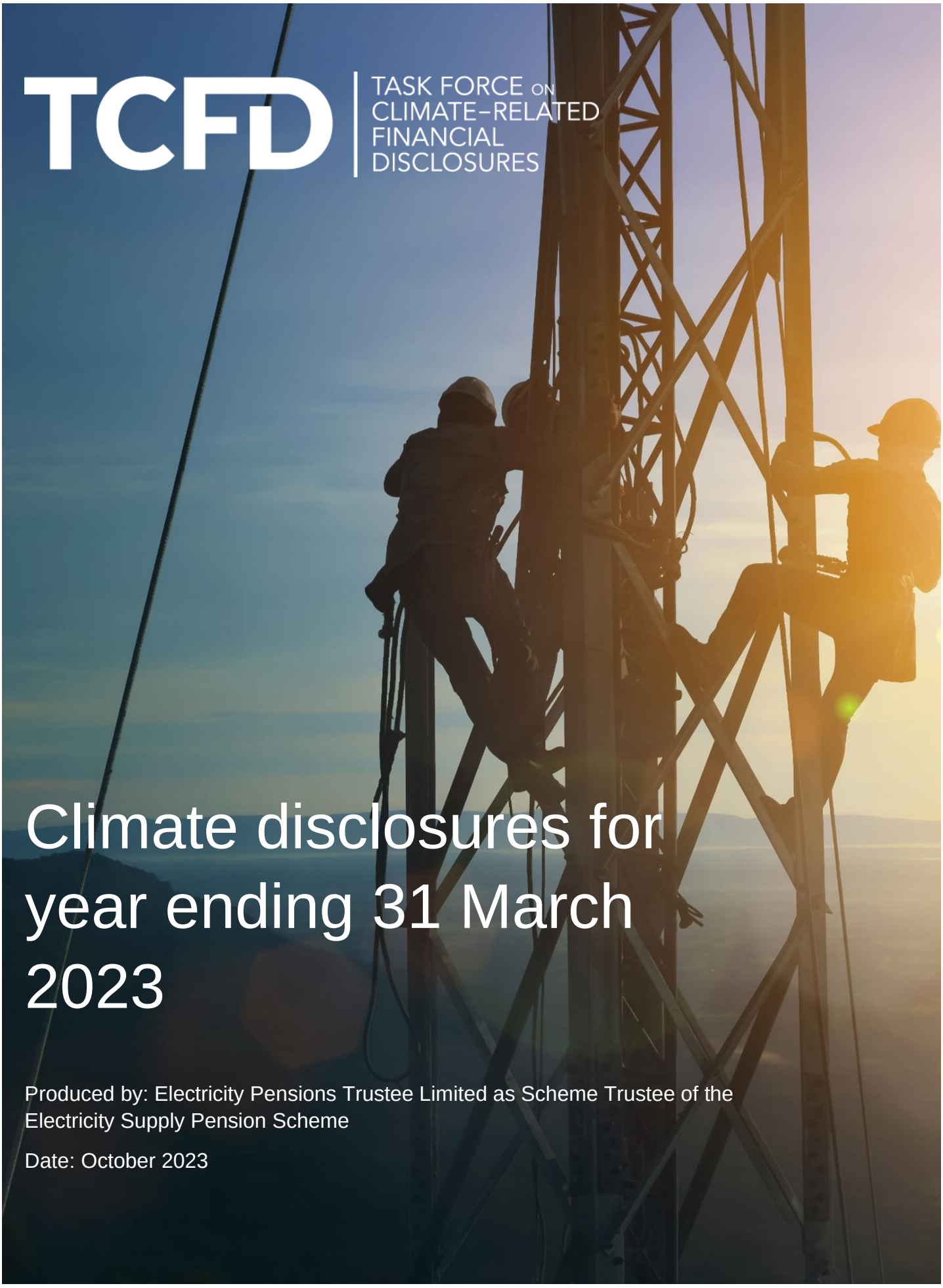

Climate disclosures for year ending 31 March 2023

Produced by: Electricity Pensions Trustee Limited as Scheme Trustee of the Electricity Supply Pension Scheme

Date: October 2023

Introduction

This document is the annual TCFD report for the Scheme for the year ended March 2023. It has been prepared by Electricity Pensions Trustee Limited as Scheme Trustee of the Electricity Supply Pension Scheme (the “Scheme Trustee”) and is the Scheme’s second published report to date.

From 1 October 2021, the Occupational Pension Schemes (Climate Change Governance and Reporting) Regulations (the "climate change governance reporting regulations”) introduced new reporting requirements in line with the TCFD’s recommendations.

The Pensions Regulator's interpretation of the climate change governance reporting regulations is that the Scheme Trustee is required to comply with the climate change governance reporting regulations from 1 October 2021 on a Scheme-wide basis.

The Scheme Trustee has prepared this report based on the Pensions Regulator's interpretation but leaves open the possibility of an alternative interpretation applying in future years such that the climate change governance reporting regulations would apply separately to each Group of the Scheme dependent on each Group’s asset values.

UK regulations require the Scheme Trustee to meet climate governance requirements and publish an annual report on Scheme-wide climate-related risks. The regulations require the Scheme Trustee to report in a line with the TCFD’s recommendations. The Scheme Trustee must produce and publish a TCFD report within seven months of the Scheme year in which they are subject to the regulations.

Thereafter, unless there is an alternative interpretation to the current view of the Pensions Regulator, the Scheme Trustee will produce a report annually, which will be published online, within seven months of the Scheme year end, and with a link to the report included within the Scheme’s annual report and accounts.

The Scheme’s first report covered the period 1 October 2021 to 31 March 2022. The Scheme Trustee has since reflected on the Pension Regulator’s review of climate-related disclosures by occupational pension schemes published on 23 March 2023,which has been incorporated into this report – being the Scheme’s second published report to date covering the period 1 April 2022 to 31 March 2023 – where the Scheme Trustee has deemed that it is appropriate to do so.

The TCFD developed recommendations on climate-related financial disclosures in relation to four key areas. These are governance, strategy, risk management and metrics & targets and form the core elements to be included within the TCFD report.

What is the TCFD?

The Financial Stability Board created the Taskforce on Climate-related Financial Disclosure (“TCFD”) to develop recommendations on the types of information that entities should disclose to support investors, to assess and price risks related to climate change.

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

Governance and Risk Management Annex

The Scheme Trustee has also prepared a Governance and Risk Management Annex which should be read in conjunction with this annual TCFD report.

The Governance and Risk Management Annex is available here: The Electricity Supply Pensions Scheme (espspensions.co.uk) and provides supplementary information to the Governance and Risk Management sections of this report.

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Executive summary

The Scheme has produced an annual report on the actual and potential impact of climate risks and opportunities on the Scheme. The central Scheme Trustee is presenting this report but believes it would be best presented at an individual Group level by the relevant Group Trustees. This report has been prepared to comply with those requirements over the period from 1 April 2022 to 31 March 2023.

The Scheme has a two-tiered structure which involves the central Scheme Trustee and a series of Group Trustees who have trusteeship responsibility for each of the 23 separate Groups ("Groups") of the Scheme. The Scheme Trustee has exclusive responsibility in respect of the ownership, custody, and administrative control of the Scheme's assets.

Responsibility for investment policy and funding principles, including the preparation of statements of investment principles, selection of investment managers and decisions regarding voting rights and other rights attaching to investments sit with the Group Trustees for each Group and the Scheme Trustee has no powers that it can exercise. The Group Trustees are not delegates of the Scheme Trustee in this regard and do not have an authority that can normally be removed by the Scheme Trustee. Group Trustees of one Group only have authority in respect of that Group and do not have authority on a Scheme-wide basis.

The only exception to this is the Forestry Sector discussed below for which the management of the investment is led by the Scheme Trustee.

The governing document of the Scheme also contains detailed provisions which prevent the assets and liabilities of one Group being attributed to another Group.

The detailed TCFD reporting has been produced to reflect this structure and to provide the most useful insight to the members.

Climate Mission Statement

The Scheme Trustee believes that the risks associated with climate change can have a significant, negative impact on the investment returns of occupational pension schemes. The Scheme Trustee therefore considers and asks Group Trustees to consider climate change risk when making investment decisions, and seek to capture climate-related investment opportunities, in accordance with their respective powers (see 'Role of the Scheme Trustee' and 'Role of the Group Trustees' in the Governance section below). More detail about the Groups' approach to Governance is included in the Governance and Risk Management Annex.

Strategy

The Groups invest across a diverse range of asset classes including (but not limited to) equities, credit, alternatives (including illiquid assets) and Liability Driven Investment ("LDI"). The Scheme also invests in Forestry. While the Scheme Trustee and Group Trustees recognise that these asset classes each have different risk and return profiles, they acknowledge that climate risk can be categorised into two different types of risk: transition risks and physical risks.

The Scheme Trustee and the Group Trustees recognise that the Groups are exposed to these transition and physical risks, which are likely to impact the performance of the Scheme's investments over the time horizons that are of most concern to the Scheme Trustee. The nature and magnitude of the risks (and potential opportunities) that each Group is exposed to is likely to vary accordingly, in line with each Group's individual investment strategy and the asset classes that each Group invests in.

Overall, in respect of the Groups that provided information to support this report, the Scheme's investments exhibit good resilience under all the climate scenarios. Typically, this is due to one or a combination of the following reasons: diversification of the assets, low risk in the investment strategy and/or high levels of hedging against changes in interest rates and inflation expectations.

Risk Management

In identifying, assessing, and managing climate-related risks that are relevant for the Scheme, the Scheme Trustee expects the Group Trustees to undertake qualitative and quantitative analysis, in order to give the Scheme an overview of the climate-related risks that the Scheme is exposed to.

In addition, the Scheme Trustee undertakes ongoing governance activities to identify and assess any climate-related risks and opportunities which are relevant to the Scheme. The Scheme Trustee also expects the Group Trustees to undertake their own ongoing governance activities as relevant to their Groups, and in the context of the wider responsibilities of the Scheme Trustee and Group Trustees as described above. Where Groups have provided information about climate risk management, they have provided insight into how risks are identified, assessed, monitored, and integrated into broader risk management processes established by Groups. More information about the Groups' approach to Risk Management is included in the Governance and Risk Management Annex.

Metrics and Targets

Measuring Greenhouse Gas (GHG) emissions enables pension schemes to assess their exposure to climate change. GHGs are produced by burning fossil fuels, meat and dairy farming, and some industrial processes. When GHGs are released into the atmosphere, they trap heat in the atmosphere causing global warming and contributing to climate change.

All Groups that provided metrics and targets data disclosed at least one absolute emissions-based metric and one intensity-based metric. In this respect, the relevant Groups have broadly chosen to report on a combination of the following measures: Total Greenhouse Gas emissions, Carbon footprint and Weighted Average Carbon Intensity ("WACI").

With regards to disclosing a portfolio alignment metric ("PAM") and an additional metric, most groups chose to disclose binary target measurements and data coverage respectively. Some groups elected other metrics, such as the implied temperature rise for the PAM and climate Value at Risk (Climate VaR) for the additional metric. Regarding targets, 12 of the 15 Groups reported a target related to emissions reductions/ net zero and data quality. In summary, there are some differences in the metrics (and the underlying methodologies) that each of the relevant Groups have used. This means that it has not been possible to produce a fully consolidated disclosure, but this does not undermine the value of the full report.

Scope of this report

The rest of this report provides further detail, reflecting information that has been provided by the Groups in order to support the Scheme with meeting its regulatory requirements. Whilst not all Groups were able to provide all of the requested information at the time of writing, Groups comprising 94% of the Scheme's total assets as of 31 March 2023 (compared to 81% as of 31 March 2022 included in last year's report) provided detailed information which is summarised in this report. In Appendix E of this report, links to published 2023 TCFD reports for some of the

Groups are also available. This represents a substantial increase in the number of Groups providing climate-related information that has been incorporated into this Scheme report. Details of the relevant Groups are shown below:

Analysis of Scheme Net Assets by Group as of 31 March 2023:

Note that not all Groups listed below provided Group-specific TCFD-related information for the purposes of the Scheme's report.

Groups included in report	**£ million**
Carillion*	12
Central Networks	2,998
EA Technology	85
E. ON	3,299
EDF DB / DC	6,477
Electricity North West*	1,132
EPSL*	9
First Hydro*	143
International Power*	287
Magnox Electric	2,651
Manweb	768
National Grid Electricity	2,589
Northern Powergrid	1,152
Npower*	280
OVO Energy*	89
Powerhouse Retail*	177
RWE	4,296
Schneider	18
SSE Southern	1,808
UK Power Networks	3,159
Uniper	363
United Utilities PLC	382
Western Power Distribution	1,943
Total net assets	**34,117**

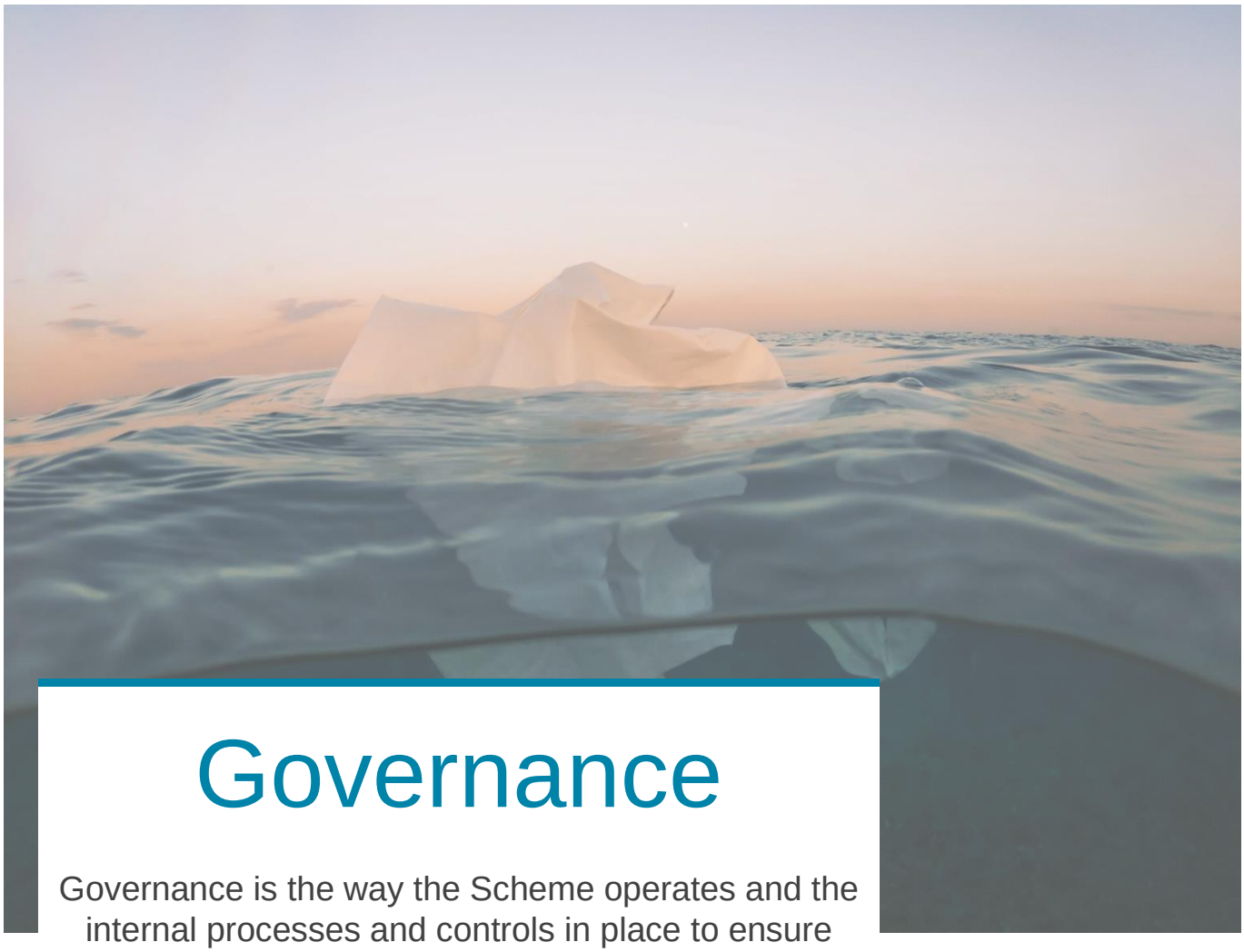
Source: Scheme Trustee Report and Accounts for the year-ending 31 March 2023.

