
MOTOROLA PENSION SCHEME TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES (“TCFD”) REPORT 2023

INTRODUCTION

The Trustee of the Motorola Pension Scheme (the “Scheme”) has prepared this report, recognising the risk that climate change presents to the Scheme and that this risk could impact the financial security of the Scheme’s member benefits if not properly measured and managed. It also presents an opportunity for the Scheme to generate return, by investing in underlying companies or assets that are expected to perform well in a world that is positioning itself to address climate change risks.

This report has been prepared to comply with the Occupational Pension Schemes (Climate Change Governance and Reporting) Regulations 2021 using the Department of Work and Pension’s (“DWP”) statutory guidance. The report explains how the Trustee has established oversight and processes to satisfy themselves that the Scheme’s relevant climate-related risks and opportunities are considered appropriately by all stakeholders involved in the day-to-day management of the Scheme. The report is structured to address the specific disclosure requirements in the statutory guidance, which are based on the recommendations of the Financial Stability Board’s Task Force on Climate-related Financial Disclosures (“TCFD”).

This report covers the period from 1 January 2023 to 31 December 2023. This is the second year that this report has been produced and the Trustee has worked with their advisors to improve the availability of data. As the availability of data improves, and as best practices continue to improve, it is our expectation that additional detail will be included in future years.

This report covers the following four areas, which are contained within the TCFD framework:

- Governance: How the Trustee maintains oversight and incorporates climate change into its decision making.
- Strategy: How potential future climate warming scenarios could impact the Scheme, and the impact this has on the Scheme’s strategy.
- Risk Management: How the Trustee incorporates climate related risk in its risk management processes.
- Metrics and Targets: How the Trustee measures, and monitors progress against different climate related indicators.

David England

Chair, Motorola Solutions Pension Trustees Limited

SUMMARY

The Trustee recognises that climate related risks are more measurable, and solutions more readily implementable in certain parts of the Scheme's portfolio. The Trustee expects to further enhance its ability to measure, monitor and manage climate risks for the entire portfolio as methodologies, data availability and quality improve over time.

Key actions taken by the Trustee over the year:

- Received training on Net Zero in the context of the targets set as part of TCFD requirements.
- Within the Defined Benefit (DB) Section of the Scheme, the Trustee changed the weighting of corporate carbon emissions from market capitalisation to EVIC (enterprise value including cash), to be better aligned with industry practices.
- Carried out a review of the Defined Contribution (DC) Section default investment strategy, and of the Scheme's legacy Additional Voluntary Contribution arrangements, paying regard to sustainability considerations, including climate change.
- Broadened the set of climate metrics monitored by including Scope 3 corporate emissions and Sovereign emissions, which cover a significant portion of emissions not previously measured.
- Conducted climate change scenario analysis using GSAM Multi-Asset Solutions' proprietary climate aware capital market assumptions, in respect of the DB Section.
- Reviewed the Scheme's agreed emissions and climate-related metrics and targets, as part of preparing the first Climate Change report, for the year to 31 December 2023.
- Considered climate change-related voting and engagement activities practices as part of the preparation of the Scheme's Implementation Statement.
- Engaged with the investment managers of the Scheme's assets on climate related matters.

Summary of Strategy and Metrics for the Scheme

The below table sets out the time horizons, metrics and targets that have been agreed by the Trustee.

	Requirement	Scheme approach
Strategy	Time Horizon: Short	2 years (2025)
	Time Horizon: Medium	7 years (2030)
	Time Horizon: Long	27 years (2050)
	Climate Scenarios	Scenario 1: Orderly Transition (1.5°C) Scenario 2: Disorderly Transition (1.5°C to 2°C) Scenario 3: 'Hot House' (3.0°C)
Metrics and Targets	Metric 1 (absolute)	Financed emissions (Scope 1 and 2 weighted by EVIC ¹) Financed emissions (Scope 3 weighted by EVIC)
	Metric 2 (intensity)	Carbon footprint (Scope 1 and 2 weighted by EVIC) Carbon footprint (Scope 3 weighted by EVIC) Sovereign Carbon intensity (Scope 1 weighted by GDP-PPP ²)
	Metric 3 (alignment)	% of covered portfolio with emission reduction ambitions in line with the 2°C goals of the Paris Agreement. See details in the DB and DC Section for specific measurement tools.
	Metric 4 (alternative)	Data availability (% of covered portfolio with carbon emissions data available)
	Target	Net Zero by 2050, in respect of Scope 1 and 2 emissions, for listed assets.
	Interim targets	DB Section: Carbon Footprint (Scope 1 and 2 weighted by EVIC) reduced by 1/3 by 2030 relative to the Base Date DC Section: To have at least 1/3 of relevant assets (listed equity and credit) aligned to a net zero by 2050 target by 2030. In practice, this means having at least 1/3 of portfolio companies with SBTi approved targets by 2030, for listed credit and equity assets where data is reported.
	Base date	31 December 2021

¹ EVIC = Enterprise Value Including Cash in \$m

² GDP-PPP = Gross Domestic Product based on Purchasing Power Parity in \$m

Conclusions

This is the second TCFD report produced by the Trustee. Although this is still a relatively new and evolving process, progress has been made to measure, monitor, and manage the Scheme's climate risk.

In order to be proactive in addressing the Scheme's climate risk, the Trustee has set a long-term target of aiming to reach net-zero portfolio emissions by 2050. The Trustee recognises that further progress needs to be made to consider climate-related risks and opportunities in a balanced and proportionate approach. The ultimate responsibility of the Trustee is to pay members their benefits and the Trustee is aiming to do this in a way that is as sustainable as possible.

The Trustee is pleased to see that good progress has been made towards reaching the Scheme's interim targets. Further details and narrative on developments in the metrics relative to the Scheme's interim targets are provided in the Defined Benefit and Defined Contribution paragraphs of the "Metrics and Targets" Section.

The consideration of climate change is now well integrated into the ongoing management of the Scheme, with the Trustee formally monitoring developments on a quarterly basis and providing annual TCFD reporting. As part of this process, the Trustee will review any developments to ensure the Scheme's strategy remains appropriate.

1. GOVERNANCE

The Trustee holds ultimate responsibility for managing the Scheme. The Trustee has delegated responsibility for the selection, retention, and realisation of investments to the Scheme's Investment Managers, the majority of which are overseen by the Fiduciary Manager. The Trustee has also delegated responsibility for the exercising of rights (including voting rights) attached to investments to the Investment Managers. However, the Trustee and Fiduciary Manager recognise that an investment's long-term financial success is influenced by a range of financially material factors including environmental, social and governance (ESG) issues.

Roles of those undertaking governance activities

The Trustee

To ensure the proper governance over climate change, the Trustee has the following responsibilities:

- Ensure Trustee Directors have sufficient knowledge and understanding of climate change
- Implement effective climate governance
- Identify and assess climate-related risks and opportunities, including documentation of risks and their controls in the Scheme risk register
- Incorporate climate-related considerations into strategic decisions for the Scheme's investment and funding arrangements
- Include climate-related considerations when assessing and monitoring the strength of the sponsoring employer's covenant
- Ensure that the Scheme's professional advisers have clearly defined responsibilities in respect of climate change
- Setting strategic objectives for the Scheme's investment advisers, including consideration of ESG matters such as climate change. The investment advisers (for the DB Section, the investment adviser is also the Fiduciary Manager of the DB Section assets) are reviewed annually against these objectives including their capabilities in identifying and assessing climate change-related risks and opportunities.

The Trustee, with input from its advisers and from the Fiduciary Manager appointed in respect of the DB Section, also established a TCFD action plan in 2021 to identify and monitor the actions required to ensure regulatory compliance and meet the Scheme's sustainability goals. This action plan was reviewed and updated quarterly (and as regulatory requirements changed). The Trustee's DB Section Fiduciary Manager and the DC adviser have supported the Trustee in preparing this report.

DB Fiduciary Manager (and underlying investment managers)

The Trustee has appointed GSAM as the fiduciary manager of the assets of the DB Section. Under this arrangement, the Trustee has delegated responsibility for the selection, retention and realisation of investments to the DB Section's underlying Investment Managers, all of which are overseen by the Fiduciary Manager. The Trustee has also delegated responsibility for the exercising of rights (including voting rights) attaching to investments to the Investment Managers. However, the Trustee and Fiduciary Manager recognise that an investment's long-term financial success is influenced by a range of financially material factors including environmental, social and governance (ESG) issues.

