392.2	95.4%
Total excluding LDI	715.8	62.0% excluding LDI (37.9% including LDI)

Carbon metrics are proxied where there is insufficient data for funds. In these instances, no figure is shown for MSCI Climate Metrics Coverage. ESG and MSCI Carbon Metrics meet the current minimum UK DWP's TCFD-aligned "Metrics and Targets" regulations. However, regulations are subject to change. Redington monitors developments closely. Certain information ©2024 MSCI ESG Research LLC. Reproduced by permission.

Key takeaway: of the Scheme's investments, MSCI-verified emissions data was available for 37.9% of total Scheme assets (62.0% if LDI is excluded from the calculation). As expected, this is driven by the equity and buy and maintain credit funds as the underlying holdings consist of publicly listed equity and debt respectively. ABS and private equity, due to their opaque nature, do not have any metrics coverage available at present.

Metric 4: Portfolio alignment – Science-based target initiative (SBTi)

The Trustee has agreed to adopt the Science Based Target initiative as the Scheme's portfolio alignment metric, which captures a company or issuer's progress against a self-developed decarbonisation target using science-based methodology. This metric is useful to understand the extent to which the Scheme's assets are aligned with the goals of the Paris Agreement, and therefore, aligned with the Scheme's net-zero ambition. Companies with an approved decarbonisation pathway may be in a better position to avoid being as exposed to climate-related risks, compared to companies who do not have an approved pathway.

The target can be aimed at different time horizons, with each company being scored with a binary "yes" or "no" assessment on the following target categorisations: "SBTi Approved 2°C", "SBTi Approved Well Below 2°C" or "SBTi Approved 1.5°C". Whilst the Trustee is aware that the "SBTi Approved 2°C" categorisation will be gradually phased out in line with the initiative's raised ambition to 1.5°C, the Trustee will continue to report under the "SBTi Approved 2°C" categorisation to capture companies currently on a 2°C path until they increase their target ambition to 1.5°C in the next few years. The SBTi rating of a fund shows what percentage of the companies the fund invests in have set a decarbonisation target using science-based methodology.

The percentages shown below are the proportion of companies that have set, and had approved, targets to align their emission reduction efforts with the goals of the SBTi. The higher the percentage, the more companies within the portfolio have approved targets. Currently this metric only covers publicly listed equity credit and secured leases as the SBTi is voluntary and only available for publicly listed assets. Therefore, the Trustee will expand this metric to wider parts of the portfolio as the methodology improves over time.

Table 5. Science Based Target initiative for the Scheme as at 31 March 2024

Fund	Valuation (Q1 24) (£m)	% of portfolio that has set an SBTi approved target
Private Equity	31.4	0.0%
Equity	70.5	39.3%
Asset Backed Securities	67.4	0.0%
Private Debt	154.3	0.0%
Buy & Maintain Credit	392.2	40.8%
Total excluding LDI	715.8	26.2% excluding LDI (16.0% including LDI)

Where presented, "Science Based Target initiative" scores are all based on look through data where it is available and never proxied. MSCI Carbon Metrics meet the current minimum UK DWP's TCFD-aligned "Metrics and Targets" regulations. However, regulations are subject to change. Certain information ©2024 MSCI ESG Research LLC. Reproduced by permission.

Key takeaway: The Scheme had an SBTi rating of 16.0% for all Scheme assets (26.2% if LDI assets are not included). Again, as expected, the SBTi alignment is higher in the equity and Buy & Maintain credit funds due to their public nature. As expected, the other private assets (ABS and Private Equity) due to their opaque nature, do not have any SBTi alignment. The Trustee is working with managers to seek improvements in data provision for the next report.