*This Group does not feature in the strategy and metrics & targets pillars sections of this report, in line with the scope of the report as outlined above.

Signed by:

Chair

On behalf of the Electricity Pensions Trustee Limited as Scheme Trustee of the Electricity Supply Pension Scheme.



Governance

Governance is the way the Scheme operates and the internal processes and controls in place to ensure appropriate oversight. Those undertaking governance activities are responsible for managing climate-related risks and opportunities.

Climate risk and the Scheme

Climate Mission Statement

The Scheme Trustee believes that the risks associated with climate change can have a significant, negative impact on investment returns within the timeframes that the Scheme Trustee and the Group Trustees are concerned about. Considering their respective roles, the Scheme Trustee seeks and expects Group Trustees to seek to integrate assessments of climate change risk into their investment decisions.

Furthermore, the Scheme Trustee believes that climate-related factors may create investment opportunities. Where possible, and appropriately aligned with Group Trustees' strategic objectives and fiduciary duty, the Scheme Trustee will seek and expects Group Trustees to seek to capture such opportunities through their investments where it is appropriate to do so.

The Scheme Trustee acknowledges that there are both long- and short-term risks associated with climate change, and so considers the following time horizons:

- short term: 1 to 3 years
- medium term: 4 to 10 years
- long term: 11 to 20 years

Climate-related risks and opportunities are assessed over the above time horizons, and where appropriate, the Scheme Trustee and Group Trustees seek to consider transition and physical risks separately. The Scheme Trustee recognises that Group Trustees may consider much shorter or longer time-horizons dependent on the particular circumstances of their Group.

Group time periods

Most Groups explicitly stated their definitions of the short-, medium- and long-term time periods. For most Groups, short term was defined as 0 to 5 years, with two exceptions. The medium term was defined as 5 to 10 years for the majority with two exceptions. Lastly, the long term was more varied, however the majority of Groups selected periods between 10 and 20 years, with two exceptions.

Group	Short Term	Medium Term	Long Term
Central Networks	5	10	20
E.ON	5	10	17
EDF DB	3	4	10
EDF DC	10	25	40+
Magnox Electric	1-3	4-10	10+
Manweb	5	9	27
National Grid Electricity	1-3	4-10	11-20
Northern Powergrid	1-3	4-10	11-20
RWE	1	7	19
Schneider	>5	6-10	11+
SSE Southern	2	7	17
UK Power Networks	1	3-5	10
United Utilities Plc	3	7	12

Source: Groups. Some groups expressed their time periods in 'time to year x' – these Groups have been converted to a year count based upon the formula (year – 2023). Note that not all Groups explicitly stated the relevant time periods as applicable to their Group.

The roles of the Scheme Trustee and the Group Trustees are described in more detail below, as well as those of the Scheme Trustee's external advisers and fund managers.

Role of the Scheme Trustee

The Scheme Trustee maintains oversight of climate-related risks and opportunities which are relevant to the Scheme as set out in this Governance section of the report. In line with the two-tiered structure of the Scheme described above, investment strategy and implementation are the responsibility of the Group Trustees of the relevant Group. There is one limited exception of the Scheme's investments in the Forestry Sector (comprising c. 0.9% of the Scheme's total assets), where Group Trustees choose to invest in the Sector and how much to invest, and management of the investment is then led by the Scheme Trustee. The Scheme Trustee expects the Scheme's external Forestry Manager (Bidwells) to take climate change risk and stewardship into account when assessing the financial potential and suitability of investments.

The following statements therefore relate to the capacity of the Scheme Trustee in this regard. The role of the Group Trustees is described below.

- The Scheme Trustee is ultimately collectively responsible for oversight of all Governance matters related to the Forestry Sector. This includes approval of the governance and management framework relating to environmental, social and governance ("ESG") considerations and climate-related risks and opportunities. Given its importance, the Scheme Trustee has not identified one individual to specifically be responsible for the Scheme Trustee's response to climate risks and opportunities. Rather, the Scheme Trustee board has collective responsibility for setting the Scheme's climate change risk framework.
- The Scheme Trustee has discussed and agreed its climate-related beliefs and overarching approach to managing climate change risk. Details are set out in the Scheme's Statement of Investment Principles (the "Scheme SIP") available at The Electricity Supply Pension Scheme website (espspensions.co.uk).
- The directors of the Scheme Trustee receive training on climate-related issues to ensure that they have the appropriate degree of knowledge and understanding of the identification, assessment, and management of risks from the effects of climate change and the opportunities from climate change to support good decision-making. The Scheme Trustee expects its advisers to bring important and relevant climate-related issues and developments to the Scheme Trustee's attention in a timely manner.
- The Scheme Trustee has direct responsibility for the Scheme's climate change risk management in respect of the Forestry Sector and has coordinated the input of the Group Trustees for other assets other than Forestry for the purpose of this report.
- The Scheme Trustee monitors and reviews progress against the Scheme's climate change risk management approach annually.

Role of the Group Trustees

The Group Trustees are responsible for the implementation and day-to-day oversight of the Scheme's climate change risk management framework with respect to their specific Group.

The Group Trustees ensure they receive training on climate-related issues to ensure that they have the appropriate degree of knowledge and understanding of the identification, assessment, and management of risks from the effects of climate change and the opportunities from climate change to support good decision-making.

The Group Trustees seek to ensure that any investment decisions appropriately consider climate-related risks and opportunities within the context of the Group's wider risk and return requirements and are consistent with the climate change policy as set out in their underlying Statement of Investment Principles (each a "Group's SIP").

The Group Trustees monitor and review progress against their Group's climate change risk management approach each year. The Scheme Trustee and Group Trustees acknowledge that the impact of the climate-related risks and opportunities is expected to be assessed at Group level in the context of the Group's investment strategy as it cannot be disconnected from the employer covenant, and this is different for each Group. Where the Group has a funding strategy, the impact of those risks and opportunities is expected to be assessed in the funding strategy at a Group level.

Implementation is detailed later in this report, but key activities of the Group Trustees include:

- Setting the Group's responsible investment strategy and wider ESG integration.
- Seeking investment opportunities which reflect the ESG and climate change approach of the Group.
- Ensuring investment proposals explicitly consider the impact of climate risks and opportunities.
- Engaging with their Group's fund managers to understand how climate risks are managed in their investment approach.
- Working with their Group's fund managers to calculate and disclose relevant climate-related metrics as set out in the TCFD's recommendations (for the Groups that provide Group-specific TCFD-related information to support this Scheme-level report).
- Ensuring that stewardship activities are being undertaken appropriately on the Group's behalf.

For example, the Group Trustee (the “EDF Group Trustee”) of the EDF Group of the Scheme (the “EDF Group”), is ultimately responsible for identifying, assessing, and monitoring climate-related risks and opportunities that are relevant to the EDF Group. However, there is a sub-committee of the EDF Group Trustee (the “Investment Committee”) that has been delegated the day-to-day responsibility for ensuring that the established policy for monitoring climate-related risks and opportunities is integrated in the EDF Group Trustee’s investment strategy, risk management and decision-making.

More detailed information about the Groups’ approach to Governance can be found in the Governance and Risk Management Annex.

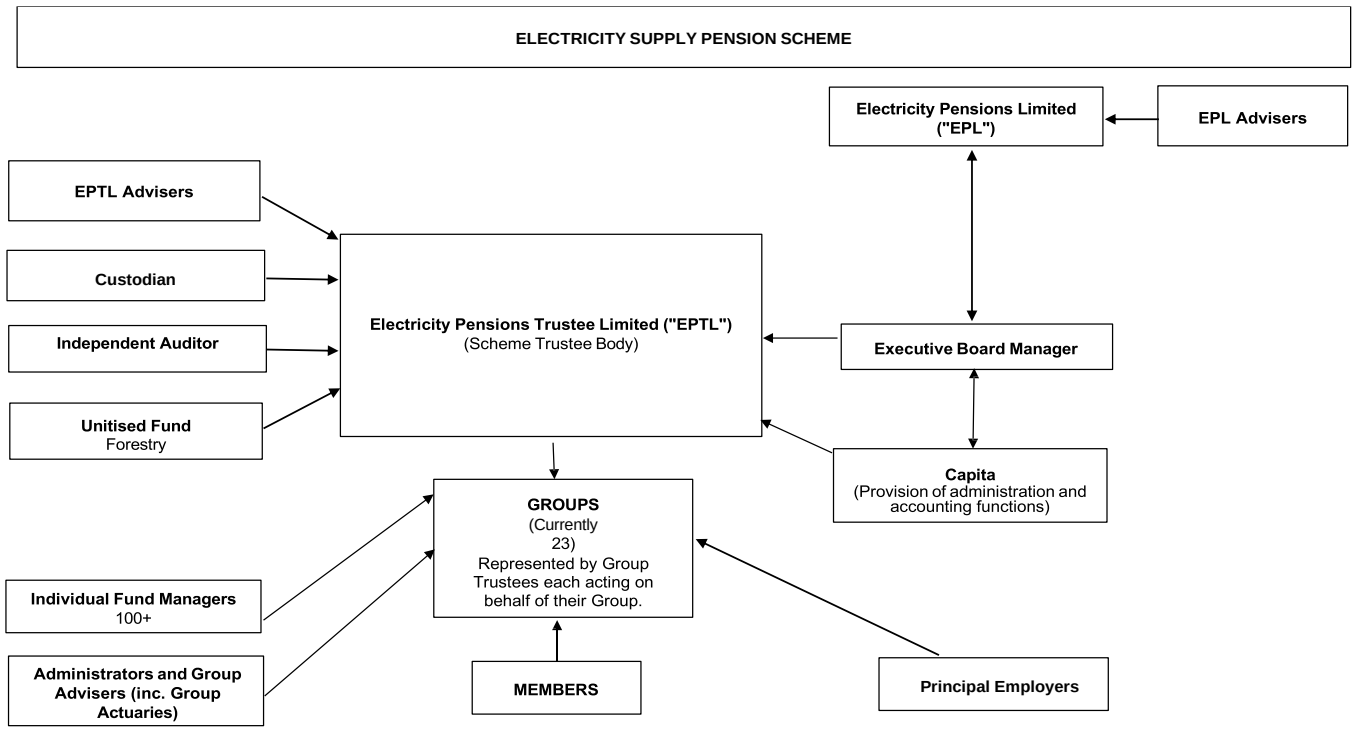
How the Scheme Trustee works with its advisors

The Scheme Trustee and Group Trustees are supported by their advisors and other persons as appropriate in undertaking certain Scheme and Group governance activities respectively. This part of the report describes the role of such persons (other than legal advisers) who advise or assist with respect to Scheme and Group governance activities.

The organisational structure of the Scheme Trustee, the Groups and their relevant supporting external and internal parties is illustrated by the chart below:

Regular training

The Scheme Trustee receives regular training on climate-related issues to ensure that the directors have the appropriate knowledge and understanding to support good decision-making.



The process by which the Scheme Trustee and Group Trustees satisfy themselves that third parties are taking adequate steps to identify and assess any climate-related risks and opportunities which are relevant to the matters in respect of which they are advising or assisting relevant to this report is set out below.

Investment consultant – the Scheme Trustee and each Group Trustee appoints their own investment consultants. These investment consultants will provide strategic and practical support to the Scheme Trustee and the Group Trustees respectively in respect of the management of climate-related risks and opportunities and ensure compliance with the recommendations set out by the TCFD. This includes provision of regular training and updates on climate-related issues (and where undertaken by that Group, climate change scenario modelling) to enable the trustees to assess climate-related risks. In practice some Groups (namely, Schneider, UK Power Networks and Uniper) use a fiduciary manager instead of an investment consultant, who supports Groups with these responsibilities, which may mean that a different approach is taken compared to other Groups.

Covenant adviser: The covenant adviser for each Group will help the Group Trustees understand the potential impacts of climate change risk on the sponsor covenant of each Group.

Actuary: The Group Actuary for each Group will help the Group Trustees assess the potential impact of climate change risk on the Group's funding assumptions.

Fund managers: The Scheme's fund managers (chosen by a particular Group Trustee and appointed by that Group Trustee and the Scheme Trustee) will help the Group Trustees understand how those managers consider climate change risk and opportunities in their investment approach and work with the Group Trustees to disclose relevant climate-related metrics as set out in the climate change governance reporting regulations.

Capita Pension Solutions carries out administrative functions on behalf of the Scheme Trustee including the coordination of scheme wide governance activities and will coordinate scheme wide climate change activities as directed by the Scheme Trustee.

In addition, the Forestry Manager is responsible for taking ESG considerations as well as climate change risk and stewardship into account when assessing the financial potential and suitability of investments.

How the Group Trustees operate

At the Group level, some Group Trustees have either retained oversight of climate risk and opportunities as a collective responsibility of the Full Committee of Group Trustees (e.g., Magnox Electric, Npower and Powerhouse Retail) whilst also delegating day-to-day monitoring of climate risk and opportunities to the Investment Committee or an equivalent

committee. This is the case for Central Networks, EDF, E.ON, Magnox Electric, Manweb, National Grid, Northern Powergrid and United Utilities PLC.

The Group Trustee of RWE has a risk committee which maintains the Group's risk register including climate-related risks and opportunities with established controls and monitoring points throughout the year. The Group has delegated responsibility for the implementation of its Responsible Investment policy to its Responsible Investment Committee, which focuses exclusively on evolving the Group's strategic and monitoring approach to responsible investment. The Group also has a member communications sub-committee, which considers how the Group Trustee's work on Responsible Investment is appropriately communicated to members and external third parties.

Where the Group Trustees have appointed a Fiduciary Manager as is the case for Schneider, UK Power Networks and Uniper, the Group Trustees have delegated oversight of climate risks and opportunities to these managers. Other groups such as OVO Energy and Electricity North West work with their fund manager and investment adviser respectively to identify, assess and manage climate-related risks and opportunities.

Strategy

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

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

The Scheme Trustee believes that climate change is a financially material consideration over the short-, medium- and long-term time horizons identified earlier in this report. The Scheme Trustee and the Group Trustees recognise that over these timescales, climate change can impact the financial performance of companies and, therefore, also the risk-return profile of the securities they issue. Assessing the exposure to climate-related risks and opportunities is key to understanding the impact climate change could have on the Scheme and the Groups.