The Trustee relies on Fiduciary Manager to proactively bring ESG and more specifically, climate, related topics to them. These are most commonly discussed at quarterly meetings but can be sent via email if they need to be discussed sooner.

DC Adviser

The Trustee's DC adviser provides support to the Trustee on investment and governance matters, including:

- Advising on investment arrangements, including the default investment strategy, taking into account climate risk, supported through the provision of climate scenario analysis.
- Advising on the choice of climate-related metrics and targets.
- Advising on investment manager selection, taking into account the Trustee's sustainability beliefs and climate-related risks, opportunities, and targets.
- Supporting the Trustee with stewardship activities, which may be related to climate change, such as monitoring and reporting on voting and engagement activities of the invested assets (for example, within the annual Implementation Statement).
- Monitoring investment managers and funds against relevant climate-related targets.
- Liaising with investment managers and other professional advisers to provide training to the Trustees on climate change, as appropriate.
- Assisting the Trustee in producing the annual TCFD report.

Scheme Actuary and Funding Adviser

The Trustee relies on its Scheme Actuary to provide advice on any climate change related risks and opportunities in relation to the Scheme's liabilities. The Scheme Actuary's role includes:

- Advising on the Scheme's funding position including an understanding of the potential funding impact resulting from changes to financial or demographic assumptions driven by climate change
- Advising on the funding strategy's robustness to climate risk, including the provision of input to enable strategic asset allocation decisions to be made considering the impact of climate risks on funding strategy
- Providing input into scenario analysis and advice on funding implications.

Covenant Adviser

- Assesses the Sponsor's ability and willingness to continue to support the Scheme. Climate-related exposures are considered alongside other factors that could have a positive or negative impact on the strength of the Sponsor's covenant.
- Provides input into scenario analysis and advises on covenant implications, as appropriate.

Scheme Secretary

The Trustee has appointed Pegasus to provide Scheme secretarial services. Their role is to:

- Liaise with advisers including on any recommendations to the Trustee, to ensure that advice provided to the Trustee and its sub-committees will facilitate effective and efficient decision-making
- Monitor and manage the Scheme's annual business plan and risk register, including the appropriate scheduling of climate change related matters
- Undertake governance activities on behalf of the Trustee, such as coordinating required public disclosures.
- Assist with keeping the Trustee informed about updates and progress within the investment and pensions industry on an ongoing basis, working with the advisers as appropriate.

Time and Resources Spent on Climate Related Risks and Opportunities

The Chair of Trustee, with support from the Scheme Secretary, is responsible for ensuring that sufficient time is allocated for consideration and discussion of climate matters by the Trustee and its advisers. The Trustee, as part of its regular meeting schedule, will allocate agenda time to climate change topics, amongst other ESG topics. Those responsible ensure any relevant documents or information is distributed in advance of the meeting to allow the Trustee time to digest the content.

The Trustee considers ESG issues as part of its quarterly meetings, which include the following activities during the course of the Scheme year (i.e., not all activities are quarterly, but take place at least annually):

1. The Fiduciary Manager and DC adviser provide reporting on ESG metrics for the Scheme's investment portfolio, including Carbon Footprint, absolute emissions, alignment to Paris Agreement allocation to fossil fuel reserves, and data quality, where available.
2. The Trustee completes training on ESG topics on at least an annual basis. In 2023, the Trustee considered knowledge gaps and received training from its Fiduciary Manager and / or DC adviser on the following topics:
 - Climate metrics and how they can be measured and interpreted.
 - Climate scenario analysis, and specifically for the DC Section, how different future climate scenarios may impact the "popular arrangements" for the DC investments.
 - How climate change might impact the Scheme's assets, liabilities, covenant and members
 - Through the DC adviser's quarterly DC current issues paper, training was provided on the Pension's Regulator's review of pension scheme climate change reporting, and on biodiversity and natural capital.
 - The relevant regulation and how the Scheme can meet its regulatory obligations.
3. Climate related investment opportunities, which are considered on an ad hoc basis, as appropriate. Over 2023, the Trustee did not consider any such opportunity but notes that subsequent to the end of the reporting period, the Trustee

reviewed the DC investment fund range and decided to add a sustainable investment fund to the range available to Scheme members.

4. In respect of the DC Section, the Trustee meets at least annually with the investment manager of the default investment arrangement. During the year, this meeting took place on 12 December 2023. A significant element of the agenda was focused on climate related matters, including how the investment manager is integrating such considerations within the Scheme's funds, engagement activity, voting on significant ESG topics, and the manager's decarbonisation pathway.
5. Stewardship, covered as part of the Trustee's annual Implementation Statement preparation.
6. Risk framework review, as part of the review of the Scheme's risk register.

2. STRATEGY

The actual and potential impacts of climate-related risks and opportunities on the Scheme's funding and investment strategies.

The Trustee considers climate-related risks and opportunities and their potential implications on the Scheme's investment and funding strategy over the short term, medium term, and long term. To do this, the Trustee receives scenario analysis from the Fiduciary Manager and DC adviser, who consider climate risks and opportunities in the implementation of the investment strategy.

The Trustee acknowledges that each of their investments is exposed to climate-related risks to varying extents, and has identified two specific risks which could impact the Scheme's investment and funding strategy:

- 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 TCFD aligned regulation requires trustees to consider climate risks over different time horizons. Therefore, the Trustee considers the potential impact of these on the Scheme's investment and funding strategy over the short, medium and long term.

Time Horizon	Chosen Time Horizon and Rationale	Expected climate-related risks and opportunities
Short	<p>2 years - 2025</p> <p>Aligned approximately with an actuarial valuation cycle for the Scheme (DB Section) and the approximate frequency of DC investment strategy reviews. Also allows assessment of very short term potential risks.</p>	<p>Transition risks that are expected to impact the Scheme are for example:</p> <ul style="list-style-type: none"> - Broader introduction of carbon prices - Policy/regulation changes - Changes in consumer behaviour. <p>As well as risks associated with these drivers, there could also be opportunities. For example, investing in climate solutions as policy support strengthens.</p>
Medium	<p>7 years – 2030</p> <p>Aligned with the expected self-sufficiency funding time horizon (DB Section) and with the approximate de-risking period of the DC "lifestyle" default investment arrangement.</p>	<p>Over this period, the path to decarbonisation will become clearer and markets will price transition risks more fully.</p> <p>Again this may present opportunities in investments, for example in new technologies, as well as risks around the decline of some traditional sectors.</p>
Long	<p>27 years – 2050</p> <p>Aligned with the DWP recommendations and industry standards.</p> <p>Aligns with the approximate term to retirement of a typical younger member of the DC Section (noting that the Scheme is closed and as such the membership profile is relatively mature).</p>	<p>Physical risks are expected to become a larger component of climate risk over the longer term. These are risks such as:</p> <ul style="list-style-type: none"> - Extreme weather events - Rising sea levels - Food price inflation - Population migration - Decrease in productivity. <p>In the long term, it is expected that negative emissions technologies such as carbon capture and storage will be needed to offset residual emissions and deliver a net-zero global economy. These could present investment opportunities.</p>

The Trustee acknowledges that incorporating climate change opportunities into their investment strategy could help mitigate some of the risks expected over the medium to long term.

Climate scenario analysis (DB Section)

The Trustee considered the six NGFS scenarios and chose the three below as representative scenarios over the short, medium and long term. The scenarios differ in the size of both physical and transition risks.

Scenarios considered	Scenario 1:	Scenario 2:	Scenario 3:
	Below 2C (orderly transition)	Delayed transition (disorderly)	Current policies (Hot House)
Description	Climate policies are introduced immediately and become more stringent gradually. Net Zero CO2 is achieved around 2070.	No new climate policies are introduced, and global emissions do not decrease until 2030. Strong policies are then needed to limit warming to below 2C.	Only current policies are preserved, emissions grow until 2080 leading to above 3C of warming and severe and irreversible physical risks.
Temperature Rise	~1.5°C	~1.5°C-2.0°C	> 3.0°C
Physical Risk Level	Low	Low	High
Transition Risk Level	Low	High	Low

In 2023, the Trustee was introduced to a climate scenario capital market assumptions model, a proprietary solution developed by GSAM Multi-Asset Solutions (the Scheme's Fiduciary Management Team) in collaboration with S&P Global to assess the impact of climate change scenarios on capital markets return assumptions. The model uses a wide range of inputs, such as carbon prices, abatement costs, energy prices and the sector-level impacts of the pace of technological disruption and the associated capital expenditure needs to reach climate targets. Those variables are overlaid on macro-economic indicators, such as GDP growth, inflation and policy rates which then feed into financial markets returns projections across a broad range of asset classes.