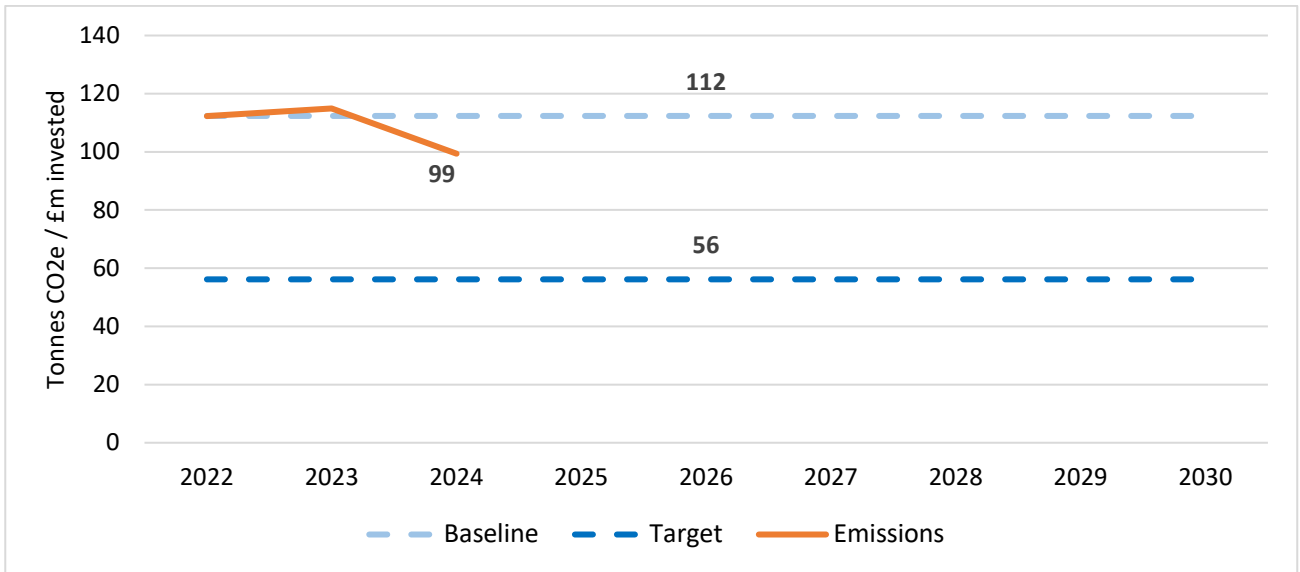
4.3 Emissions Target

The Trustee has set a long-term target of net-zero emissions by 2050, with an interim target of a 50% reduction in the Scheme's segregated Buy & Maintain credit Scope 1 & 2 emission intensity by 2030 compared to 31 March 2022. The Buy & Maintain holdings were selected as these mandates are segregated, comprised of publicly listed companies and account for over half of the Scheme's non-LDI assets. There is, therefore, more scope to directly influence the manager's actions to reduce emissions and these mandates report comprehensive climate data.

The Trustee is aware that progress towards this metric may not occur in a linear fashion and the carbon footprint of the mandate may increase in some years and decrease in others. It is, however, the trend over time that is important and will be the key focus of the Trustee.

The Trustee intends to continue to engage with its Buy and Maintain credit managers to apply limits on the carbon intensity of the portfolio where this is consistent with the investment risk and return objectives of the mandate and wider portfolio. Climate credentials will also be considered in any ongoing and future manager appointment exercises. On an annual basis, the Trustee will measure performance against this target and furthermore determine whether this target remains the most appropriate for managing the Scheme's exposure to climate-related risk.

Figure 6. Scope 1 & 2 carbon footprint of the Scheme's buy and maintain credit against Scheme target as at 31 March 2024



Key takeaway: The carbon footprint of the Scheme’s Buy & Maintain mandates has decreased by c.12% from the baseline to 31 March 2024. The Trustee expects the downward trend to continue in the longer term but acknowledges that this may not occur linearly each year.

APPENDIX A: Scenario Analysis – PRA test assumptions

As part of its 2020 biennial stress tests, the Bank of England's Prudential Regulation Authority ("PRA") conducted an exploratory exercise to test the impact of future climate change scenarios on the assets and liabilities of (re)insurers, using predictions by the Intergovernmental Panel on Climate Change ("IPCC") and academic literature as the basis for their modelling assumptions.