As described earlier in the Governance section of this report, investment strategy and implementation are the responsibility of the Group Trustees for each relevant Group. The Group Trustees are therefore responsible for identifying the climate-related risks and opportunities that could have a material impact on their respective Group. The Scheme Trustee expects that as part of their fiduciary duty, Group Trustees will manage the risks and opportunities around climate change and climate adaptation within their individual Group's funding and investment strategy.

The Scheme Trustee and the Group Trustees recognise that the Groups are exposed to these transition and physical risks, which are likely to impact the performance of the Scheme's investments over the time horizons that are of most concern to the Scheme Trustee (as described earlier in the Governance section of this report). The Scheme Trustee also acknowledges that each Group employs its own investment strategy. The asset classes that each Group invests in over time may differ depending on its own objectives and circumstances. The nature and magnitude of the risks (and potential opportunities) that each Group is exposed to therefore varies accordingly, in line with each Group's individual investment strategy.

Some Groups have carried out a qualitative risk assessment on each asset class that its Group is invested in. From their assessments, those Group Trustees have identified which climate-related risks and opportunities could have the most material impact on its Group. In some cases, a RAG system (red, amber, green rating system) was used to assess the climate-related risks and opportunities over multiple time horizons. The rest of this section provides further detail.

Transition risks

Transition risks relate to the need to transition to a low-carbon economy, including development of, and investment in, new technologies and services that support this transition as well as government policy to aid in the transition. Specific market-based activities comprise the mitigation of carbon emissions, and/or adaptation to be resilient against climate change:

- **Mitigation**: technologies and services that increase energy efficiency, relate to increased renewable energy uptake and decreased demand for fossil fuels, and/or capture or sequester of carbon dioxide.
- **Adaptation**: infrastructure resiliency efforts, business model shifts (e.g., changing geographic location of production and/or sales, introduction of new products and services and aligning business models with new environmental conditions).

Potential financial impacts from this transition include:

- **Revenue loss (demand contraction)**: reduced demand for fossil fuels, related services, and energy consuming products.
- **Revenue growth**: growth in renewable energy, emergence of new industries, including carbon capture and sequestration, smart grid technologies, energy-efficient products, infrastructure adaptations, and green chemistry solutions.
- **Stranded assets**: devaluation/impairment or “asset stranding” of fossil fuel reserves.
- **Long term cost reductions**: operational cost reduction from investments in updated infrastructure and technologies that facilitate the transition to a low-carbon, resilient economy.

Furthermore, a transition is likely to include some policy and legal risks, such as:

- **Regulation:** policy, legislation and regulation changes are likely to be applied to existing and new products and services. These will produce winners and losers both between and within sectors (e.g., technology, energy).
- **Carbon pricing risks:** mechanisms (e.g., carbon taxes) already implemented in over 25 countries.
- **Litigation risks:** driven by the failure of companies to mitigate impacts of climate change, failure to adapt to climate change, and the insufficiency of disclosure around material financial risks.

Physical Risks

Physical risks are associated with the physical impacts of climate change on companies’ operations. For example, risks associated with extreme temperatures, floods, storms, or wildfires. A changing climate can lead to changes in the frequency and severity of extreme or incremental hazards. The TCFD’s recommendations refer to these hazards as acute and chronic, respectively. Acute hazards represent severe and extreme events and are location specific (e.g., droughts, heatwaves, storms, wildfires, etc.). Chronic climate change hazards represent the background incremental changes in, for example: temperature, precipitation, and sea-level rise over several decades.

Acute and chronic related hazards:

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

Over time, the Scheme Trustee expects that the physical risks will increase because of climate-related risks. For chronic risks, such as increasing temperatures and sea-levels, medium- and long-term risks are expected to increase. The impact of certain acute hazards, such as wildfires, droughts and flooding, will require ongoing analysis to understand:

- The impact on communities and how associated exposures adapt to changing risk levels.
- Any associated mitigation measures and demand for insurance protection.

Climate-related opportunities

While the Scheme Trustee recognises that climate-related risks are financially material over the time horizons it is most concerned about, it also recognises that the transition to a low-carbon economy will inevitably create winners and losers.

Broadly, the Scheme Trustee and the Group Trustees expect opportunities to arise in the assets associated with (but not limited to) the following themes:

- Clean energy: green power generation, clean technology innovation, sustainable biofuels.
- Environmental resources: Water, agriculture, waste management.
- Energy and material efficiency: Advanced materials, building efficiency, power grid efficiency.
- Environmental services: Environmental protection, business services.

Our investments

The Groups invest across a diverse range of asset classes including (but not limited to) equities, credit, alternatives (including illiquid assets) and Liability Driven Investment ("LDI"). The Scheme also invests in Forestry. While the Scheme Trustee and Group Trustees recognise that these asset classes each have different risk and return profiles, they acknowledge that climate risk can be categorised into two different types of risk: transition risks and physical risks, which are described in detail in this section of the report.

Portfolio resilience and scenario analysis

In assessing the potential impact of climate-related risks and opportunities that are relevant to each Group, the Scheme Trustee expects Group Trustees to undertake both a qualitative and quantitative approach as part of the overall assessment. This is covered in more detail in the Risk Management section of this report.

In preparing this report, the Scheme Trustee has reviewed quantitative climate change scenario analysis undertaken by Groups and their Group advisers to better understand the impact climate change could have on their assets and liabilities.

The analysis looks at a range of climate change scenarios and Groups were supported in their analysis by their advisers (selected by the relevant Group). Each scenario considers what might happen when transitioning to a low-carbon economy under different conditions. Whilst there are slight differences in the scenarios (both in the terminology, methodology, and construction) that each Group has considered, broadly all the scenarios can be categorised into the following transition scenarios in line with statutory guidance from the Department of Work and Pensions ("DWP"):

- **A measured, orderly transition** takes place with climate policies being introduced early and becoming gradually more stringent. Ambitions under the Paris Agreement and commitments such as the UK's commitment to achieve net zero by 2050 are met in an orderly manner. This is likely to mean lower transition risks and less severe physical risks. (Such a scenario could be used for the required scenario of a temperature increase within the range of 1.5°C above pre-industrial levels, to and including 2°C above pre-industrial levels).

- **A sudden, disorderly transition** takes place with climate policies and wider action on climate change not happening until late (e.g., introduced around 2030). Although climate goals are met, transition risks are also more likely to materialise, given the need for sharper emissions reductions, alongside increased physical risks. (Such a scenario could be used for the required scenario of a temperature increase within the range of 1.5°C above pre-industrial levels, to and including 2°C above pre-industrial levels).

- **A "hot house world"** which assumes only currently implemented policies are preserved, current commitments are not met, and emissions continue to rise. This would mean climate goals are missed and physical risks are high with accompanying severe social and economic disruption.

Some Groups also established a "base case" scenario, against which they compared the transition scenarios they considered. This scenario often assumes emission reductions start now and continue in a measured way in line with the objectives of the Paris Agreement and the UK government's legally binding commitment to reduce emissions in the UK to net zero by 2050. However, some Group's base cases and their underlying assumptions may differ.

The Scheme Trustee recognises that there is a great deal of uncertainty around the assumptions used, and the expected outcomes, under each of the scenarios. The scenario analyses will be reviewed on an ongoing basis to assess any changes or refinements that need to be made. Although the scenarios provide a reasonable range of possible climate change outcomes, the Scheme Trustee recognises that these scenarios are illustrative and subject to change.

Headline observations

Equities are the most volatile asset class in all the scenarios. The worst-case scenario considered for the Scheme is expected to be the sudden, disorderly transition scenario.

Another key risk is volatility of the funding level. The Scheme Trustee recognises that under some scenarios the Groups may experience sudden falls in their funding levels, even if they eventually recover thereafter. A deterioration in funding levels may place a strain on the covenant of Groups' sponsoring employers if they must make up a bigger shortfall through deficit contributions. It may also require Groups to re-risk their portfolios or extend the time frame to achieve full funding. The Scheme Trustee therefore expects the Group Trustees to monitor their covenant on a regular basis, either with the support of their covenant advisers, and/or through regular dialogue with their sponsoring employers.

Where relevant, the Scheme Trustee expects Group Trustees to consider the following steps to help further protect their Groups from climate-related risks:

- Engagement with their Group's fiduciary managers, fund managers and, where appropriate, investee companies, on climate risk management.
- Appropriate diversification of asset classes.
- Transitioning assets towards lower-carbon investments and those with better ESG ratings, as well as green technologies.

Liabilities and funding impact

Life expectancy and mortality rates, and therefore, the level of liabilities to be paid out from Groups, are assumed to be impacted in several ways, both directly and indirectly. These include the potential for warmer winters, impacts on lifestyles and air quality, and the physical impact of increased natural disasters.

The most extreme outcome for the climate is expected to have a negative impact on future life expectancy, while the impact from more positive climate scenarios is less directionally clear and could be positive or negative depending on the scenario that unfolds. For example, restricting extreme temperature variation is likely to increase life expectancy when considered alone but associated significant spending on the transition to a low carbon economy (at the expense of other spending such as social care) could have a negative impact on life expectancy. The Scheme Trustee, therefore, expects Groups to monitor and consider the potential impact of these changes on the relevant employer and wider covenant.

Impact assessment

In order to better understand the potential impact of climate risk on the Scheme and Groups' assets and liabilities the next few pages summarise some of the qualitative and quantitative analysis undertaken by a number of the Groups. Together these Groups represent over 80% of total Scheme assets.

Group Responses

Central Networks

Net assets[1] as at 31 March 2023: £2,998m.

Time periods

Our chosen time periods are consistent with guidance from the Pensions Regulator ("tPR") and the position of our Group, we consider:

- Short-term to be 5 years.
- Medium-term to be 10 years.
- Long-term to be 20 years.

We use these time periods alongside the metrics, scenarios, and target-setting to inform our engagement with Cardano and with our asset managers.

Climate scenarios

We use scenario analysis due to the complexities involved in forecasting the degree of warming that will result from climate change, including the policy uncertainty, multiple environmental tipping points, and as potential technology advances.

We have chosen to disclose three scenarios, because we believe this provides us with metrics that can inform our investment decisions. They are scenarios that highlight the impact of physical risks and transition risks and so enable us to draw conclusions about the different components of climate change-related risks and opportunities.

Each scenario consists of a degree of warming and a measure of financial risk. In other words, what do we expect the financial risk to be, and across which asset classes / investments, based on a certain degree of warming.

Our three scenarios are 1.5°C Paris-aligned transition, 2°C "late transition" and 3°C "slow transition" or "hot house".

- **Paris-aligned transition:** this is our goal: AIM/CGE7 1.5°C assumes measures are taken that will keep the rise in temperature limited to 1.5°C.
- **Late transition:** following a review in conjunction with Cardano, this is a forecast of what we think is most likely to happen: Late AIM/CGE 2°C assumes measures are introduced to tackle climate change but are introduced too late to meet the Paris Agreement.
- **Slow transition:** this is our hot-house scenario. AIM/CGE 3°C assumes current policies being continued. According to the UN, we are currently on track for 3°C warming.

As informed by Cardano, we acknowledge challenges with scenarios, including:

- That physical risks can only be modelled to around 15 years.
- That there are challenges in modelling environmental tipping points, including issues such as disruption to food supply chains.
- That there are limitations in using observed data to understand future impacts of climate change given the effects of warming are exponential.

Scenarios are not intended to be forecasts, rather they are a starting point / risk management tool and can be both quantitative and qualitative. This is how we have interpreted the results. Due to the known limitations in the modelling, we believe that the expected loss to our portfolio due to the physical risks associated with climate change of 2 and 3 degrees of warming to be significantly higher than the results suggest.

[1] Source: Scheme Trustee Report and Accounts for the year-ending 31 March 2023.

Impact of scenarios

Our scenario analysis is used to produce a Climate Value at Risk (CVaR), which is the measure we use to assess the financial risk exposures of a portfolio. It estimates the financial value at risk to the corporate equity and credit exposures of warming scenarios at 1.5°C, 2°C and 3°C. The expected loss is calculated by considering the potential loss associated with the transition risks and the loss associated with the physical risks.

Within the analysis we include the Group's exposure to Equity and Credit (where possible). A number of the Group's holdings at this stage have not been included due the lack of an industry-established methodology to make the assessments.

We display the results as a percentage loss to our investments. The higher the loss, the less resilient our investment strategy is to Climate Change Risk and Opportunities (CCRO).

A series of assumptions are necessary when undertaking scenario analysis (documented below) and, as such, we consider the scenarios as a starting point for investment decision-making, alongside metrics and targets.

Value at Risk in Scenario	1.5 degree CVaR	2 degree CVaR	3 degree CVaR
Transition Risk	-1.9%	-0.8%	-0.1%
Physical Risk	-1.5%	-1.5%	-2.4%
Aggregated CVar	-3.4%	-2.3%	-2.6%

Source: Cardano, MSCI. Equity & Credit Fund data represents emissions as at 31/12/2022 with allocations as at 31/03/2023.

Interpreting the results

As temperatures increase, the costs associated with transition risks decrease as companies are assumed to have more time to decarbonise their economic activities (and as such, there are less up-front costs involved). Physical risks however increase, which is due to the expectation that weather events become more frequent and more severe.

For physical risks, the modelling only considers the period to around 2040. This is because it is too complex to model the physical risks associated with climate change beyond about 15 years. As such, in our view, the physical risks presented here are unlikely to capture the full financial effects of a warming climate.

We will use this scenario analysis to help inform our investment decision-making, to ensure our portfolio is robust when it comes to climate change-related risks and opportunities. In other words, the numbers here are a starting point for our investment decision-making and should be considered alongside metrics and target setting.

We want to point out that as part of our scenario analysis:

- We are comfortable looking at the aggregate exposure across direct holdings.
- Corporate Exposure refers to the net corporate exposure and includes direct exposure to public equities and corporate bonds.
- CVaR allows for the relative risks of debt and equity. For example, equity may be more vulnerable to a shock or loss than credit. It is not additive across different stand-alone components; therefore, we do not separate CVaR between asset classes.

Scenario analysis informing our decision making

Engagement with companies and governments: We believe it is more important to engage with companies and governments and to supply enabling capital to achieve long-term transformation and decarbonisation than it is to hit short term carbon footprint target metrics. For example, emerging markets,

which have higher carbon footprints, in part because they produce carbon intensive goods consumed by developed markets, require capital in order to transform their economies.

- **Asset manager engagement:** the Trustee Directors expect:
  - UK-regulated asset managers to be signatories of the Stewardship Code.
  - Non-UK regulated managers to exercise their voting rights in a manner consistent with a focus on medium- and longer- term investment performance.

- As part of their responsibilities, where applicable, the Trustee Directors expect the Group's asset managers to:
  - Engage with investee companies with the aim to protect and enhance the value of assets.
  - Exercise the Trustee's voting rights in relation to the Group's assets.
  - Incorporate the Trustee Director's views on climate change risk and opportunities.

Climate opportunities

We have been investing in Forestry since the Group's inception in 2011 and have gradually increased our allocation over the past 5 years. In addition to growing and maintaining woodland we also use the land for the development of windfarms. Combined, these help to support a more sustainable world. For example, our manager Bidwells latest estimate stated that the Group's Forestry holding has 53,000T of CO_2 net carbon benefit per year. In addition to this, via windfarms, the Group is currently supporting the generation of renewable energy equivalent to 78,000 homes and this is expected to increase over time as new windfarms are developed.