The portfolio level impact differs across the climate scenarios. The nuances in returns are captured in how the asset classes perform in the various transition scenarios. Equity assets may underperform impacted by higher interest rates and lower GDP growth in developed markets, while real assets offer good inflation protection and outperform thanks to positive flows in green capital expenditures. Emerging markets assets outperform in transition scenarios driven by the large amount of capital expenditures needed for these economies to transition towards a lower carbon world.

Limitations of this analysis include the uncertainty inherent to the long-term nature of the analysis, the assumptions related to future drivers of returns behaving similarly to history, policy, and industry responses to physical and transition risks etc. The Trustee are aware of these limitations but expects the modelling capabilities to improve over time.

Conclusions

The various dynamics and their impacts on asset class performance underscore the importance of a flexible approach to asset allocation and effective diversification. While the Trustee has concluded that no immediate action is warranted, it will continue to monitor the climate-adjusted expected returns across the Scheme's allocations. The Trustee plans to review the related impacts on risk, of the different climate scenarios as set out above.

Climate scenario analysis (DC Section)

In our report for the year to 31 December 2022, the Trustee set out the results of the quantitative climate scenario analysis considered during the year. This analysis helped to assess the potential implications of climate change under different scenarios for the investment arrangements of the DC Section. Further details of the analysis, and key conclusions, are included in the Appendix.

The Trustee has reviewed the analysis and agreed not to undertake updated analysis in respect of the DC Section this Scheme year as there have been no changes to the investment strategy or material developments in climate modelling.

3. RISK MANAGEMENT

This section summarises the primary climate-related risk management processes and activities of the Trustee. These help the Trustee understand the materiality of climate-related risks, both in absolute terms and relative to other risks that the Scheme is exposed to. The Trustee prioritises the management of risks primarily based on their potential impact on the security of members' benefits, and on prospective investment returns.

Risk Identification and Review Arrangements

- The Trustee's Statement of Investment Principles is reviewed no less frequently than triennially. The SIP sets out how investment-related risks are managed and monitored.
- The Trustee maintains a risk register which includes explicit ESG risks and, for the DB Section, Integrated Risk Management considerations. This assists the Trustee with monitoring and mitigating financially material risks. The risks are reviewed at least annually to ensure the assessment of the likelihood and impact continue to remain appropriate for the Scheme given the developing research and understanding on this subject as well as new and emerging risks related to climate change.
- As outlined in the Governance Section of this report, the Trustee receives training from time-to-time on climate-related issues. The training allows the Trustee to challenge whether the risks and opportunities are effectively allowed for in its governance processes and wider activities, and to be able to challenge its advisers to ensure the governance support and advice adequately covers the consideration of climate-related risks and opportunities. This process also affords the Trustee an opportunity to identify new and emerging risks related to climate change.
- The Trustee uses climate scenario analysis to seek to understand how the Scheme's assets and liabilities might be affected by climate change, and has obtained advice on the implications for its investment strategy (for the DB and DC Sections) and funding plan (for the DB Section), as detailed in the previous section and the appendix.
- The Trustee will analyse, with the support of its Covenant Adviser, how the Scheme's sponsor might be affected by climate-related factors, and the implications for its ability to provide financial support for the Scheme. The Trustee intends to do this as part of the covenant assessment that will be completed alongside the actuarial valuation as at 31 December 2023.

DB Specific Arrangements

The Trustee receives climate-related reporting from its Fiduciary Manager. This contains relevant climate metrics as set out in section "4. Metrics and Targets". This allows the Trustee to better identify and manage the climate-related risks that are relevant to the Scheme on an ongoing basis.

The selection process for new investment managers is run by the Fiduciary Manager's Research team. For all appointed investment managers, evaluation of ESG risk management, which includes climate-related risks, is an explicit part of both the selection process and continued due diligence or monitoring that the Fiduciary Manager undertakes.

The Research team use the following framework to integrate ESG into the regular manager selection process. The framework may consider asset class-specific nuances but will be largely focused on the following factors:

- **Firm Ethos:** The extent to which the firm is committed to ESG and incorporates sustainable practices into the management of its business.
- **Investment Philosophy:** The degree to which ESG is viewed as a material driver of risk and returns.
- **Investment Process:** The degree to which ESG-related factors are formally incorporated into the investment process with the objective of enhancing risk-adjusted returns.
- **Team & Resources:** The depth, breadth, and organisation of the team incorporating ESG; the level and use of other / external resources.
- **Engagement:** The level and type of engagement with portfolio companies on ESG; ability to add value post investment and degree to which this is reflected in outcomes.

The Fiduciary Manager has a suite of tools that allows analysis of the portfolio through multiple lenses to identify ESG risks, including business risks, historical controversies and conduct, carbon and climate risk. The insights from these tools from an investment perspective can be used to engage managers and improve monitoring.

When selecting and reviewing the performance of investment managers, the Fiduciary Manager considers the managers' stewardship and ESG policies relative to both its own Sustainability Policy and the Trustee's beliefs.

The Trustee believes that engagement with the Scheme's investment managers is one of the main ways in which the Trustee can manage climate-related risks and opportunities. This engagement is carried out on behalf of the Scheme by the Fiduciary Manager, based on the Trustee's beliefs and policies. For example, the Fiduciary Manager's Research team:

- Engages with Investment Managers to discuss the implementation of responsible business practices and the disclosure of critical ESG issues as it relates to underlying investments.
- Seeks to invest with managers that provide high-quality reporting and full transparency on the ESG characteristics of their strategies.

The Scheme's equity and real asset investments come with voting rights covering the underlying invested companies. The Trustee expects their investment managers to actively vote on all votes. Generally, investment managers are responsible for exercising votes on the Trustees' behalf. The Trustee reviews the significant votes (as determined by the investment manager) made on their behalf as part of the Annual Implementation Statement and expect the underlying investment managers to consider climate risk in their responses.

DC Specific Arrangements

Six-monthly investment reporting has been commissioned from the Trustee's independent DC adviser. This reporting includes the ESG research ratings awarded to the Scheme's investment managers by the DC adviser, along with updates on any changes to these ratings. Weak ratings, or downgrades to ratings, would be an area for concern for the Trustee prompting further review of a mandate. No such reviews have been required during the Scheme year.

In contrast to the DB Section investments, for DC investments the Trustee has appointed investment managers directly. For the "main" investment manager to the DC Section (and the manager of the default investment strategy), the Trustee believes that direct engagement with the manager is an important tool for managing climate-related risks and opportunities. Accordingly, the Trustee meets with the investment manager at a Trustee Board meeting at least annually. At these meetings, climate risks are discussed, including discussing with the manager how they have integrated management of such risks in the Scheme's portfolios.

During the year, the Trustee met with the main DC investment manager to discuss how sustainability considerations are incorporated in the fund portfolios. While the Trustee is satisfied with these arrangements, subsequent to the Scheme year end the Trustee agreed that a dedicated sustainable investment fund should be added to the fund range. We look forward to communicating further details to members later in 2024.

The role of stewardship (voting and engagement) in managing climate related risks and opportunities for the DC Section

The Trustee expects the Scheme's investment managers to engage with investee companies on climate-related (and other) matters. The Trustee generally believes that engaging with companies is more effective at encouraging change than selling the Scheme's investments in those companies. Stewardship is therefore used to help manage climate-related risks.

The Trustee prepares an annual Implementation Statement which sets out how the voting rights of the Scheme have been used, as well as details of engagement activity. Reviewing the voting and engagement records of the appointed DC investment managers assists the Trustee in ensuring that stewardship activities meet our expectations. In particular, the Trustee has set the following stewardship priorities, and reports on significant votes on these topics annually.