In terms of the assumptions made under these scenarios, the PRA recognised that feedback loops between climatic shocks and structural economic change need to be incorporated when assessing the financial impacts on businesses of physical and transition risk under each emissions scenario. However, due to existing modelling and data constraints, this is a complexity that is purposely excluded from the modelling.

There is also an acceptance that the timing and sequence of financial impacts will be complex, as behavioural changes could result in physical risks preceding transition risks and vice versa. For the purpose of simplicity, where an asset is subject to both physical and transition risk, the shocks are applied consecutively, with the physical shock applied second.

APPENDIX B: Carbon Footprint Analysis

Where possible and where there is reasonable data coverage, the Trustee monitors 'line-by-line' emissions reporting for funds. These tend to be more generic, long-only asset classes such as listed equity and corporate credit. However, for funds with less than 50% coverage and illiquid assets, the Trustee monitors 'asset class level' carbon estimates in the absence of reliable, reported line-by-line emissions data from MSCI. The Trustee notes using asset class modelling of emissions for assets where this data is not available enables a more holistic view of the Scheme's total portfolio emissions, albeit recognising that the modelled data is not perfect.

The asset class modelling of emissions has been provided by Redington and is based on asset class 'building blocks'. These are either calculated directly using a given index's underlying holdings emissions (such as using MSCI All Country World Index ("ACWI") as a proxy for a broad equity fund) or in some cases these indices are used and extrapolated to other asset classes based on given assumptions (such as using the emissions of infrastructure firms within an index to proxy an infrastructure fund).

Emissions metrics will be calculated in line with the GHG Protocol Methodology, the global standard for companies and organisations to measure and manage their GHG emissions. The GHG Protocol provides accounting and reporting standards, sector guidance and calculation tools. It has created a comprehensive, global, standardised framework for measuring and managing emissions from private and public sector operations, value chains, products, cities and policies to enable greenhouse gas reductions across the board.

Limitations of Carbon Metrics:

TCFD based regulations require portfolios to report on their climate metrics without asset class adjustments. Therefore, metrics in funds with a lower coverage (below 80%), or in multi-asset funds and liquid / semi-liquid credit need to be evaluated with more context. This is because a low coverage means a larger part of emissions are unknown, and because the carbon risk of equity holdings will tend to be higher than that of credit holdings.

Specific line-by-line modelling of emissions is currently available only for publicly listed equity and credit assets. For unlisted asset classes, we currently carry out asset class-level estimations of carbon emissions. This gives you a broad and longer-term understanding of what the portfolio's emissions are and where the biggest amount of emissions come from. This is enough from a strategic asset allocation perspective but will not capture specific actions managers are taking to reduce their CO2e footprint. Due to lags in company carbon reporting and database updates, carbon footprint numbers have a one-to-two-year lag. Our carbon numbers are updated at the start of every year.

APPENDIX C: Hymans Robertson’s output of impact of climate change on liabilities.

Methodology for liability impact

- The liability figures have been produced with Skyval’s ‘What if’ functionality. The modelling is based on average movements across cashflows and provides approximate estimates for liability movements.
- The Scheme’s average mortality assumptions have been set in line with the expectations in life expectancy as outlined in Club Vita’s ‘Hot and Bothered’ report. The report details estimated changes in life expectancy, and this has been modelled by changing the ‘scaling factor’ on the Scheme’s average baseline mortality.
- Club Vita’s report was published in 2018, but we believe the results are still appropriate to use in conjunction with the Bank of England’s 2021 report.
- The future longevity assumptions and all other demographic assumptions are set in line with the 2020 Technical Provisions basis.

Scenario	Scaling Factor (Male/ Female)	Changes in life expectancy* (Male/ Female)	Approx. liability impact
Baseline	100%/ 100% of S3 tables	-	-
A – Fast Transition	89%/ 89% of S3 tables	+ 0.9 / + 0.8 years	4% increase
B – Slow Transition	105%/ 110% of S3 tables	- 0.4 / - 0.7 years	4% decrease
C – No Transition	115%/ 120% of S3 tables	- 1.1 / - 1.4 years	6% decrease

*For a current pensioner member aged 65

Financial assumptions

- The methodology is in line with that used for the Scheme’s 2020 Technical Provisions basis with the following adjustments: The gilts element has been set in line with the projected returns available on the 1-year UK government bond yield, with an addition of 0.95% pre 2030 and 0.3% post 2030, in line with the Scheme’s Technical Provisions.