Scenario assumptions and limitations

In completing the analysis, we have relied on Cardano and the methodology that MSCI has developed to calculate Climate Value at Risk. Without covering all of the methodology used, broadly speaking, this operates by breaking risk into three parts:

- **Transition risk:** This is broadly calculated by considering a company's exposure to carbon emissions and an assumed carbon price. To the degree that that carbon price is not currently embedded in the company's cost base, this increases the cost to the company causing a loss of profitability. The carbon price assumptions are linked to the climate change scenario that is selected. In a 1.5°C scenario, carbon prices are assumed to increase more rapidly than in the 3°C scenario, creating more transition risk for businesses. Within transition risks, we consider environmental solutions. This is usually a partial offset, as it looks at green revenues and patents and assumes that, to the extent that companies are generating green revenues or hold green patents, both factors will be growing portions of a company's revenues in the future, offsetting some of the negative impacts of transition and physical risk. These factors will be more valuable in faster transition scenarios.

- **Physical risk:** This risk looks at the potential losses that can occur due to more extreme physical risks, particularly over the next 15-year time horizon and is based on Cardano's modelling of the company's risk exposures. This does not allow for the economic impact that higher temperatures might have, for example, slowing economic growth.

Any scenario analysis is heavily dependent on the underlying assumptions made. Following discussions with Cardano, we believe that the key assumptions underlying the modelling are reasonable and we will review them annually to ensure we remain comfortable. However, there are a number of fundamental uncertainties including:

- Uncertainties in future greenhouse gas (GHG) and aerosol emissions.
- Uncertainties in global climate sensitivity due to differences in the way physical processes and feedbacks are simulated in different models. These create further uncertainties in:
  - Expected warming for a given GHG stabilisation scenario.
  - Emission trajectory required to achieve a particular stabilisation level.

  - Estimates of the strength of different feedbacks in the climate system, particularly cloud feedback, oceanic heat uptake, and carbon cycle feedback.
  - Aerosol impacts on the magnitude of the temperature response, clouds and precipitation.
  - Future changes in the Greenland and Antarctic ice sheet mass, particularly due to changes in ice flow.
- Uncertainties surrounding regional projections of climate change, particularly precipitation that may give different results by different methodologies for the same mean global warming.
- Translating the climate change scenarios into impacts on the Group's portfolio also requires a range of assumptions and when doing this we note a number of other uncertainties:
  - Uncertainties around the government policies which will drive transition risks including legislation and regulation, monetary policy and fiscal policy.
  - Uncertainties around the economic impacts on future growth and inflation of both the climate change factors and the government policies.
  - Uncertainties around the market reactions to changes in policy, growth and inflation.

EA Technology

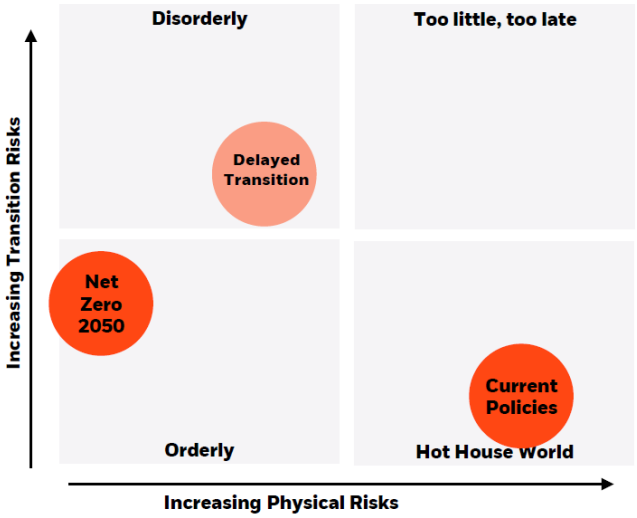
Net assets[2] as at 31 March 2023: £85m.

The following information should be read in conjunction with the Group's disclaimers included in Appendix D.

Climate scenarios

In Aladdin Climate reporting, the below climate-related scenarios are modelled as an instantaneous shock to an asset, or a sector benchmark through the Temperature Alignment models. All of these scenarios model Transition and Physical Risk and are defined by the Network for Greening the Financial System ("NGFS"). The Current Policies scenario is Aladdin Climate's base scenario, for Transition Risk to which the Net Zero 2050 and Delayed Transition scenario are compared, for Physical risk we use a base scenario where we assume no additional climate damages in future.

Net Zero 2050	Delayed Transition	Current Policies
Model type Transition and Physical Risk	**Model type** Transition and Physical Risk	**Model type** Transition and Physical Risk
Temperature rise* 1.5 degrees	**Temperature rise*** 1.8 degrees	**Temperature rise*** 3.3 degrees
Scenario source NGFS	**Scenario source** NGFS	**Scenario source** NGFS



Aladdin Climate's models are intended to highlight the potential impact of climate policies and outcomes on the economy and on financial markets. Given the uncertainty in how policy makers, economies and companies may respond and adapt to the projected scenarios and the long-term nature of the scenarios, we inherently need to make a number of simplifying assumptions in our modelling. This allows Aladdin Climate to provide investors with insight into where they may face climate risks and opportunities within their portfolios, but not a forecast or prediction of how asset values will actually evolve.

[2] Source: Scheme Trustee Report and Accounts for the year-ending 31 March 2023.
[*] Policy ambition temperature rise by 2081-2100 relative to 1850-1900 source: NGFS https://www.ngfs.net/ngfs-scenarios-portal/explore/ Source: NGFS, August 2022, BlackRock December 2022.

Impact of scenarios

Physical and transition risk: Impact on strategies

Asset Classes (as at 31 December 2022)	Value (in millions of £)	Allocation (%)	Physical Climate Adj. Value %		Transition Climate Adj. Value %	
			Net Zero 2050	Delayed Transition	Net Zero 2050	Delayed Transition
Growth Strategy	34.8	46.4%				
Equities	7.0	9.4%				
Aquila Life Asia Pacific (ex Japan) Equities	0.1	0.1%	-6.1%	-6.4%	-5.2%	-6.1%
JPM China Equities	0.3	0.4%	-	-	-	-
Schroders Emerging Market Equities	1.0	1.3%	-	-	-	-
BGF Continental Europe ex UK Equities	1.3	1.8%	-4.5%	-4.7%	-6.4%	-8.3%
American Century Global Small Cap Equities	0.1	0.1%	-	-	-	-
Wellington Global Small Cap Equities	0.3	0.4%	-	-	-	-
Aquila Life Japanese Equities (hedged)	0.0	0.0%	-7.4%	-7.8%	-2.7%	-5.5%
Aquila Life Japanese Equities	0.4	0.5%	-7.4%	-7.8%	-2.7%	-5.5%
Aquila Life UK Equities	0.4	0.5%	-4.4%	-4.6%	-9.1%	-8.9%
Aquila Life US ESG Equities	0.5	0.6%	-5.6%	-5.9%	-0.9%	-4.4%
Aquila Life US ESG Equities (hedged)	2.4	3.3%	-5.6%	-5.9%	-0.9%	-4.4%
iShares Core S&P 500 ETF	0.3	0.4%	-5.6%	-5.9%	-3.3%	-6.8%
Bonds	3.8	5.1%				
iShares China Index Fund	0.5	0.7%	-0.5%	-0.5%	-0.4%	-0.1%
Neuberger Berman EMD	0.4	0.5%	-	-	-	-
Payden & Rygel EMD (HC)	0.2	0.3%	-0.9%	-1.0%	-5.9%	-4.6%
PGIM Global Credit	1.1	1.5%	-0.5%	-0.5%	-2.1%	-2.0%
iShares $ TIPS ETF	1.0	1.4%	-0.2%	-0.2%	-0.3%	-0.1%
Aquila Life Overseas Bonds	0.0	0.0%	-0.3%	-0.3%	-0.3%	-0.1%
T Rowe Global High Yield	0.3	0.4%	-	-	-	-
Wellington Global High Yield	0.2	0.3%	-1.5%	-1.6%	-4.4%	-4.5%
Alternatives	24.0	31.9%				
Bentall GreenOak Real Estate Debt	6.5	8.7%	-	-	-	-
Permira PCS II	4.4	5.8%	-	-	-	-
Permira PCS IV	13.1	17.4%	-	-	-	-
Cash	0.02	0.0%				
Total Liability Hedging Strategy	40.28	53.6%				
BlackRock LDI	35.7	47.5%	-0.5%	-0.6%	5.7%	5.3%
BlackRock B&M Credit	4.6	6.1%	-0.1%	-0.1%	-0.8%	-0.8%
Total Fund	75.1	100.0%				

The potential impact of transition and physical risk on the LDI portfolio and pension scheme liabilities has been modelled separately in Aladdin through calibration of user specified stress tests intended to be consistent with the climate scenarios shown. The potential impact of transition and physical risk on corporate bond or credit portfolios has been calculated based on the estimated impact on the spread over the government bond rate only.

Estimates are based on assumptions and are subject to change. Due to differences in the scenario counterfactuals and valuation methodologies, Physical and Transition Risk should not be added to show a total climate risk. Individual securities not covered by Aladdin Climate are assumed to be impacted in line with the relevant portfolio average.

Source: BlackRock as at May 2023, based on holdings as at 31 December 2022. Analysis based on model calibrations as at 27 June 2023. Where the impact on a strategy is not shown or marked with a dash, this is due to insufficient data coverage on the underlying investments. Cash is assumed to be non-applicable and assumed to experience an impact of 0.0%.

Disclaimers: (i)The BlackRock data, models and methodologies are not fixed and are likely to change over time. (ii) BlackRock does not endorse any conclusions relating to the BlackRock data, models and methodologies as being definitive.; and (iii) The BlackRock data, models and methodologies rely on comparatively new analysis and there is limited peer review or comparable data available.

Physical and transition risk: Impact on total assets, liabilities and funding

	31 December 2022	Physical Climate Impact		Transition Climate Impact	
		Net Zero 2050	Delayed Transition	Net Zero 2050	Delayed Transition
Assets	75.1	74.6	74.6	76.9	76.6
Liabilities	88.6	88.3	88.3	91.6	90.3
Surplus (deficit)	-13.5	-13.7	-13.7	-14.7	-13.7
Funding ratio (%)	84.8%	84.5%	84.5%	83.9%	84.8%
Change in surplus (deficit)	-	-0.2	-0.3	-1.3	-0.2
Change in funding ratio (%)	-	-0.3%	-0.3%	-0.9%	0.0%

The potential impact of transition and physical risk on the LDI portfolio and pension scheme liabilities has been modelled separately in Aladdin through calibration of user specified stress tests intended to be consistent with the climate scenarios shown. The potential impact of transition and physical risk on corporate bond or credit portfolios has been calculated based on the estimated impact on the spread over the government bond rate only.

Estimates are based on assumptions and are subject to change. Due to differences in the scenario counterfactuals and valuation methodologies, Physical and Transition Risk should not be added to show a total climate risk. Individual securities not covered by Aladdin Climate are assumed to be impacted in line with the relevant portfolio average.

Source: BlackRock as at May 2023, based on holdings as at 31 December 2022. Analysis based on model calibrations as at 27 June 2023. Where the impact on a strategy is not shown, this is due to insufficient data coverage on the underlying investments. Cash is assumed to be non-applicable and assumed to experience an impact of 0.0%.

Disclaimers: (i)The BlackRock data, models and methodologies are not fixed and are likely to change over time. (ii) BlackRock does not endorse any conclusions relating to the BlackRock data, models and methodologies as being definitive.; and (iii) The BlackRock data, models and methodologies rely on comparatively new analysis and there is limited peer review or comparable data available.

Scenario assumptions and limitations

Physical and transition risk: Data coverage by portfolio

There are a number of portfolios for which we do not have adequate data (defined as less than 50% coverage) on the underlying holdings to provide quantitative scenario analysis. These have been excluded from the analysis. These include:

- American Century Global Small Cap Equity
- JPM China A-Share Opportunities Fund
- Schroders Emerging Market Equity
- Wellington Global Small Cap Equities
- Neuberger Berman EMD
- T Rowe Global High Yield
- Bentall GreenOak Real Estate Debt
- Permira PCS II
- Permira PCS IV

We have included tactical asset allocation positions but excluded cash in this analysis. Where BlackRock has conducted analysis on portfolios managed by other investment managers, we are reliant on the accuracy of the holdings data and/or any other information provided by those managers. The portfolios that have been included in the analysis based on sufficient coverage, are listed below.

	Coverage
Aquila Life Asia Pacific (ex Japan) Equities	>90%
BGF Continental Europe ex UK Equities	>90%
Aquila Life Japanese Equities (hedged)	>90%
Aquila Life Japanese Equities	>90%
Aquila Life UK Equities	>90%
Aquila Life US ESG Equities	>90%
Aquila Life US ESG Equities (hedged)	>90%
iShares Core S&P 500 ETF	>90%
iShares China Index Fund	>90%
Payden& RygelEMD (HC)	>75%
PGIM Global Credit	>90%
iShares $ TIPS ETF	>90%
Aquila Life Overseas Bonds	>90%
Wellington Global High Yield	>75%
BlackRock LDI	>90%
BlackRock B&M Credit	>90%

Source: BlackRock as at July 2023, based on holdings as at 31 December 2022. Note that coverage is estimated based on the incorporation of derivative mark-to-market exposure as at 31 December 2022.

UK Sovereign bonds

Orderly transition – transition risk

Rationale	Catalysts	Calibration
• A transition to Global Net Zero by 2050 is achieved via immediate and smooth policy responses • Carbon taxes are channelled back to the economy via government investment	• UK sees up to 2% p.a. GDP gains peaking in 2027 (50% of carbon tax assumed to be reinvested into the economy) • UK inflation around 1.9% higher peaking in 2026, largely driven by repricing of carbon prices • Price of carbon rises to over 800 $/ton by 2050.	The UK yield curve rises modestly as growth accelerates. Higher inflation however drives most of the impact on UK LDI assets and pension liabilities There is assumed to be no significant central bank response to higher inflation.

Orderly transition – physical risk

Rationale	Catalysts	Calibration
• Robust corrective action is taken to reduce emissions is taken but temperatures still rise by 1.5°C by c 2100 relative to pre-industrial levels	• Physical changes such as higher temperatures, sea-level rises and hurricanes impact GDP. • The impacts are largely felt from 2050 onwards	The UK yield curve increases modestly in the near term, but more for longer tenors as physical risks become for evident.

Disorderly transition – transition risk

Rationale	Catalysts	Calibration
• A delayed transition starts in 2030 • Carbon taxes are used to cut income tax, thus boosting private consumption • There is a negative shock to business confidence as stringent policies are introduced	• There is a negative impact on UK GDP particularly in the early to mid 2030s • UK inflation around 1% higher than in a base case peaking in 2032 largely driven by repricing of carbon prices • Price of carbon rises from 0 in 2030 to over 1000 $/ton by 2050	The middle of the UK yield curve rises modestly as the risk premia (probability of default) applied to the UK increases. Higher inflation is priced in from 2030 onwards There is assumed to be no significant central bank response to higher inflation.

Disorderly transition – physical risk

Rationale	Catalysts	Calibration
• Some corrective action to reduce emissions is take but temperatures still rise by 1.8°C by c 2100 relative to pre-industrial levels	• Physical changes such as higher temperatures, sea-level rises and hurricanes impact GDP. • The impacts are largely felt from 2050 onwards	The UK yield curve increases modestly in the near term, but more for longer tenors as physical risks become for evident.