- Climate change
- Human capital management, including diversity, equity, and inclusion
- Governance and compliance

While a full list of significant votes can be found in the Implementation Statement, a case study of a climate change related significant vote is included below, as it helps to articulate how climate related risks are being managed using stewardship.

Fund	L&G Diversified (used in DC default strategy)				
Company	Shell Plc				
Item	Approval of the Shell Energy Transition Progress				
Rationale	<p>L&G voted against the management of Shell on its proposed Energy Transition Progress, “though not without reservations”.</p> <p>L&G acknowledge the substantial progress made by this company in meeting its 2021 climate commitments, and welcome Shell’s leadership in pursuing low carbon products within its business.</p> <p>However, L&G remain concerned by the lack of the company’s disclosures in relation to its future oil and gas production plans, and the targets that are associated with Shell’s upstream and downstream operations; both of these are key areas to demonstrate alignment with a 1.5°C climate warming trajectory.</p>				
Date of Vote	23 May 2023	Voting Decision	Against	Outcome	Passed, though with a number of shareholders voting against

4. METRICS AND TARGETS

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

The Trustee has selected four metrics for assessing and managing the Scheme's climate-related risks and opportunities in respect of the DB and DC Sections, and has set a target for one of these metrics for both Sections.

DB Section

The Trustee has selected four metrics for assessing and managing the Scheme's climate-related risks and opportunities and set a target for one of these metrics. The calculation of these metrics is reliant on data provided by MSCI, and the Trustee is aware of its limitations and assumptions.

The analysis covers the Scheme's publicly listed corporate exposures of the growth portfolio, which represents 78% of the Growth portfolio as at 31 December 2023 and has 90.5% emissions³ coverage at the same date. The sovereign emissions analysis concerns the LDI portfolio and has 100% emissions⁴ coverage.

Metrics and Targets			
Requirement	Trustee Chosen Metrics	Rationale	Value as of 31 December 2023
Metric 1 (absolute)	Financed emissions (Scope 1 and 2 weighted by EVIC ⁵) Financed emissions (Scope 3 weighted by EVIC)	Financed emissions measure the absolute emissions generated by the portfolio's listed equity and corporate credit exposures as a share of ownership of the respective companies invested in.	18,935 tCO ₂ e ⁶ Scope 1 and 2 emissions 116,784 tCO ₂ e Scope 3 emissions
Metric 2 (intensity)	Carbon footprint (Scope 1 and 2 weighted by EVIC) Carbon footprint (Scope 3 weighted by EVIC) Sovereign Carbon intensity (Scope 1 weighted by GDP-PPP) ⁷	Carbon footprint measures the portfolio's listed equity and corporate credit carbon intensiveness, allowing comparisons with other portfolios. Sovereign Carbon intensity measures the Scope 1 emissions intensity excluding land use, land use change and forestry (LULUCF) of the country normalised by PPP-adjusted GDP.	59 tCO ₂ e per million USD invested (Scope 1 and 2 weighted by EVIC) 366 tCO ₂ e per million USD invested (Scope 3 weighted by EVIC) 120 tCO ₂ e per million USD (Scope 1 weighted by GDP-PPP)
Metric 3 (alignment)	% Assets aligned with the Paris Agreement	The Alignment metric is a forward-looking metric. Assets aligned with the Paris Agreement have an implied temperature rise (as per MSCI's methodology) which if below the 2C are deemed aligned with the Paris Agreement.	65% aligned with Paris Agreement 2C goals.
Metric 4 (alternative)	Emissions Data Quality	This metric allows the Trustee to assess the coverage of carbon emissions with the expectation that data quality will improve over time.	90% of holdings covered by value have carbon emissions ⁸ data available.
Target	Net Zero by 2050	Net Zero by 2050 is aligned with industry standard.	
Interim target	Carbon footprint (Scope 1 and 2 weighted by EVIC) reduced by 1/3 by 2030 vs 2021	The Trustee views this as a sensible interim target, in order to make meaningful progress towards the long-term target in the shorter term.	31 December 2021 is the base date. Interim target: 42.4 tCO ₂ e/\$m EVIC of Scope 1 and 2 emissions by 2030 (vs baseline of 63.6 in 2021).

³ Refers to Scope 1 and 2 emissions.

⁴ The LDI coverage refers to UK Gilts

⁵ Enterprise Value Including Cash

⁶ tCO₂e = tons of CO₂ and its equivalents

⁷ Metrics are calculated slightly different for DC, shown in appendix.

⁸ Refers to Scope 1 and 2 emissions.

DC Section

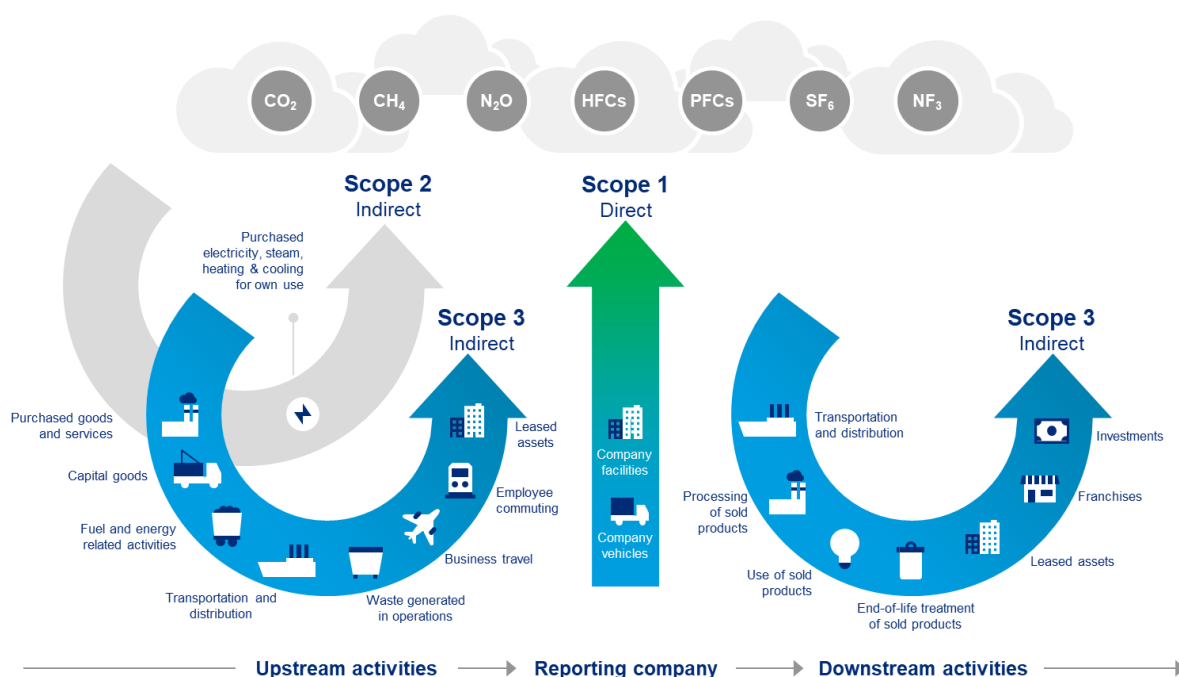
In respect of the DC Section, the Trustee has selected the following metrics:

Metric category	Selected metric	Further detail
Absolute emissions	Total Greenhouse Gas Emissions	Tonnes of carbon dioxide and equivalents (tCO ₂ e) that the Scheme is responsible for financing through the relevant asset portfolios
Emissions intensity	Carbon Footprint	The amount of carbon dioxide and equivalents (tCO ₂ e) emitted per million dollars of the Scheme's investments. For sovereign bonds, sovereign carbon intensity is used which represents the amount of carbon dioxide and equivalents (tCO ₂ e) emitted per million dollars of GDP.
Portfolio Alignment	% of portfolio companies / issuers with targets approved by the Science Based Targets initiative (SBTi)	<p>Assessment of the proportion of portfolio companies/issuers that have set net zero emissions targets that have been validated by SBTi. The Trustee has selected this metric as science-based targets provide a clearly-defined pathway for companies and other entities to reduce emissions. Targets are deemed science-based if they are in line with what the latest science considers necessary to meet the goals of the Paris Agreement (limiting global warming to well-below 2°C above pre-industrial levels and pursuing efforts to limit this to 1.5°C).</p> <p>The long-term and forward looking nature of SBTs provide a clear direction of travel and assist the Trustee in assessing the risks and opportunities associated the transition to a lower carbon world.</p>
Additional	Data Quality	Represents the proportions of a portfolio for which the trustees have high quality data. Data quality is the proportion of the portfolio for which each of Scope 1-3 emissions (emissions are verified, reported, estimated or unavailable).