Limitations of liability analysis

Estimated liabilities (including BOE yields and inflation) are lower for all scenarios than the current Technical Provisions basis. This is partly due to the BoE scenarios combining climate risks and post covid recovery.

The date of the Bank of England’s analysis is Q4 2020. As such, the analysis has been limited. Hymans Robertson have calculated a liability impact as at 31 March 2021 and have applied the relative impact to the liabilities as at 30 June 2022

Since 2020 financial conditions have changed significantly. Whilst Hymans Robertson caution having a singular focus on the absolute figures presented in this report, they would like to highlight the range of potential outcomes on the Technical Provisions liabilities. As such, the figures shown in this report are likely to be different from those calculated using updated financial conditions.

APPENDIX D: Glossary of Terms (ESG and Carbon Metrics)

Enterprise Value Including Cash (EVIC): Defined as the sum of market capitalisation of shares and book values of total debts and minority interests at fiscal year end. No deductions of cash or cash equivalents are made to avoid potential negative enterprise values. This is the recommended denominator metric for carbon attribution according to the GHG Protocol, the global standard for carbon accounting endorsed by the European Union and the DWP.

Estimated Total Carbon Emissions (tonnes): Represents the total share of Scope 1, Scope 2 and Scope 3 carbon emissions a fund is responsible for. Please note the metric is sensitive to the investment holding size in the fund.

MSCI Climate Metrics Coverage: The proportion by value of a fund for which carbon metrics are available from MSCI. Climate metrics are proxied where coverage is low and in this case, the MSCI Climate Metrics Coverage will be assumed to be.

Tonnes of Carbon Dioxide Equivalent (tCO₂e): Tonnes of greenhouse gases including methane, nitrous oxide, carbon dioxide, and fluorinated gases. Given the abundance and prominence of carbon as a greenhouse gas, all the other gasses are considered carbon equivalents.

Scope 1 & 2 Carbon Footprint (tCO₂e/£m invested): Measurement of the Scope 1 & 2 CO₂e emissions of a fund per million pounds of EVIC. Scope 1 emissions refer to those which are directly connected to the production of a company's product or service. For example, the burning of fossil fuels to power the electricity grid. Scope 2 emissions refer to those from the electricity used to power the facilities and machinery of a company.

Total Carbon Footprint (tCO₂e/£m invested): Measurement of the CO₂e (tonnes of Carbon Dioxide equivalent) emissions of a fund per million pounds of EVIC using Scope 1, Scope 2 and Scope 3 emissions. Given a company's direct Scope 1 emissions will inevitably be another company's indirect Scope 3 emissions, aggregating the individual Scope emissions results in a higher number of emissions than exists. To mitigate double-counting, we apply a scaling factor in accordance with MSCI's methodology. This metric may be used to assess a fund's contribution to global warming versus other funds. Previous Total Carbon Emissions (tCO₂e/£m invested) are estimated by looking at the funds' respective holdings and emissions 12 months ago.

Weighted Average Emissions Intensity (tCO₂e/sales £): A weighted average of the scope 1 & 2 emissions intensity of companies, defined as a company's total emissions divided by its total sales. This metric can be interpreted as a measure of the relative carbon efficiency of a fund, can be used for sovereign assets, and is not affected by movements in companies' valuations. However, it is sensitive to movements in price.

SBTi Score: The Science-Based Targets initiative ('SBTi') sets out a framework through which companies can set out their decarbonisation pathway and have them assessed against the goals set out in the Paris Agreement – limiting global warming to 1.5°C above pre-industrial levels or well-below 2°C. The SBTi Score is the proportion of assets invested that are classified as being Paris-aligned.

For SBTi scores, Redington use line-by-line data to calculate the proportion of assets invested that correspond to each SBTi target category in a fund/portfolio. A scheme-level score is then calculated as the value weighted average of the fund level scores.