The impact of transition and physical risk on the LDI portfolio and pension scheme liabilities has been modelled separately in Aladdin through calibration of user specified stress tests intended to be consistent with the climate scenarios shown.
Source: BlackRock, December 2022.

Integration of climate risks into the design of the Group's asset allocation

The Group Trustee recognises climate change is a significant, systemic risk that it faces and that failure to consider the risks and opportunities it presents could impact the security of members' benefits over the short, medium, and long term. The Group Trustee is supportive of the UK's transition to a lower carbon economy, giving due consideration to such risks and opportunities, and through compliance with all relevant legislation and considering, with support from its advisers, all regulatory guidance and best practice.

The Group Trustee has delegated to BlackRock, as its Fiduciary Manager, the responsibility to design a diversified Strategic Asset Allocation ("SAA") that is consistent with the long-term investment objectives for the Group. The SAA is deemed consistent based on a number of requirements, including consistency with the BlackRock Investment Institute's ("BII") expected return assumptions across asset classes and an acute understanding of the Group's specific requirements. In addition, the consideration of Environmental, Social and Governance ("ESG") factors that feature into the selection of managers, as well as the choice of mandates with ESG-optimised or exclusionary screen characteristics form part of the overall investment strategy.

BII's expected return assumptions, referred to as Capital Market Assumptions ("CMAs"), are macroeconomic and asset return forecasts. These inherently account for the impact of climate change. Underpinning BlackRock's CMAs is the view that managing climate-related risks will help support economic growth and offer investors the ability to generate better risk-adjusted returns. Climate change and the global energy transition are expected to be drivers of asset returns, and consequently fundamental to making strategic investment decisions. Through the use of these Capital Market Assumptions, climate risk is integrated throughout the design of the SAA for the Group. A high-level overview of this approach is set out below.

- **Climate-Aware Capital Market Assumptions:** These base return assumptions form a critical input in the design of the long-term strategic allocation for the Group. The inputs to the asset return models are adapted to account for climate change impacts through three principal channels:
    - **Macroeconomic impact:** A long-run model of climate change is used to account for the physical damages, energy transition and the impact of public policies and their impact on macro variables, such as level of GDP. Two long-term economic scenarios are modelled: a green transition (the base case underlying the Capital Market Assumptions) and a no climate-action scenario. In the green transition scenario, co-ordinated climate mitigation and fiscal policies, along with technological innovation in areas such as carbon capture, result in global temperature rises by 2100 remaining below 2 degrees Celsius, broadly within that of Paris Agreement. In contrast, the no-climate-action scenario projects materially higher increase in global temperatures of 5.8 degrees Celsius and a worse economic outcome.
    - **The Repricing channel (discount rate):** A consequence of shifting societal preferences for sustainability is that the price investors are willing to pay for assets perceived to be sustainable is changing, meaning the discount rate used to value these securities is also changing. For credit and equity markets the future cost of capital estimates are adjusted at the sector level, such that all else equal, more/less sustainable sectors have lower/higher future costs of capital.
    - **The Fundamentals channel (cashflow/earnings):** Climate change and the efforts to address it will impact the profitability and growth prospects of companies. The impact on corporate earnings at the sector level of a green economic transition is estimated. To arrive at these estimates, firstly the sensitivity of earnings to carbon pricing initiatives is assessed, which is expected to be a core tenet of climate mitigation policies. The physical and transition risks and opportunities at the sector level are also taken into account.

- **Scenario Analysis:** We have highlighted earlier in this section that Aladdin Climate's models are intended to highlight the potential impact of climate policies and outcomes on the economy and on financial markets. In Aladdin Climate reporting, the climate-related scenarios are modelled as an instantaneous shock to an asset, or a sector benchmark. Given the uncertainty in how policy makers, economies and companies may respond and adapt to the projected scenarios and the long-term nature of the scenarios, a large number of simplifying assumptions need to be made. This allows Aladdin Climate to provide investors with insight into where they may face climate risks and opportunities within their portfolios but is not a forecast or prediction in how asset values will actually evolve. The Group's asset allocation also has a significant proportion of assets in LDI (c54% of the allocation[4]) and a sizeable allocation to private markets (c32%) where there is insufficient data coverage to be included in the scenario analysis. Therefore, the primary method of integration of climate risks within the portfolio construction process for the Group's asset allocation is through the Climate-Aware Capital Market Assumptions and the selection of underlying asset managers.

Additional information

Glossary

Term	Definition
TCFD	The Task Force on Climate-Related Financial Disclosures (TCFD) is a global guideline that recommends climate disclosures for businesses. It is currently mandatory in select regions (i.e., New Zealand), but voluntary elsewhere globally. The Task Force calls for businesses to create a governance structure around climate risk, incorporate climate considerations into corporate strategy and risk management, and disclose the specific metrics and targets used to assess climate risk.
Coverage	Percentage of portfolio for which there is data, uncovered securities are assumed to be impacted in line with the average of those covered
NGFS	Network for Greening the Financial System. It is a voluntary group of Central Banks and Supervisors who work to develop and share best practice in the financial sector with respect to managing environmental and climate-related risks.
PCAV	Physical climate adjusted value
TCAV	Transition climate adjusted value

Understanding Physical Risk

Physical climate risk can manifest in both acute and chronic ways. Acute risks are event-driven, such as increasing extreme weather, increased wildfires, more widespread drought. Chronic risks are longer-term and generally less obvious, covering impacts including more volatile and higher average temperatures, rising sea levels, shifts in biodiversity, wind and cloud patterns, and soil quality. Physical climate risk, among other risks, has impacts on both short-and long-term investing, with both direct (e.g., damage to property or consumer locations) and indirect (e.g., supply chain disruption) impacts. BlackRock has partnered with climate scientists and research groups to better quantify the financial implications of Physical Risk, combining local climate and econometric data with our financial models to understand the effects of a changing climate.

[4] as at 31 December 2022

Physical Climate Scenario Analysis

By combining scenario projections from peer reviewed climate science with econometric models, we can better understand the financial implications of varying carbon emissions pathways on portfolios. Aladdin Climate models the following NGFS scenarios:

- **Net Zero by 2050** –an orderly scenario developed by NGFS. Global warming is limited to c. 1.5ºC through stringent climate policies and innovation, with CO2 emissions reaching "net zero" in c. 2050.
- **Delayed Transition** -a disorderly scenario developed by NGFS. It assumes that no action is taken in the near term, and that strong policies are then needed from 2030 onwards to limit warming to below 2ºC.

Understanding Transition Risk

Transition Risk identifies the risks and opportunities that arise from exposure to society's transition to a lower-carbon economy. The transition is already re-wiring the economy across sectors impacting investments through policy, technology, and behavioural change. However, the speed and shape of the transition is uncertain and uneven. Investors will need to identify and manage risks and opportunities resulting from the transition across their portfolios, with an awareness for differentiations across market channels, sectors, and regions. Aladdin Climate quantifies this impact of transitioning to a lower-carbon economy at the asset level, allowing for meaningful risk identification and portfolio analysis. These analytics are a product of collaboration across BlackRock's economic researchers, energy value chain experts, and financial analysts.

Transition Scenario Analysis

Transition scenario analysis is a key analytical technique used to model the potential transition scenarios for our economy, and the varying shapes and speeds of response. Such scenarios evaluate the potential futures of economic activity (e.g., GDP and population) alongside energy and land use patterns, as well as embed complex assumptions regarding the socioeconomic drivers of policy, technology, and consumer preferences. While there is vast uncertainty in what will happen, transition scenario analysis enables an understanding of what could happen, and the potential impacts to securities, issuers, and portfolios. Current scenarios referred to as "Net Zero" help us understand what society needs to do to reach Net Zero emissions by 2050 and limit average annual temperature rise to 1.5°C -2°C by the end of the century, consistent with the Paris Agreement. Aladdin Climate currently models the following NGFS scenarios:

- **Current Policies** –a "hot house world" scenario developed by NGFS. Current Policies assumes that only currently implemented policies are preserved, leading to high Physical Risk. Emissions grow until 2080 leading to about 3°C of warming, resulting in irreversible changes like higher sea level rise.
- **Net Zero by 2050** –an orderly scenario developed by NGFS. Global warming is limited to c. 1.5ºC through stringent climate policies and innovation, with CO2emissions reaching "net zero" in c. 2050.
- **Delayed Transition** -a disorderly scenario developed by NGFS. It assumes that no action is taken in the near term, and that strong policies are then needed from 2030 onwards to limit warming to below 2ºC.

Aladdin Climate uses the Current Policies scenario as the "counterfactual" scenario, i.e., other scenarios are compared to that counterfactual to derive transition risk impact.

E.ON

Net assets[5] as at 31 March 2023: £3,299m.

Time periods

Consistent with guidance from the Pensions Regulator and the position of our Group, we, the Group Trustee, consider:

- Short-term to be 5 years.
- Medium-term to be 10 years.
- Long-term to be 17 years.

The rationale for each of the time periods is as below:

- The short-term refers to the period over which we focus on those risks that have been delegated to external investment pools and managers; these mandates are typically judged over time horizons of up to five years. This is also the period for which the current investment strategy is expected to remain in force.
- The medium-term refers to the period over which we focus on those risks that currently fall outside the scope of the external investment management mandates, but which are not considered to be long-term in nature, for example risks relating to broad market conditions or to identifiable anomalies or trends in the investing environment that fall across multiple asset classes.
- The long-term refers to the period over which the majority of the benefit payments are expected to be made by the Group with respect to the current membership. Whilst the Group could exist for longer than the 17 years, it is understood that by that stage the Group will be mostly invested in government and corporate bonds or potentially insurance contracts where the Group Trustee will have less influence.

Climate scenarios

Our three scenarios are 1.5°C Paris-aligned transition, 2°C “late transition” and 3°C “slow transition” or “hot house”.

- **Paris-aligned transition:** this is our goal: AIM/CGE6 1.5°C assumes measures are taken that will keep the rise in temperature limited to 1.5°C.
- **Late transition:** following a review in conjunction with our Investment Adviser, Cardano, this is a forecast of what we think is most likely to happen: Late AIM/CGE 2 degrees assumes measures are introduced to tackle climate change but are introduced too late to meet the Paris Agreement.
- **Slow transition:** this is our hot-house scenario: AIM/CGE 3°C assumes current policies being continued. According to the UN, we are currently on track for 3°C warming.

We use scenario analysis due to the complexities involved in forecasting the degree of warming that will result from climate change, including the policy uncertainty, multiple environmental tipping points, and as potential technology advances.

Each scenario consists of a degree of warming and a measure of financial risk. In other words, what do we expect the financial risk to be, and across which asset classes / investments, based on a certain degree of warming.

We have chosen to disclose three scenarios, because we believe this provides us with metrics that can inform our investment decisions. They are scenarios that highlight the impact of physical risks and transition risks in different scenarios and so enable us to draw conclusions about the different components of climate change-related risks and opportunities.

[5] Source: Scheme Trustee Report and Accounts for the year-ending 31 March 2023.
[6] The AIM/CGE model is a multi-regional, multi-sectoral, computable general equilibrium (CGE) model.

Impact of scenarios

Our scenario analysis is used to produce a Climate Value at Risk (CVaR), which is the measure we use to assess the financial risk exposures of a portfolio. It estimates the financial value at risk to the corporate equity and credit exposures of warming scenarios at 1.5°C, 2°C and 3°C. The expected loss is calculated by considering the loss associated with transition risks and the loss associated with physical risks.

Value at Risk in Scenario	1.5 degree CVaR		2 degree CVaR		3 degree CVaR	
	Physical	Transitional	Physical		Physical	Transitional
Corporate Long Exposure	-2.7%	-2.1%	-2.7%	-0.8%	-4.0%	-0.1%
Corporate Short Exposure	0.7%	0.5%	0.7%	0.2%	0.9%	0.0%
Net Corporate Exposure	-2.0%	-1.7%	-2.0%	-0.6%	-3.1%	-0.0%

Source: Cardano. Table subject to rounding

Interpreting the results

- As temperatures increase the costs associated with transition risks decrease and physical risks increase, which is due to the expectation that weather events become more frequent, and more severe.
- Globally, we will still need to get to net zero, whether we warm the planet to 1.5, 2 or more degrees. Therefore, in higher warming scenarios, the transition to net zero will likely be more volatile, more disruptive and as such more costly (in addition to increased weather events, which we cover below).
- For physical risks, the modelling only considers the period to around 2040. This is because, it is too complex to model the physical risks associated with climate change beyond about 15 years. As such, in our view, the physical risks presented do not capture the full financial effects of a warming climate.
- We will use this scenario analysis to help inform our investment decision-making, to ensure our portfolio is robust when it comes to climate change-related risks and opportunities. In other words, the numbers here are a starting point for our investment decision-making, and should be considered alongside the metrics, and target setting.
- Corporate Exposure refers to the net corporate exposure and includes direct exposure to public equities and corporate bonds. The private equity portfolio is not included in this analysis.
- For Climate Value at Risk, consistent with the IIGCC guidance, we are comfortable looking at the aggregate exposure of long and short positions across direct holdings: long exposures will add to financial risk and short exposures reduce financial risk exposure.
- Climate VaR allows for the relative risks of debt and equity. For example, equity may be more vulnerable to a shock or loss than credit. It is not additive across different stand-alone components; therefore, we do not separate Climate VaR between asset classes.

Engagement with companies and governments

Our goal is net zero greenhouse gas emissions globally, and we seek to use our influence to achieve this. As such:

- We will resist pressure to modify portfolios to meet headline portfolio level decarbonisation targets at the expense of incentivising the necessary real-world transition. We believe it is important to engage with companies and governments and to supply enabling capital to achieve long term transformation and decarbonisation than it is to hit short term carbon footprint target metrics.

For example, emerging markets, which have higher carbon footprints, in part because they produce carbon intensive goods consumed by developed markets, require capital in order to transform their economies.

For these reasons, portfolio decarbonisation targets will continue to be reviewed at least every three years to ensure they remain appropriate.

Asset manager engagement

The Group Trustee expects:

- UK-regulated asset managers to be signatories of the Stewardship Code.
- Non-UK regulated managers to exercise their voting rights in a manner consistent with a focus on medium- and longer-term investment performance.

As part of their responsibilities, where applicable, the Group Trustee expects the Group's asset managers to:

- Engage with investee companies with the aim to protect and enhance the value of assets.
- Exercise the Group Trustee's voting rights in relation to the Group's assets.
- Incorporate the Group Trustee's views on climate change risk and opportunities.

With the assistance of our Investment Adviser, the Investment Committee undertakes an in-depth review of the investment managers' ESG credentials, including their stewardship and voting activity and policies every year. Our Investment Adviser monitors the stewardship activity of our investment managers on an ongoing basis and alerts the Investment Committee of any material concerns between this review period.