Trustees of schemes with DC benefits must prepare metrics for each “popular arrangement”. Such arrangements are defined as those “in which £100m or more of a scheme’s assets are invested, or which accounts for 10% or more of the assets used to provide DC benefits, excluding assets solely attributable to additional voluntary contributions (AVCs)”.

For the Scheme, this means that the funds in the **default investment strategy (a lifestyle arrangement comprising a number of underlying funds), the L&G Diversified Fund, the L&G World Equity Index Fund, and the Prudential With Profits Fund** are in scope for metrics. The Trustee has however sought to present metrics for **all of the funds** available to members of the DC Section, to provide a view across the fund range, where this is available.

For context, we note that there are various “scopes” of emissions. The definitions are outlined in the following graphic.



The metrics shown here that relate to emissions cover scope 1, 2, and 3 emissions.

Note that for consistency with the reporting for the DB Section, and because many investment managers report their data in US Dollar terms, the metrics for the DC Section are shown in US Dollar terms unless stated otherwise (for those metrics which are based on a currency unit).

In the first reporting year (metrics as at 31 December 2022), the Trustee provided metrics at the fund level, rather than being aggregated for the “lifestyle” investment strategy that some members invest in. The reason for this is that the data sources and calculation methodologies used by the investment managers differed across the underlying funds, and therefore if metrics were aggregated there was a risk that they may have provided an inaccurate, misleading, or confusing picture. However, during 2023 standards have developed such that the Trustee is now able to provide aggregated metrics for the lifestyle investment strategy. A summary of the asset allocation of the lifestyle investment strategy is included in the Appendix.

Unfortunately, Prudential have been unable to provide data for the Trustee’s selected metrics in the format required. A clear action has therefore been identified to engage further with Prudential, working with the DC adviser, in order to improve reporting for the Prudential fund, with a view to disclosing the metrics in our next report.

DC Metrics: 31 December 2022

Fund	Scheme Valuation (£)	Scheme Valuation (US \$)	Scope 1 and 2 emissions		Scope 3		Portfolio alignment	Data quality
			Total GHG emissions (tCO ₂ e)	Carbon footprint (tCO ₂ e/\$m)	Total GHG emissions (tCO ₂ e)	Carbon footprint (tCO ₂ e/\$m)	Proportion with SBT (%)	(% reported / estimated / unavailable)
L&G Diversified	5,561,118	6,689,503	688.7	112.1	N/A	N/A	27.8%	L&G did not report on this basis but state total coverage is 81.5%
L&G World Equity Index	3,086,528	3,712,804	258.7	69.7	N/A	N/A	51.2%	L&G did not report on this basis but state total coverage is 97.5%
L&G All Stocks Index Linked Gilt Index	698,097	839,745	62.2	74.1	N/A	N/A	N/a (Govt bond fund)	L&G did not report on this basis but state total coverage is 100.0%
L&G All Stocks Gilts Index	115,760	139,248	10.3	74.1	N/A	N/A	N/a (Govt bond fund)	L&G did not report on this basis but state total coverage is 100.0%
L&G Sterling Liquidity	257,489	309,735	2.3	9.6	N/A	N/A	6.0%	L&G did not report on this basis but state total coverage is 44.4%
Prudential With Profits	6,256,540	7,526,031	Prudential have been unable to provide data for these metrics in the format required. See notes in introductory section.					

DC Metrics: 31 December 2023

Fund	Scheme Valuation (£)	Scheme Valuation (US \$)	Scope 1 and 2 emissions		Scope 3		Portfolio alignment	Data quality (Scope 1 and 2 emissions)	Data quality (Scope 3 emissions)	Coverage (% reported + estimated)	
			Total GHG emissions (tCO ₂ e)	Carbon footprint (tCO ₂ e/\$m)	Total GHG emissions (tCO ₂ e)	Carbon footprint (tCO ₂ e/\$m)	Proportion with SBT (%)	(% reported / estimated / unavailable / cash & other assets)	(% reported / estimated / unavailable / cash & other assets)	Scope 1 and 2 Emissions	Scope 3 Emissions
Lifestyle strategy	2,338,847	2,981,550	242.5	81.3	885.4	469.2	22.3%	73.3% / 10.8% / 10.5% / 5.5%	31.9% / 32.4% / 12.9% / 22.9%	84.1%	64.3%
L&G Diversified	3,797,940	4,841,594	429.7	88.7	1,804.6	481.8	23.0%	67.2% / 13.7% / 12.9% / 6.4%	32.4% / 32.2% / 12.8% / 22.6%	80.9%	64.6%
L&G World Equity Index	3,553,818	4,530,389	224.6	49.6	1,900.6	419.5	40.9%	94.8% / 3.5% / 1.1% / 0.6%	62.8% / 35.4% / 1.1% / 0.6%	98.3%	98.2%
L&G All Stocks Index Linked Gilt Index	366,740	467,519	27.8	59.5	Not available		N/a (Govt Bond Fund)	100.0%	N/A	100%	N/A
L&G All Stocks Gilts Index	104,621	133,370	7.9	59.5	Not available	74.4	N/a (Govt Bond Fund)	99.7% / - / - / 0.3%	N/A	99.7%	N/A
L&G Sterling Liquidity	168,501	297,630	0.2	0.7	11.0	73.0	0.0%	53.2% / - / 17.5% / 29.3%	16.4% / 36.4% / 17.5% / 29.7%	53.2%	52.8%
Prudential With Profits	6,298,975	8,029,900	Prudential have been unable to provide data for these metrics in the format required. See notes in introductory section.								

Sources: LGIM and Mercer. Currency based metrics are converted at prevailing exchange rates. The split of assets for the lifestyle arrangement has been calculated using the breakdown of self-select and lifestyle assets as at 04/08/2023. LGIM have provided scope 1 and 2 total GHG emissions for both sovereigns and corporates but have only provided corporate emissions for scope 3. The carbon footprint for scope 1 & 2 emissions therefore also covers sovereigns and corporates but the scope 3 carbon footprint relates to corporate emissions only.

Progress on metrics over the year

Absolute emissions are a function of a fund's carbon emissions and its total asset value. They can also be influenced by changes in exchange rates and the relative share of eligible assets, i.e. the share of holdings in a fund that climate metrics can be obtained for. As members can choose their individual investments, the Trustee does not directly control the total emissions of the Scheme. Arrangements with higher total asset values have, as expected, have higher absolute emissions. Movements during the year will be driven in large part by changes in the asset values due to both market and member movements, as well as changes in emissions intensity as measured by carbon footprint.

As carbon footprint takes the Scheme's total emissions figures and normalises them to take account of the size of the investment, it is not influenced by the size of Scheme assets invested in the fund and is therefore a more helpful metric to identify portfolios with high carbon intensity. The Trustee is pleased to see a reduction in carbon footprint during the year.

Targets – DC Section

Consistent with the DB Section, the Trustee has agreed to target a net zero investment portfolio (scope 1, 2, and 3 emissions) by 2050 or earlier. This target is applicable across listed equity and credit assets.

The rationale is that this target is required to reduce greenhouse gas emissions and keep global warming to 1.5°C, meeting the goals of the Paris Climate Agreement. Additionally, all DC investment managers are committed to net zero by 2050 or sooner, and have signed up to this initiative. Therefore, the funds invested for the DC section are expected to reach net zero and the Trustee is able to objectively follow up against this objective with their investment managers.

In order to monitor progress towards this longer term target, the Trustee will work towards an interim target of having, by 2030, at least one-third of relevant assets (listed equity and credit) aligned to a net zero by 2050 target – i.e. credible plans in place to reach the 2050 target. The baseline is 31 December 2021 and progress will be assessed on this basis. In practice, this means having at least one-third of portfolio companies with SBTi approved targets by 2030, for listed credit and equity assets where data is reported.

The Scheme has an interim target to have, by 2030, at least one-third of relevant assets (listed equity and credit) aligned to a net zero by 2050 target – i.e. credible plans in place to reach the 2050 target. In practice, this means having at least one-third of portfolio companies with SBTi approved targets by 2030. Last year L&G were unable to differentiate between approved and committed SBTi, whereas this year the figures only include companies with approved (i.e. verified) SBTi targets. The Trustee is pleased to see improved reporting on this metric, and notes that one fund (the L&G World Equity Index Fund) has already met the interim target. The Trustee will work with L&G to monitor and discuss this metric over time.

The Trustee will review its targets at least annually.

A wide range of factors will affect whether the Trustee achieves its targets and the Trustee has varying degrees of control over these factors. For example, the quality and availability of data means that the quoted greenhouse gas emissions are likely to change.

Ultimately achieving the desired level of decarbonisation will depend on global economies overall successfully decarbonising. Notwithstanding that there are factors outside of the Trustee's control, the Trustee's intention is to meet its targets and it engages with its investment managers to make clear its requirements.

The following steps are being taken by the Trustee to achieve the overall and interim targets, in respect of the DC Section:

- Working with the investment managers to develop a roadmap to meeting the target, including engagement with Prudential on producing metrics for the With Profits arrangements. Metrics and targets will be a topic of discussion when the DC investment managers present at Trustee meetings.
- The Trustee, and the DC investment adviser, encourages investment managers to support the goal of net zero by 2050. This includes using voting and engagement (stewardship) to manage risks. The investment adviser will be encouraged, in our discussions with them, to use their influence with portfolio companies to have credible plans to meet the targets in place.
- For any material data gaps, the Trustee will explore use of independent data providers outside of the investment managers.
- Ensuring that climate change risks and opportunities are considered when reviewing the investments, and when adding any new investments.
- The Trustee will review progress towards the target each year and consider whether additional steps are required.

TECHNICAL APPENDIX AND IMPORTANT NOTICES

DC SECTION

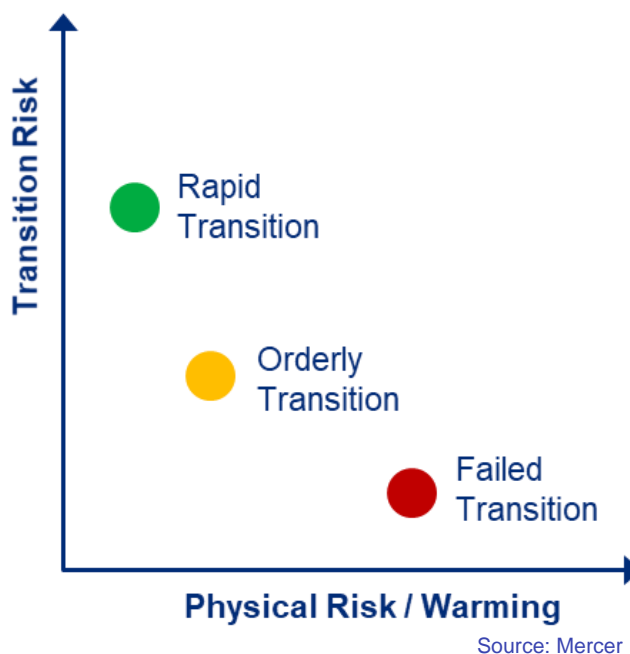
Scenario Analysis

In our report for the year to 31 December 2022, the Trustee set out the results of the climate scenario analysis considered during the year. The Trustee has reviewed the analysis and agreed not to undertake updated analysis this Scheme year as there have been no changes to the investment strategy or material developments in climate modelling. We summarise here the analysis conducted for the prior year.

Trustees of schemes with DC benefits must undertake “strategy” activities (notably scenario analysis) for each “popular arrangement”, defined as “one in which £100m or more of a scheme’s assets are invested, or which accounts for 10% or more of the assets used to provide DC benefits, excluding assets solely attributable to additional voluntary contributions (AVCs). For the Scheme, this meant that the **default investment strategy (a lifestyle arrangement comprising a number of underlying funds), the L&G Diversified Fund, the L&G World Equity Index Fund, and the Prudential With Profits Fund** were in scope for scenario analysis. We set out the results here⁷.

Quantitative climate change scenario analysis has been undertaken based on the asset allocation of the DC Section’s popular arrangements to assess the potential implications of climate change under three possible scenarios - a Rapid Transition to a lower carbon world, an Orderly Transition, and a Failed Transition. The analysis is based on scenarios developed by the Trustee’s DC adviser, Mercer, working with Ortec Finance. Further detail on these scenarios is outlined below.

- Rapid Transition** – Average temperature increase of 1.5°C by 2100 (relative to pre-industrial average). This assumes fairly sudden downward re-pricing across assets within the next few years, which could be driven by policy change, consideration of stranded assets, or expected costs. The shock is partially sentiment-driven and so is followed by a partial market recovery. Physical damages are most limited under this scenario.
- Orderly Transition** – Average temperature increase of less than 2.0°C by 2100. Governments and wider society act in a co-ordinated way to decarbonise and to limit global warming. Transition impacts do occur but are relatively muted.
- Failed Transition** – Average temperature increase above 4°C by 2100. The world fails to co-ordinate a transition to a low carbon economy. Physical impacts significantly reduce economic productivity and have increasingly negative impacts including from extreme weather. These are reflected in market re-pricing events in the late 2020s and late 2030s.



In designing scenario analysis a key decision is whether to assume that any climate impacts are priced in today. The analysis in this report is expressed relative to a ‘climate-informed’ baseline⁸; the implication is that return impacts are presented in terms of how they are different to what we are assuming is priced in today.

⁷ Note that the results shown here are based on analysis prepared by the DC adviser, using this Fund’s asset allocation. The Trustee recognises that the investment managers may use alternative models, scenarios, and assumptions within their business. Modelling is an estimate of possible outcomes, rather than a prediction.

⁸ The baseline represents what is assumed that the market is currently pricing in. The baseline includes a 10% weight to a Failed Transition, 40% weight to an Orderly Transition, 10% to a Rapid Transition and 40% to a range of **low impact scenarios**.

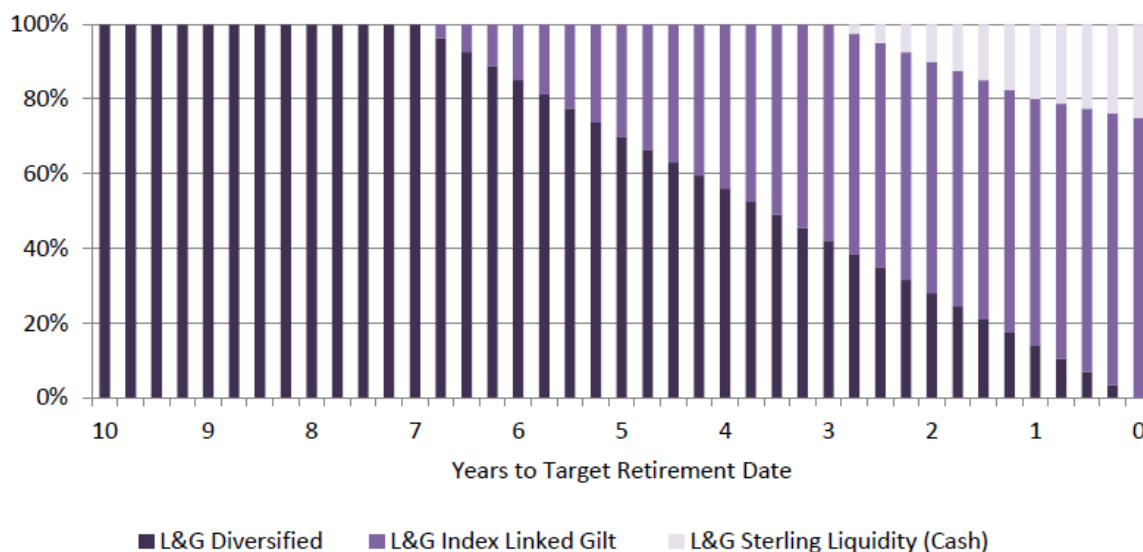
DC Metrics – LGIM Carbon Calculation Methodology

The table below summarises LGIM’s carbon calculation methodology, used for the Scheme’s DC funds.