The Group Trustee has recently selected two stewardship priorities for manager engagement in order to improve alignment against our policies and beliefs as well as enhance disclosure. These priorities are linked to the UN Sustainable Development Goals with an international endeavour in mind and aim to improve sustainability within the portfolio and have a direct real-world impact to our members' current and future landscape. The Group Trustee's stewardship priorities are:

- **Climate Crisis** (with a focus on climate change and net zero greenhouse gas emissions)
- **Environmental Impact** (with a focus on biodiversity, deforestation and water)

Scenario assumptions and limitations

In completing the analysis, we have relied on Cardano and the methodology that MSCI has developed to calculate Climate Value at Risk. Without covering all of the methodology used, broadly speaking, this operates by breaking risk into three parts:

- **Transition risk:** This is broadly calculated by considering a company's exposure to carbon emissions and an assumed carbon price. To the degree that that carbon price is not currently embedded in the company's cost base, this increases the cost to the company causing a loss of profitability. The carbon price assumptions are linked to the climate change scenario that is selected. In a 1.5°C scenario, carbon prices are assumed to increase more rapidly than in the 3°C scenario, creating more transition risk for businesses.
- **Physical risk:** This risk looks at the potential losses that can occur due to more extreme physical risks, particularly over the next 15-year time horizon and is based on Cardano's modelling of the company's risk exposures. This does not allow for the economic impact that higher temperatures might have, for example, slowing economic growth.
- **Solutions:** This is usually an offset to these other two risks. It looks at green revenues and patents and assumes that, to the extent that companies are generating green revenues or hold green patents, both factors will be growing portions of a company's revenues in the future, offsetting some of the negative impacts of transition and physical risk. These factors will be more valuable in faster transition scenarios.

Any scenario analysis is heavily dependent on the underlying assumptions made. Following discussions with Cardano, we believe that the key assumptions underlying the modelling are reasonable and we will review them annually to ensure we remain comfortable. However, there are a number of fundamental uncertainties including:

- Uncertainties in future greenhouse gas (GHG) and aerosol emissions. Each scenario implies different levels of atmospheric composition and hence of radiative forcing.
- Uncertainties in global climate sensitivity due to differences in the way physical processes and feedbacks are simulated in different models. These create further uncertainties in:
  - Expected warming for a given GHG stabilisation scenario.
  - Emission trajectory required to achieve a particular stabilisation level.
  - Estimates of the strength of different feedbacks in the climate system, particularly cloud feedback, oceanic heat uptake, and carbon cycle feedback.
  - Aerosol impacts on the magnitude of the temperature response, clouds and precipitation.
  - Future changes in the Greenland and Antarctic ice sheet mass, particularly due to changes in ice flow.
- Uncertainties surrounding regional projections of climate change, particularly precipitation that may give different results by different methodologies for the same mean global warming.
- Translating the climate change scenarios into impacts on the Group's portfolio also requires a range of assumptions and when doing this we note a number of other uncertainties:
  - Uncertainties around the government policies which will drive transition risks including legislation and regulation, monetary policy and fiscal policy.
  - Uncertainties around the economic impacts on future growth and inflation of both the climate change factors and the government policies.
  - Uncertainties around the market reactions to changes in policy, growth, and inflation.

Known limitations with the modelling and scenarios include:

- Physical risks can only be modelled to around 15 years.
- There are challenges in modelling environmental tipping points, including issues such as disruption to food supply chains.
- There are limitations in using observed data to understand future impacts of climate change, given the effects of warming are exponential.

EDF

Net assets[7] as at 31 March 2023: £6,477m.

EDF Defined Benefit section

Time periods

The Group Trustee notes the assessment of climate-related risks and opportunities may vary depending on the time horizon in question. As such, the Group Trustee assesses climate risks and opportunities over the following time horizons which it deems appropriate in light of the Group's existing strategic objectives (please note that the Group has not differentiated between the short- and medium-term risks due to the difference between the period being one year and similar risks are therefore applicable to both time horizons).

Time Horizon	DB Section	Key Risks
Short term	3 years (in line with the triennial actuarial valuation cycle)	This shorter-term focus allows the Group Trustee to consider the transition risks (such as changes in corporate behaviour driven by regulatory and technological change), that the Group will predominantly be exposed to over the short and medium term. There is limited exposure to physical risk on these time frames.
Medium term	4 years (in line with the Group's target self-sufficiency funding date of 2027)	
Long term	10 years (in line with the Group's secondary de-risking objective)	The Group will be exposed to both transitional and physical risks associated with climate change, over the longer-term, with physical risk expected to intensify further into the future, which may have pronounced effects on real assets such as property. Meanwhile, deteriorating resource availability may negatively impact the covenant's position in the long-term.

Climate scenarios

In order to assess the impact on the Group's assets, the Group Trustee undertakes scenario analysis consistent with the Prudential Regulation Authority ("PRA")'s Life Insurance Stress Tests (the PRA stress test scenarios), as recommended by the Pensions Climate Risk Industry Group ("PCRIG"). These stresses were chosen due to the recommendation from the Group's investment consultant, Redington, as being industry standard and used by similar UK pension schemes at the time. The stresses are designed to show what the impact on the value of the Group's assets would be in the following scenarios:

- **Scenario A (Fast Transition):** Abrupt transition to the Paris-aligned goal occurring over a three-year time period from the date of analysis (temperature increase kept below 2 degrees Celsius relative to pre-industrial levels).
- **Scenario B (Slow Transition):** Orderly transition to the Paris-aligned goal occurring by 2050 (temperature increase kept below 2 degrees Celsius relative to pre-industrial levels).
- **Scenario C (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 these scenarios as at 31 March 2023 (on the self-sufficiency basis) can be seen below.

[7] Source: Scheme Trustee Report and Accounts for the year-ending 31 March 2023. Figure includes DB and DC.

Impact of scenarios

Scenario	Impact on deficit (£m)	Impact on funding level via the investment strategy (%)
Scenario A: Abrupt transition to the Paris-aligned goal occurring three years from date of analysis (temperature increase kept below 2 degrees Celsius relative to pre-industrial levels).	-£190m	-2.8%
Scenario B: Orderly transition to the Paris-aligned goal occurring by 2050 (temperature increase kept below 2 degrees Celsius relative to pre-industrial levels).	-£210m	-3.1%
Scenario C: A no-transition scenario in 2100 (temperature increase in excess of 4 degrees Celsius relative to pre-industrial levels.	-£237m	-3.5%

The results of the scenarios provide the Group Trustee with a clear overview of how resilient the current investment strategy is with regard to various different climate change outcomes. The results above are based on the Group's current investment strategy, and as such the Group Trustee notes that as the Group continues to de-risk over time from return-seeking assets into liability driven investment (LDI), or "matching" assets, the results are expected to improve over time under the same scenario modelling.

The IC and the Group Trustee Board assess the results of these climate scenarios on the Group's investment and funding strategy and incorporate them (as well as the impact of any climate-related investment opportunities) into the investment decision-making process. For example, the PRA stress test scenarios are assessed whenever strategic asset allocation decisions or investment manager changes are made. This includes the Group's decisions to invest in the Stewart Investors Worldwide Sustainability Equity fund and part of the rationale to switch the Group's M&G Alpha Opportunities Fund into M&G's more ESG focused Sustainable Total Return Credit Investment Fund. These scenarios are also run on a quarterly basis and the results are reported in the Group's Funding and Risk Report, for the Group Trustee's monitoring.

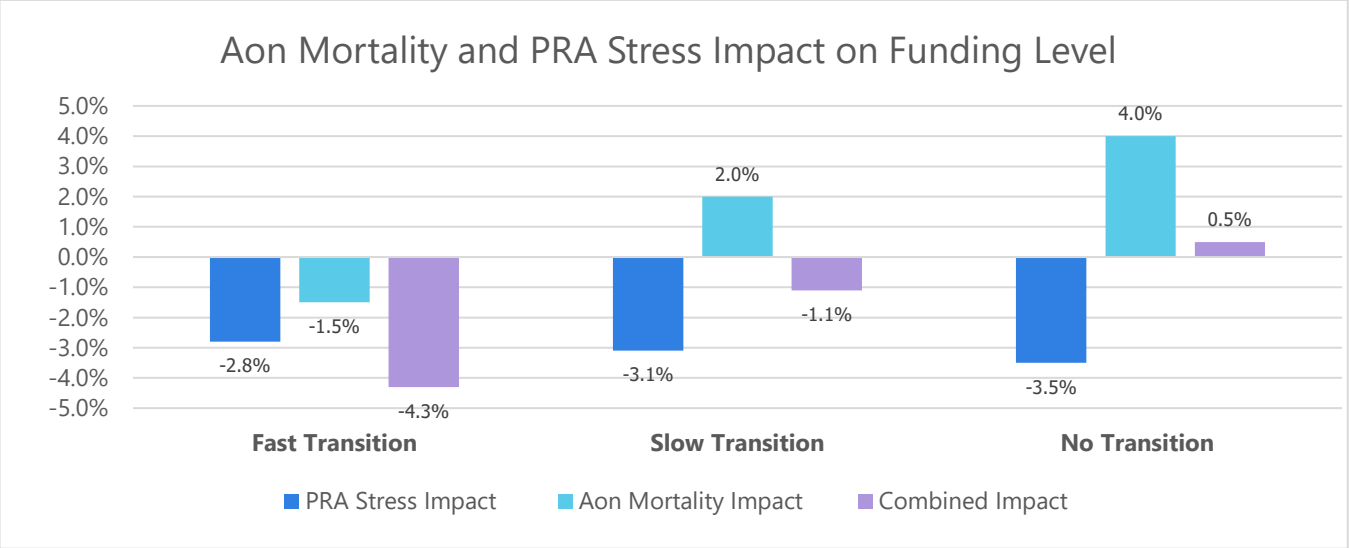
Impact of climate scenarios on Group liabilities

The results of these climate scenarios reflect the impact to the Group's funding position as a result of changes in both the Group's assets and liabilities. The Group Trustee notes that two of the three key liability-related risks (interest rates and inflation) are suitably hedged via the Group's LDI strategy and thus the Group is not overly exposed to changes in these metrics. The third liability-related risk facing the Group is longevity / mortality risk, which the Group Trustee notes is not currently incorporated into the climate scenario analysis provided by Redington. To further understand the impact of climate change on the longevity of the Group, the Group Trustee engaged with the Group Actuary, Aon, to understand how the various climate scenarios described above will impact the longevity risk of the Group. As longevity risk is predominantly unhedged, the variable life expectancy of members will have unmitigated effects on the Group's funding level. Subsequently, Aon have conducted a scenario analysis to assess the mortality impact of climate change into the assessment of the Group's broader funding strategy.

Each scenario is compared to a base case scenario which represents Aon's typical best estimate of how mortality is projected to improve over time. This embeds the assumption of future longevity changes in line with the most recently available 'Continuous Mortality Investigation' (CMI) tables with a long-term rate of mortality improvement of 1.5% p.a. The three scenarios considered by Aon are in line with the PRA scenarios used by Redington and are: (1) No Transition, (2) Disorderly (Fast) Transition and (3) Orderly (Slow) Transition.

The chart below depicts the expected funding level impact under each of the three climate scenarios, expressed as the percentage point difference between the Group's funding level and the stressed funding level. The stressed

funding level is computed by combining the climate stress from each PRA scenario on both assets and liabilities, with the liability stress due to longevity, based on Aon's analysis of ultimate mortality impacts.



1. Figures are based on the impact on male life expectancy to standardise the population and allow for a fair comparison over time, though each scenario impacts females to the same extent.
2. The figures are appropriate for the overall profile of the Group and the discount rate being used (Gilts + 0.50%).

Despite the expected funding level impact due to the PRA scenarios being most severe under the "No Transition" scenario, the graph above indicates that the combined funding level impact, accounting for both PRA and mortality stress, is actually positive under this scenario. This is driven by the liabilities decreasing in excess of assets, as life expectancy declines due to living in a more carbon intensive world. The Group Trustee notes that this is not a desired outcome as lower longevity risk as a result of decreased life expectancy is clearly not in the interest of members. The "Fast Transition" scenario has the most severe impact on funding level, driven by the forecasted improvement in mortality relative to the base case scenario, which compounds the negative funding level impact from the PRA scenarios.

The degree of expected funding level impact due to mortality, particularly in the context of climate, is highly sensitive to the assumptions built into each of the scenarios. In practice, there are a multitude of unconstrained climate-related risk factors which can affect mortality to varying degrees, materialising predominantly unhedged longevity risk exposure for the Group. While the Group Trustee has determined that its current strategy remains appropriate and robust against the relevant climate scenarios, the Group Trustee will continue to monitor mortality-related risks relative to the Group's asset allocation.

Impact of climate scenarios on Group's sponsoring employers and the support provided by EDF SA

Similar to the work conducted for the previous iteration of the TCFD report, the Group Trustee has again engaged with the covenant advisor, Penfida, in order to understand how the Group's sponsoring employers and the formal support provided by EDF SA, which together support the Group (known as its "covenant"), would be impacted by various climate scenarios.

The impact of the chosen climate scenario is focused on the EDF group of companies given the reliance that the Group places on the covenant support from EDF SA and the extent of public disclosure. Penfida engaged with EDF group management in the context of the actuarial valuation as at 31 March 2022 to further discuss the impact of climate change on the sponsoring employers including from a quantitative perspective. Given the level of information disclosure, no quantitative outputs have been shared. The qualitative assessment provided by Penfida is as follows:

Given EDF's business, it is at the forefront of facilitating and managing the transition to a lower carbon economy; indeed its "raison d'être" is about managing the risks and opportunities borne from climate change. EDF continues to be rated in line or above its peers by a number of ESG ratings providers. Penfida note that the credit rating agencies both rate EDF as being moderately negative from an overall ESG perspective; however, there is limited impact on their assessment of EDF's creditworthiness and its Moody's ESG credit impact score is broadly in line with peers. Whilst physical risks from climate change (such as extreme weather events) represent only downside risk to the business, EDF believes there are a number of opportunities from which it can benefit in terms of the transition to a low carbon economy, such as the introduction of alternative sources of electricity technology, e.g. renewables. Given that a "no transition" scenario leads to the highest level of physical risk, this would be the most negative scenario for EDF and by extension for the Group in terms of covenant strength. EDF is seeking to mitigate the potential impacts of climate change related risks, both transitional and physical, through the adoption of globally recognised initiatives and periodic reviews of climate change adaptation plans. In addition, EDF is aiming to reach carbon neutrality by 2050 and has set intermediate goals for 2023 and 2030 on its path to carbon neutrality.

As part of its covenant monitoring programme, Penfida will review EDF's ESG ratings and how they develop, both in isolation and against its peers, as well as key regulatory / governmental changes which may impact the strength of the covenant and progress towards, and evolution of, EDF's targets. (Source Penfida, May 2023).

Summary of the impact of climate scenarios on Group's investment and funding strategy

In light of the scenario analysis conducted on the Group's assets, the initial assessment of the impact on liabilities and the qualitative assessment of the impact on the covenant, the Group Trustee believes the Group's funding strategy is resilient to the various risks presented by climate change. EDF, whilst exposed to the risks of climate change, is well positioned to take advantage of the opportunities that climate change will bring. The Group's investment strategy is well diversified across a number of different risk factors, and the initial estimate of the impact of climate change on the Group's membership profile, indicates little/no impact to funding, although the Group Trustee notes the range of outcomes for the Group does vary when looking at alternative more extreme scenarios. The Group Trustee will continue to monitor the Group's exposure to climate-related risks via climate scenario analysis.