Metric	Asset Type	Calculation Units	Source	FX Rate Date
Carbon Intensity (WACI) [31 Dec 2023]	Corporate	$\sum \frac{carbon [2021]}{revenue [2021]} \times weight [31 Dec 2023]$ tCO ₂ e/1mn Revenue	Carbon and revenue from ISS	Daily average rate of 2021 for revenue
	Sovereigns	$\sum \frac{carbon [2020]}{gdp [2020]} \times weight [31 Dec 2023]$ tCO ₂ e/1mn GDP	Carbon and GDP from ISS	
Carbon Footprint [31 Dec 2023]	Corporate	$\sum \frac{carbon [2021]}{evic [31 June 2021]} \times weight [31 Dec 2023]$ tCO ₂ e/1mn Invested	Carbon from ISS, EVIC from Refinitiv	30 June 2021 rate for EVIC
	Sovereigns	$\sum \frac{carbon [2020]}{Total Stock [Dec 2020]} \times weight [31 Dec 2023]$ tCO ₂ e/1mn Total Stock	Carbon from ISS, Total from IMF	
Total Carbon [31 Dec 2023]	Corporates / Sovereigns	Carbon Footprint [31 Dec 2023] x Market Value [31 Dec 2023] tCO ₂ e	Carbon Footprint and Market Value from LGIM	Carbon Footprint as of 30 June 2021, market value as of 31 Dec 2023

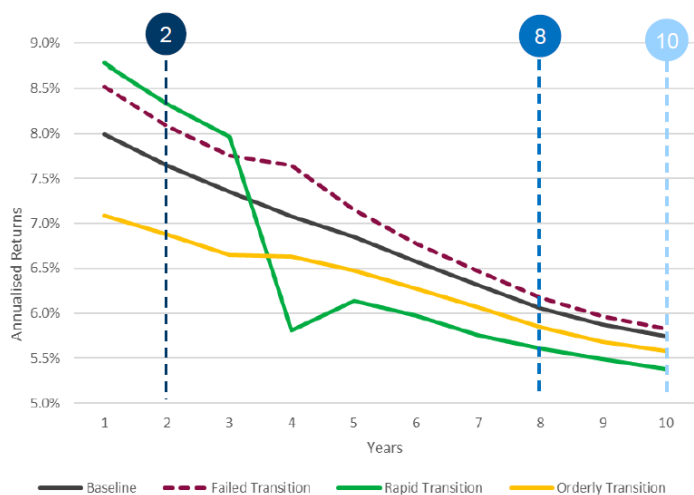
Climate Scenario Analysis Results

The default investment arrangement, a lifestyle strategy, is summarised below for ease of reference.



Results - Default strategy (10 years to retirement): Annualised Return Impact

Note that the long term (28 year) assessment is not directly relevant when considering the “glidepath” of the strategy, which de-risks over a shorter period. Longer term outcomes are shown for other relevant funds, including the growth phase of the default arrangement, later in this paper.



Key points at different time frames

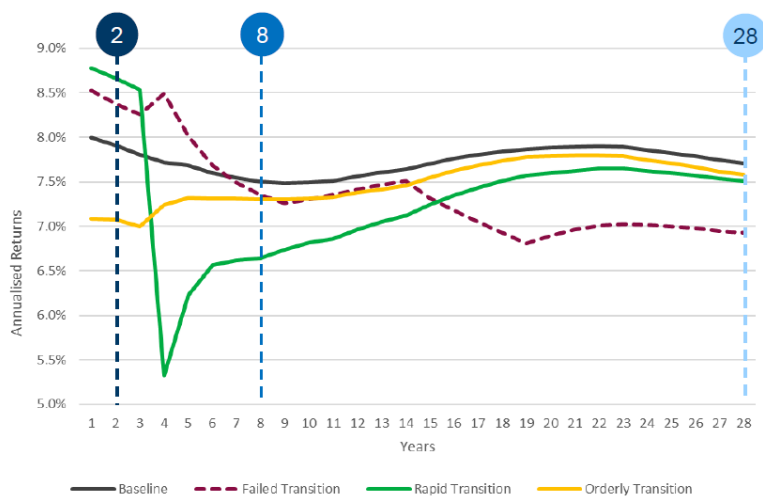
2 years: Over this period, transition risk is key. An Orderly Transition is negative, as the market prices in the cost of transition that would be more quickly felt in an Orderly scenario (relative to a Rapid Transition, which is not estimated to materially impact until year 4). A Failed Transition is marginally positive due to transition costs to economies not materialising. While we estimate that a Rapid Transition would impact materially in **year 4**, this could be earlier.

8 Years/10 Years (at retirement): Transition risks are still the most significant and therefore a Rapid Transition is most impactful. Under this scenario there is a shock to returns of about -0.7% in 2026 followed by a recovery the following years (beyond 10 years).

Overall, returns are reduced by 0.4% p.a. in a Rapid Transition at year 8 and 10. A Failed Transition is still marginally positive due to fewer transition costs materialising – however as the charts later in this report show, in the long term physical damage impacts starts to impair returns under a Failed Transition scenario.

Results – L&G Diversified Fund: Annualised Return Impact

This Fund is the growth phase of the default investment arrangement, and is also available as a self-select option for members to invest in. It invests in global equities, fixed income, and alternative assets. The analysis has been prepared based on the underlying asset allocation, with some approximations and simplifications where appropriate.



Key points at different time frames

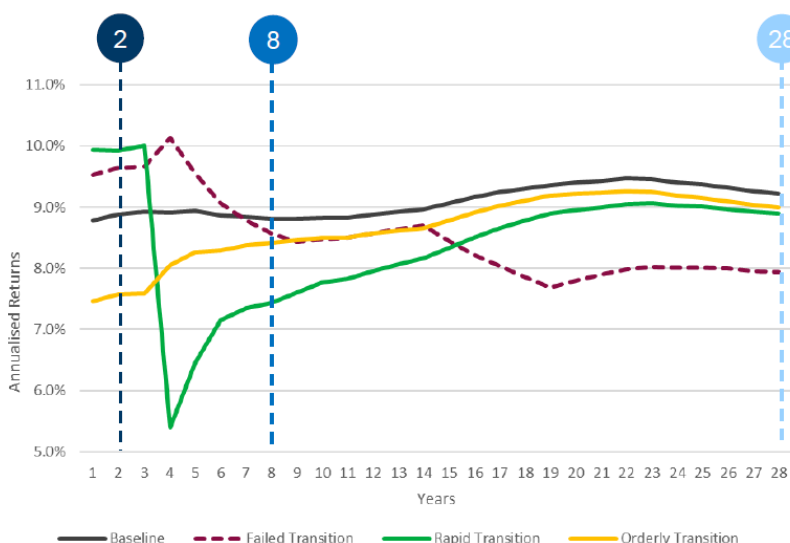
2 years: Similar themes to the lifestyle strategy are evident. A Rapid Transition scenario is not expected to impact until year 4, but again there is uncertainty over the timing of this and it could occur sooner. An Orderly Transition shows a negative impact, as the market prices in the cost of transition that would be more quickly felt in an Orderly scenario. A Failed Transition is marginally positive due to transition costs to economies not materialising.

8 Years: Transition risks are still significant and as such a Rapid Transition is most impactful (reducing returns by c.0.9% p.a.). However, a Failed Transition becomes more negative as future physical damage is priced in. The impact of the Orderly Transition is small on the basis that transition costs and impacts are smaller and largely priced in.

28 years: Over the long term, physical damages are the dominant driver of risk, and the Failed Transition is the worst scenario, estimated to result in a reduction in annualised returns of around 0.8% p.a.

Results – L&G World Equity Index Fund: Annualised Return Impact

This Fund is a self-select option. It invests in global equities, and the investment manager aims to track the MSCI World Index.