Scenario assumptions and limitations

Modelling Assumptions:

- The climate stress tests are based on PRA's 2019 climate scenarios. These scenarios have been used to construct climate stress tests for a series of equity building blocks using MSCI and ICE index compositions as at November 2021, which have been extrapolated to Redington's universe of asset classes.
- Investment grade credit and high yield credit are modelled using an equity-beta approach, with betas of 15% and 35% applied respectively.
- The Group's assets have been mapped to Redington's universe of generic asset classes, using a similar approach as when they are assessed for investment risk/return.
- The fast, slow and no transition PRA climate stresses have time horizons of 3 years, 30 years and 80 years respectively.
- Interest rate stresses have been proxied using ICE BofA US Emerging Markets External Sovereign Index (DGOV). Inflation stresses have not been applied.

Key Limitations:

- Stress tests are based on scenarios constructed by the PRA in 2019 and therefore present a world view as at that date and have not been updated since.
- Stress tests are based on a strategic mapping of the Group's assets to Redington's generic asset class universe and do not consider the individual composition of the Group's funds.
- Redington proxies are based on index composition as at Nov 2021 and do not allow for changes since. We ask users of these stresses to bear this in mind when reviewing stresses of assets with more volatile sector compositions.
- Credit stresses are calculated using a modelled equity-beta approach that was approximated as at November 2021.

EDF Defined Contribution section

Time periods

The time horizons identified by the Group Trustee for the purposes of the scenario analysis are detailed below. Further information on the climate-related risks that are expected to materialise over these timeframes is set out below. These are in line with the likely time horizons over which a member's benefits will be invested to and through retirement.

	DC Section
Short term	10 years (Representative of a member approaching retirement age)
Medium term	25 years (Representative of a member in the mid-career stage)
Long term	40+ years (Representative of a member in the 'early career' stage)

The climate scenarios are 40-year projections, this is the longest time horizon considered for scenario analysis. A member will be invested for at least 35 years (based on being able to access your pension at age 57 and auto enrolment starting at age 22) but is likely to be longer than this.

MWS, has conducted the following analysis to highlight the additional climate change impact on return p.a. over 10 years, 25 years and 40 years based on the strategic asset allocation as at 31 December 2022.

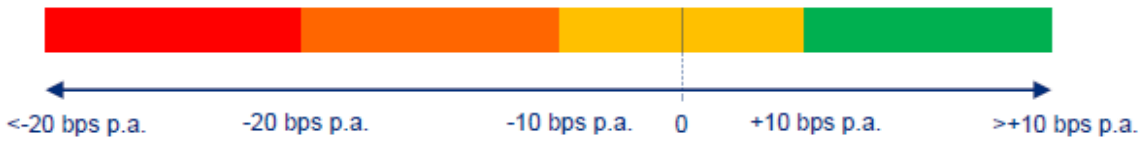
MWS' analysis illustrates that a failed transition is by far the worst in terms of long-term returns.

This supports the view that long term investors collectively trying to bring about an effective transition is aligned to their fiduciary duty to seek the best return within risk, liquidity and complexity restraints.

Climate scenarios

Mercer Growth Fund, annualised impact on return

Scenario	10 years	20 years	45 years
Rapid Transition	-0.5%	-0.1%	-0.1%
Orderly Transition	-0.1%	-0.1%	-0.2%
Failed Transition	-0.3%	-0.9%	-0.8%



By setting the shorter time horizon at 10 years, MWS is able to assess the impact of transition risks; rapid transition risks are priced in around 2025. All scenarios have priced in shocks relating to future physical damage from the end of the 2020s into the 2030s.

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).
- 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).

The risks and opportunities identified by the Group Trustee are set out in the DB Section, Part 1, above. As the delegated manager, MWS recognises that the risks and opportunities arising from climate change are diverse and continuously evolving. Climate change presents risks over the short, medium and long term, which the MWS strategy aims to better understand and mitigate where possible.

Over the short term (10 years), risks may present themselves through transition risk and rapid market re-pricing relating to climate transition as:

- Scenario pathways become clearer. For example, if the probability of a below 2°C scenario became more likely, then any transition risk expected could occur more quickly.
- Market awareness grows. For example, the implications of the physical impacts of climate change become clearer to markets and impact the asset valuations.
- Policy changes surprise markets. For example, an introduction of carbon tax across key markets to which the arrangement is exposed, at a sufficiently high price to impact behaviour.
- Perceived or real increased pricing of greenhouse gas emissions/carbon.
- Substitution of existing products and services with lower emission alternatives may impact part of the funds.
- Litigation risk relating to dangerous warming becoming more prevalent.
- Increases in the energy/heat efficiency of buildings and infrastructure.
- Investments in transition-aligned strategies may provide the Group a partial hedge against climate transition risks, such as policy risk (risks related to changes in the regulatory frameworks), legal risks, technology risk inherent in advancement of low-carbon economies, market risk which includes the supply and demand for goods, services and investments and consumer behaviour, and reputational risk.

The ability of MWS to consider these short-term changes means it can position the investment arrangement favourably, for example taking advantage of the climate transition by avoiding and reducing investment in high-emitting carbon sensitive businesses that do not have a business plan that supports the transition to a low carbon economy.

Over the medium term (25 years), throughout this period, physical risks will begin to dominate. This includes the impact of natural catastrophes leading to physical damages through extreme weather events. Risks associated with the transition to a low carbon economy are still likely to exist. These include the development of technology and low carbon solutions. Policy, legislation and regulation are likely to also play a key role at the international, national and subnational level. Technology and policy changes are likely to produce winners and losers both between and within sectors. Advancement of transition is likely to have started to crystallise stranded asset risks over the medium term. The Group's ability to understand these changes may position it favourably, for example by increasing investments in new emerging technologies. MWS seeks to select managers and indices that can identify potential emergence of low carbon opportunities and the decline of some traditional sectors.

Over the long term (40+ years), physical risks are again expected to dominate. Availability of resources is expected to become more important if changes in weather patterns (e.g., temperature or precipitation) affect the availability of natural resources such as water. The Group's ability to understand these changes may position it favourably in the future, for example increasing investments in infrastructure projects that display a high level of climate resilience, etc. A changing climate may directly impact the viability of some assets or business models (for example, flood risk for real estate and the availability and cost of insurance).

Scenario assumptions and limitations

This analysis was originally completed for the 2022 report and was updated during the scheme year. The Group Trustee notes that that member demographics have changed significantly and as such the definition of the Group's popular arrangement has been updated. However, given the funds that are now used within the popular lifestyles, namely those with high allocation to sovereign bonds or cash, the Group Trustee has determined that it would not be appropriate to consider explicit scenario analysis on these strategies at this time. This is consistent with the regulatory guidance to update scenario analysis at least every three years.

The Group Trustee will consider scenario analysis when relevant to strategy decisions on an ongoing basis.

Limitations associated with climate modelling

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

- The further into the future you go, the less reliable any quantitative modelling will be.
  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.
- Financial stability and insurance 'breakdown' are 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.
- Most adaptation costs and social factors are not priced into the models. These include population health and climate-related migration.
- New and emerging risks, such as the impact of climate change on biodiversity loss, and vice versa, is expected to be integrated into climate scenario modelling over time once the supporting science and impact on econometrics and finance is better understood.

Magnox Electric

Net assets[8] as at 31 March 2023: £2,651m.

The following information should be read in conjunction with the Group's disclaimers included in Appendix D.

Time periods

The Group Trustee assessed the climate-related risks and opportunities over multiple time horizons. The Group Trustee has decided the most appropriate time horizons for the Group are:

- short term: 1-3 years.
- medium term: 4-10 years.
- long term: beyond 10 years.

When deciding the relevant time horizons, the Group Trustee considered the liabilities of the Group and its obligations to pay benefits.

RAG Assessment

The Group Trustee has separated out the climate-related risks by Section given that each Section has a different investment strategy. The Group's assets are well diversified across a range of different asset classes including private markets, property and infrastructure. Given the number of funds that the Group has invested in the Group Trustee has assessed the key risk factors by aggregating the fund level responses into broad asset classes. Where a range is shown in the risk ratings the underlying managers within the asset class have categorised risk differently.

The Climate Risk Assessment extends to the Group's liabilities and covenants. Deterioration of the Section's funding level will place a strain on the covenant of that particular Section's sponsoring employer to the extent it results in higher deficit repair contributions. It may also require the Group Trustee to re-risk the Section's assets or to extend the time frame for achieving full funding. The Group Trustee therefore recognises that climate change may have an impact on the employer covenants to the Group/Sections. The Group Trustee monitors (with the support of its covenant adviser) the covenant of the Group's sponsoring employers on a regular basis and maintains a regular dialogue with the Group's sponsoring employers.

The Climate Risk Assessment excludes any fund holdings which are less than 2% of the Group's total assets with the exception of Lindsell Train, Schroders and Ruffer as the analysis captured all of the Group's equity/multi-asset holdings) and also cash.

[8] Source: Scheme Trustee Report and Accounts for the year-ending 31 March 2023.

Climate Risk Assessment – Summary Table

		SLC Section			Cavendish Nuclear Section			NNL Section	Atkins Section	All Sections*	
	Asset class / Category	Property & Infrastructure	Illiquid Credit	Liquid Credit	UK Equity	Diversified Growth Funds	Liquid Credit	Diversified Growth Funds	Annuity	LDI	Covenant
Physical risks	Short term	Low to Medium	Low to Medium	Low to Medium	Low	Low	Low	Low	Low	Low	Low
	Medium term	Low to Medium	Low to Medium	Low to Medium	Low to Medium	Low	Low to Medium	Low	Low	Low	Low
	Long term	Low to Medium	Medium to High	Medium to High	Low to Medium	Medium	Medium to High	Medium	Low	Low	Low
Transition risks	Short term	Low to Medium	Low to Medium	Low to Medium	Low to Medium	Low to Medium	Low to Medium	Low to Medium	Low	Low	Low
	Medium term	Low to High	Low to High	Low to Medium	Medium	Medium	Medium to High	Medium	Low	Low	Low
	Long term	Low to High	Low to High	Low to High	Medium	Low to Medium	Medium to High	Low to Medium	Low	Low	Low

*Asset classes / categories have been assessed separately for each Section but collated together for presentational purposes.

Based on the analysis completed, the Group Trustee believes:

- The managers who engaged with the process provided insightful commentary on (and assessment of) climate risks.
- There were no mandates where significant concerns were raised needing immediate action.
- There were significant differences in the way managers assessed climate risk, which may represent methodological rather than real differences in risk exposure.

Climate scenarios

The Group Trustee has undertaken climate change scenario analysis to better understand the impact climate change could have on the Group's assets and liabilities.

The analysis looks at five climate change scenarios. Each scenario considers what might happen when transitioning to a low carbon economy under different conditions. The Group Trustee has chosen these scenarios because it believes that they provide a reasonable range of possible climate change outcomes. These scenarios were developed by Aon and are based on detailed assumptions. They are only illustrative and are subject to considerable uncertainty.

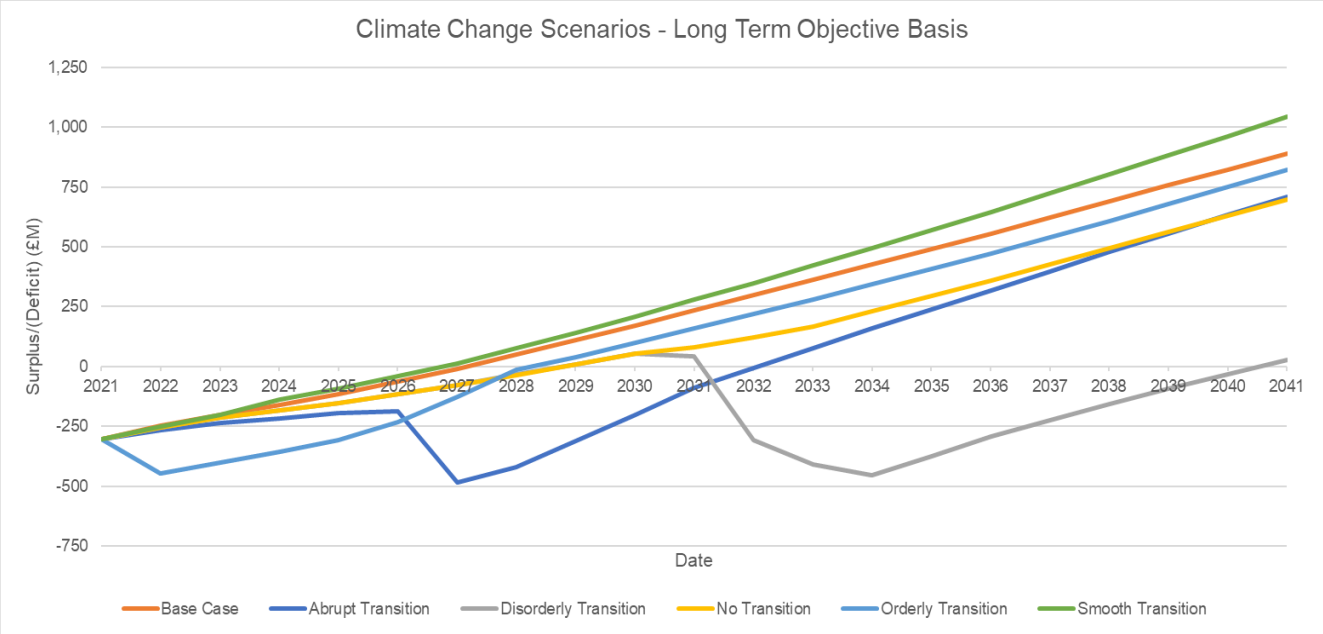
The Group Trustee established a "base case" scenario against which the five climate change scenarios are compared. The table below describes the scenarios that have been modelled, including the projected rise in global temperatures by 2100 in each scenario.

Base scenario	No transition	Disorderly transition	Abrupt transition	Orderly transition	Smooth transition
2ºC – +2.5ºC	**>4ºC**	**<4ºC**	**<2ºC**	**<2ºC**	**<1.5ºC**
Emission reductions start now and continue in a measured way in line with the objectives of the Paris Agreement and the UK government's legally binding commitment to reduce emissions in the UK to net zero by 2050.	No further action is taken to reduce greenhouse gas ("GHG") emissions leading to significant global warming.	Limited action is taken, and insufficient consideration is given to sustainable long-term policies to manage global warming effectively.	Action on climate change is delayed for five years at which point we experience more frequent extreme weather events and governments must address GHG emissions.	Immediate and coordinated action to tackle climate change is taken using carbon taxes and environmental regulation.	Rapid advancement of green technology and government action on climate change which achieves a smooth transition to a low carbon economy.

Impact of scenarios

Based on the analysis, the Group Trustee considers that the SLC Section's investment strategy is reasonably resilient to climate change risk, acknowledging that there are scenarios that could lead to a material deterioration in the funding level. This is principally due to not holding equities, while having large allocations to UK government bonds, for liability management purposes, and inflation-linked investments such as property and infrastructure, which are expected to perform well during a transition to a low carbon economy. The current covenant strength also helps mitigate the risk.

Of the scenarios, the Group believes a Disorderly Transition scenario to be of most concern, given the potential for this scenario to impact on the SLC Section's funding level within the timeframe of the existing long-term funding plans. Under that scenario, the SLC Section is projected to experience a significant deficit shock within the next decade.



Source: Magnox. Funding level projections under the climate change scenarios (SLC Section)

Although the Group Trustee has not performed climate change scenario analysis for the other Sections, the overall results at Group level are expected to be similar as the SLC Section represents the majority of the Group's assets and liabilities. The Group is therefore also expected to be fairly resilient to climate change risk.

Action taken following the scenario analysis

The Group Trustee has not taken any action as a result of the climate change scenario modelling given that the Group is expected to be fairly resilient to climate change.