Key points at different time frames

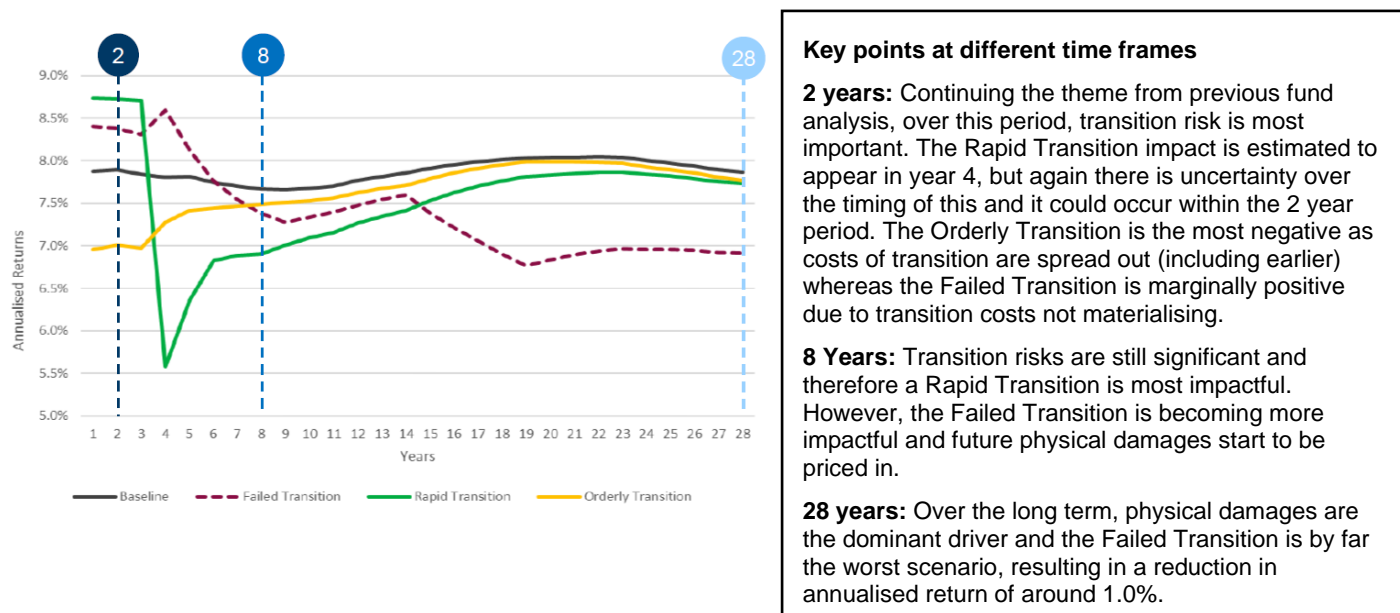
2 years: Again, an Orderly Transition is expected to be most impactful, with a Failed Transition slightly positive due to transition costs not materialising. It is at 4 years where the most negative impact falls – this is a Rapid Transition scenario, where the analysis suggests that the market would price in higher economic costs that would be borne if there was a sudden move towards enacting changes to move the global economy to a lower emissions future.

8 Years: Transition risks are still the most significant and therefore a Rapid Transition is most impactful. However, a Failed Transition is becoming more negative as future physical damages start to be priced in. The impact of the Orderly Transition is small on the basis that transition costs and impacts are smaller and largely priced in.

28 years: Over the long term, physical damages are the dominant risk driver, and a Failed Transition is by far the worst scenario, estimated to result in a reduction in annualised returns of c.1.3% p.a.

Results – Prudential with Profits Fund: Annualised Return Impact

This fund is a self-select option, and has legacy assets invested in it on behalf of members. The fund invests in traditional and alternative assets and the allocation has been modelled based on the underlying asset allocation. We note however that Prudential do not disclose detailed information on asset allocation and as such some approximations have been used.



The analysis has led to the following findings and actions being taken forward in respect of the DC Section:

1. Over the long term, a successful transition is imperative: a successful transition leads to enhanced projected returns when compared to scenarios associated with higher temperature outcomes. This is largely driven by lower physical damages.
2. Sustainable allocations can protect against transition risks: this reinforces the steps the Trustee has taken to integrate consideration of climate risk and opportunity management in the DC investment arrangements – for example, using the ESG ratings provided by the DC adviser when selecting and reviewing investment managers and funds. The Trustee will continue to seek opportunities to further enhance this, taking into account overall risk and return considerations and suitability for the Scheme’s membership profile.
3. Sector exposure is key: differences in return impact are most visible at an industry-sector level, with significant divergence between scenarios. Oil and gas, certain utilities, and renewable energy sectors are most impacted by the transition. This forms a useful discussion point for the Trustee when meeting with investment managers.
4. Awareness of future shocks: As markets react to new information because of the changing physical environment and government policies, investors will be vulnerable to short, sharp shocks.

The analysis assisted the Trustee in exploring the potential impact that repricing events can have on the DC investments. It therefore served as a useful backdrop to questioning the investment manager of the main DC funds, and the results also fed in to the triennial review of the investment strategy that took place in 2023, and the review of the self-select fund range that commenced in 2024. The Trustee will continue to examine the level of integration of ESG matters, including climate change, within the strategy.

Climate scenario narratives

	Rapid Transition	Orderly Transition	Failed Transition
Summary	Sudden divestments in 2025 to align portfolios to the Paris Agreement goals have disruptive effects on financial markets with sudden repricing followed by stranded assets and a sentiment shock.	Political and social organisations act quickly and predictably to implement the recommendations of the Paris Agreement to limit global warming to below 2°C above pre-industrial levels by 2100.	The world fails to meet the Paris Agreement goals; global warming reaches 4.3°C above pre-industrial levels by 2100. Physical impacts cause large reductions in economic productivity and increasing impacts from extreme weather.
Cumulative emissions to 2100	416 GtCO _{2e}	810 GtCO _{2e}	5,127 GtCO _{2e}
Key policy and technology assumptions	An ambitious policy regime is pursued to encourage greater decarbonisation of the electricity sector and to reduce emissions across all sectors of the economy. Higher carbon prices, larger investment in energy efficiency and faster phase out of coal-fired power generation under a 'Rapid' transition.		Existing policy regimes are continued with the same level of ambition.
Financial climate modelling	Pricing in of transition and physical risks of the coming 40 years occurs within one year in 2025. As a result of this aggressive market correction, a confidence shock to the financial system takes place in the same year.	Pricing in of transition and physical risks until 2050 takes place over the first 4 years.	Physical risks are priced in two different periods: 2026-2030 (risks of first 40 years) and 2036-2040 (risks of 40-80 years).
Physical risk impact on GDP	Physical risks are regionally differentiated, consider variation in expected temperature increase per region and increase dramatically with rising average global temperature. Physical risks are built up from gradual physical impacts associated with rising temperature (agricultural, labour, and industrial productivity losses), and economic impacts from climate-related extreme weather events. Current modelling does not capture environmental tipping points or knock-on effects (e.g. migration and conflict).		
Physical risk impact on inflation	Gradual physical impact (supply shocks) on inflation included via changes in food prices and damages to agriculture. Total impact on a Global CPI Index is +2% in 2100.	No explicit modelling of physical risk impact on inflation (supply-side shocks). Impact on inflation follows historical relationship between GDP and CPI.	Severe gradual physical impact (supply shocks) on inflation included through damages to agriculture and change in food prices. Total impact on a Global CPI Index is +15% in 2100.

Source: Mercer and Ortec. Climate scenarios as at December 2022.

The return impacts of the climate scenarios represented in this appendix are relative to the 'baseline'. The baseline represents what we are assuming the market is currently pricing in. The baseline includes a 10% weight to a **Failed Transition**, 40% weight to an **Orderly Transition**, 10% to a **Rapid Transition** and 40% to a range of **low impact scenarios**.

Limitations associated with climate modelling

Climate scenario modelling is a complex process. The Trustee is aware of the modelling limitations. In particular:

1. The further into the future you go, the less reliable any quantitative modelling will be.
2. There is a reasonable likelihood that physical impacts are grossly underestimated. Feedback loops or 'tipping points', like permafrost melting, are challenging to model particularly around the timing of such an event and the speed at which it could accelerate.
3. Financial stability and insurance 'breakdown' is not modelled. A systemic failure may be caused by either an 'uninsurable' 4°C physical environment, or due to the scale of mitigation and adaption required to avoid material warming of the planet.
4. Most adaptation costs and social factors are not priced into the models. These include population health and climate-related migration.
5. New and emerging risks, such as the impact of climate change on biodiversity, and vice versa, is expected to be integrated into scenario modelling over time once the supporting science and impact on econometrics and finance is better understood.

DISCLOSURES

The Trustee has been supported by GSAM and Mercer in the production and design of this report.

DB SECTION

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DC SECTION

Important notes in relation to L&G metrics: Data providers include ISS, HSBC, IMF, Refinitiv.

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