Climate opportunities

The Group Trustee has identified a range of potential investment opportunities across the assets that the Group invests in. However, the Group Trustee recognises that not every opportunity may be suitable for each Section's investment strategy and is aware that there may be wider financial risks to consider before investing in such opportunities.

The opportunities identified mostly include investing in companies and industries that are set to profit from the transition to a low carbon economy. A summary by asset class is below:

- **Equities:** The scale of the investment required to decarbonise the global economy over the next 40 years is colossal. This ranges from existing technologies such as renewable and nuclear power, electric vehicles and green building materials, to others that remain in development today such as hydrogen and carbon capture and storage. Investment in all of these areas need to be at scale and pace, which will create a plethora of investment opportunities over the years ahead. More equity indices are in the process of being launched to take into account the risks associated with climate change whilst supporting the transition to a low carbon economy. Historically, climate-aware indices have been focused on exclusions (e.g., oil and gas, thermal coal, tar sands) but the market is evolving and there are now more sophisticated index products available.
- **Diversified Growth Funds ("DGF"s)**: One of the Group's DGF managers has an added allocation to the best performing companies involved in new clean energy systems, as the world transitions to lower-carbon energy. This allocation will target global resource emerging technologies and strategic industries integral to the global shift to cleaner energy, seeking opportunities across key value chains, including renewable energy, energy storage and electric vehicles. It will also selectively offer exposure to the underlying materials and technologies required for the transformation to take place. Further opportunities will become apparent as technologies and sectors that benefit from a low carbon economy and the energy transition increase in scale.
- **Property**: In most developed economies, only a small proportion of buildings are built new each year. This creates substantial investment opportunity for investors – through their fund managers – to actively engage with tenants (be that commercial or residential) to improve building performance. The Group can engage to promote more efficient building management by working with property managers and related parties to reduce overall energy use across a portfolio and gather information to target the most cost-efficient mechanism for achieving this goal. Such engagement can help mitigate the transition risk associated with property investments, wherein more stringent energy efficiency standards by governments are likely to be a key policy lever to aid the transition. Engagements can aim to encourage integration of energy efficient technologies into building operating systems or even to press for adoption of low-cost operations strategies (e.g., encouraging tenants to turn off the lights when empty).
- **Infrastructure**: Climate-related investment opportunities in infrastructure can include low-carbon power generation assets (nuclear, solar, wind, and other clean power), clean technologies (e.g., carbon capture and storage), natural assets (e.g., forestry and farmland) and, on the debt side, green bonds for which the proceeds are earmarked for infrastructure projects.
- **LDI**: Green gilts provide LDI mandates with a climate-related opportunity where the bonds they buy are specifically linked the financing of green initiatives.
- **Liquid Credit**: Green bonds, as well as companies that are transitioning like those setting Science Based Targets or companies focusing on or generating revenues from climate change solutions such as renewable energy, energy efficiency, EVs, circular economy etc. Many financial sector firms issue green bonds, which present an opportunity for fixed income climate-related investment opportunities. Although

climate solutions-oriented opportunities will be limited in low climate impact sectors, many companies can be enablers of the transition such as financing, technology, and communications sectors.

- **Illiquid Credit:** Given the highly active character of property debt, direct lending, and bank capital relief funds – and the more bilateral nature of the investments – opportunities in these areas arise principally by selecting managers which have the depth of expertise needed to identify, capture and structure investments in assets which are emerging or nascent from a climate perspective. These can include investments in agricultural technologies, food technologies and nascent technologies (carbon capture and storage).

The Group Trustee considers investment opportunities on a regular basis as part of investment strategy reviews and new manager appointments. The Group Trustee encourages its managers to take advantage of the transition to a low carbon economy where appropriate to do so within the investment guidelines it has agreed with the relevant manager. The investment opportunities that arise through the transition to a low carbon economy are considered by the Group Trustee on a case-by-case basis.

Manweb

Net assets[9] as at 31 March 2023: £768m.

Time periods

The Trustee has considered the potential impact of climate-related risks to the Group over a range of different time periods, using the Group's position as at 31 December 2022 as the baseline for the analysis.

In particular, the Trustee has identified the following time horizons as appropriate for the purpose of assessing the Group's exposure to climate-related risks:

- **Short term – The period to 2028:** The Trustee has a key objective to achieve a funding level of 100% by 2028, with reference to liabilities determined using duration-based gilt yields and inflation expectations with 0.4% p.a. outperformance assumed.
- **Medium term – The period to 2032:** The Trustee believes that it is appropriate to align the medium-term timeframe with the year when the Group's liabilities are expected to reach significant maturity. Using the Pension Regulator's draft guidance of reaching significant maturity when a pension scheme's liabilities have a duration of around 12 years, the Scheme Actuary estimates that this would be in 2032 for the Group.
- **Long term – The period to 2050:** The Trustee notes that it is likely that the Group's long-term investment strategy will hold a meaningful allocation to UK Government Bonds, potentially along with corporate bonds and / or insurance contracts. It was therefore deemed appropriate to align the Group's long-term horizon with the UK Government's strategy to achieve net zero greenhouse gas emissions by 2050.

The Trustee will review the appropriateness of the above time horizons at least on an annual basis when preparing the Group's TCFD Report, or more frequently if there has been a material change in the Group's circumstances. For example, a significant change to the Group's investment strategy, covenant context, funding strategy or financial position could warrant an ad-hoc review of the appropriateness of the chosen time horizons.

Climate scenarios

The scenario analysis for the Group has been carried out as at 31st December 2022 and for the purposes of the analysis the Group's liabilities are measured on a gilts +0.4% p.a. basis. The Trustee has a key objective to achieve a funding level of 100% by 2028, with reference to liabilities determined using gilt yields and inflation expectations with 0.4% p.a. outperformance assumed. Therefore, the Trustee deems it appropriate to base the scenario analysis on the long-term Gilts +0.4% p.a. basis rather than, for example, using the Technical Provisions basis.

With input from the Group's investment consultant, Mercer, including the use of Mercer's scenario analysis tool, the Trustee has undertaken climate scenario analysis to test the resilience of the investment and funding strategy adopted by the Trustee, having regard to covenant considerations.

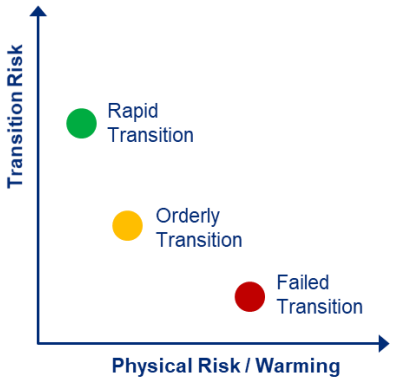
Quantitative climate change scenario analysis has been undertaken on the Trustee's strategic asset allocation, allowing for how the investment strategy is expected to evolve to 2028 and also beyond 2028, to assess the potential implications of climate change under three modelled scenarios: a Rapid Transition (1.5°C), an Orderly Transition (less than 2°C) and a Failed Transition (greater than 4°C). The scenarios were developed by Mercer, working with Ortec Finance, and are described below:

- **Rapid Transition**: Average temperature increase of 1.5°C by 2100 (relative to pre-industrial average). This scenario assumes sudden downward re-pricing across assets in 2025. This could be driven by a change in

[9] Source: Scheme Trustee Report and Accounts for the year-ending 31 March 2023.

policy, consideration of stranded assets or expected costs. The shock is partially sentiment driven and so is followed by a partial 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 to well below 2°C. 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 climate impacts significantly reduce economic productivity and have increasingly negative impacts including from extreme weather events. These are reflected in re-pricing events in the late 2020s and late 2030s.



The scenarios were selected to give a broad range of potential impacts, in terms of both the potential transition risks and physical risks associated with climate change.

In designing scenario analysis, a fundamental 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' baseline; the implication is that all return impacts are presented in terms of how they are different to what is assumed to be priced in today.

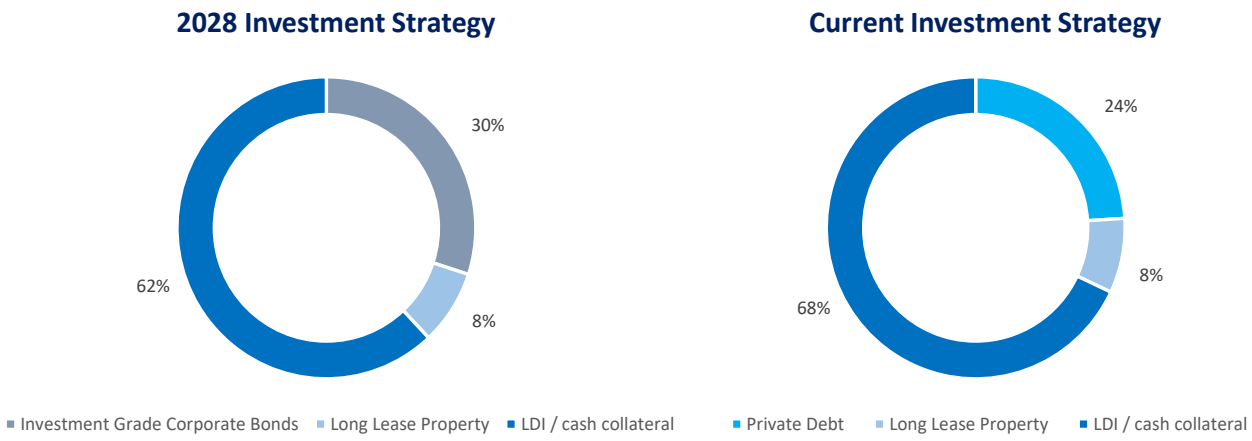
Reporting Regularity

Scenario analysis will be undertaken by the Trustee in every third scheme year. The scenario analysis will, however, be reviewed each year to ensure it remains relevant and appropriate to the Group and reflects up to date information and/or Regulations. Under certain circumstances, the Trustee may choose to carry out additional scenario analysis in a scheme year where it is not mandatory. Such circumstances may include, but are not limited to, a material change to the Group's investment strategy (including a material change in the expected future evolution of the Group's investment strategy), a material change in the funding plan for the Group, or a material change in the strength of the covenant of the sponsoring employer.

Impact of scenarios

The table below summarises the results of the three climate scenarios considered by the Trustee, showing the potential impact on the Group's funding level over the short-, medium- and long-term time periods, relative to the projected baseline.

Note the analysis in the table below assumes that the Scheme's investment strategy evolves from the current investment strategy to the following investment strategy by 2028 and then remains static thereafter.



Source: Manweb

In the modelling, the asset allocations have allowed for the proportion of assets held in the longevity swap accounts. Based on the assumption that the Group's investment strategy will evolve as outlined above, the impact on the Group's funding level (relative to the baseline funding level projection) under the three climate scenarios considered is as follows:

	Impact (%) relative to baseline
Rapid Transition	
Impact at 2028	-0.8%
Impact at 2032	-0.7%
Impact at 2050	-1.3%
Orderly Transition	
Impact at 2028	0.4%
Impact at 2032	0.4%
Impact at 2050	0.4%
Failed Transition	
Impact at 2028	-0.5%
Impact at 2032	-0.4%
Impact at 2050	0.1%

Under the scenarios considered the impact on the Group's funding level is relatively low.

Over the period to 2028, transition risk dominates. The Rapid Transition is the most impactful scenario, but still has a relatively low impact. Under this scenario there is a shock to financial markets in 2026 followed by a recovery the following year. Overall, the funding level as at 2028 is reduced by 0.8% due to the impacts of Rapid Transition relative to the baseline.

As at 2032, the Rapid Transition and Failed Transition have impacts of a similar magnitude. This means that transition risks and physical risks are similarly important from a financial perspective. The Rapid Transition reduces funding level by 0.7% and the Failed Transition reduces funding level by 0.4%. The impact of the Orderly Transition is slightly positive; transition costs and impacts are smaller and largely priced in.

Over the long term, physical damages would be the dominant driver. Beyond 2028 the Group's strategy is low risk, largely allocated to LDI, cash collateral and investment grade corporate bonds and therefore there is a relatively low impact on the funding level as at 2050 under the three scenarios.

There were no data issues in producing the above scenario analysis.

The Trustee's actuary (Hymans) – longevity risk analysis

In addition to the above scenario analysis, the Trustee's actuary has also assessed the potential impact of climate-related longevity risk on the Group's liabilities as at 31 December 2022. The Trustee's actuary has applied Club Vita analysis to the three scenarios outlined above and has also taken into account the longevity risk hedged by the Group's longevity swap.

- **Under Rapid Transition**, the Group's liabilities are expected to increase as members live longer, driven by the assumption that the population adopts healthier lifestyles and pollution reduces.
- **Under Orderly Transition**, the Group's liabilities are expected to increase in the short term due to similar lifestyle benefits as seen under Rapid Transition. However, in the longer term there is not expected to be a pronounced impact given the less significant response to climate change.
- **Under Failed Transition**, the Group's liabilities are expected to reduce as the negative direct effects of climate change and knock-on impacts on the economy and living standards etc. reduce life expectancy.

The impact of climate change and/or society's reaction to it takes time to impact on the longevity of the population. The pace at which this change occurs will differ by scenario as some immediate changes to lifestyle that are beneficial are expected to impact longevity sooner, whereas some of the physical risks of climate change are expected to take longer to materialise. Therefore, the expected impact on longevity experience under a Rapid Transition materialises faster than that under the Failed Transition.

Taking into account the combined impact of the economic scenarios provided by Mercer as well as the longevity scenarios, applied to the liabilities and respective hedging assets as at 31 December 2022 on the gilts + 0.4% basis, the Trustee's actuary estimates that:

- The funding level worsens by at most c. 2%, occurring under a Rapid Transition scenario.
- The funding level improves by a maximum of c. 4%, occurring under a Failed Transition scenario.

The impact of the economic scenarios on unhedged liabilities is not deemed to be significant, which is consistent with the aforementioned analysis carried out by Mercer. Although the impact of the longevity scenarios on unhedged liabilities is slightly greater, the Trustee's actuary has noted that the maximum net increase of c.2% is still within the impact on funding that the Group may experience due to market volatility and from changes in assumptions and member experience at triennial valuations. There is significant uncertainty as to the impact of climate change on financial markets and demographic trends, and the analysis carried out by the Trustee's actuary considers the impact of specific climate change scenarios; Group experience and actual impacts could be materially different to the above.

Overall, the climate scenarios considered do not show a material impact on the Group's financial positions over the short, medium or long-term time periods considered. The Group is helped by the high hedging against adverse movements in long-term interest rates, inflation expectations and longevity risk and also the fact the Group no longer has any equity exposure. Whilst the Group has a high allocation to private debt at the current time, the allocation to this asset class will reduce materially over the next 3 to 5 years. Property is exposed to both transition risk and physical risk, however the Group's allocation is relatively low as a percentage of total Group assets.

Results from the Trustee's analysis on the Sponsor covenant

In March 2023, the Trustee's covenant advisor analysed the potential impact of transition risks under three climate scenarios on the Sponsor's ability to support the Group. The analysis was based on scenario analysis undertaken by the Sponsor, which focused on the impact of covenant transition risks on the Sponsor in 2030, and the scenario analysis undertaken in respect of the Group.

The Sponsor's scenarios are based on National Grid's Future Energy Scenarios which provide a UK-specific view and are used for the development of the Sponsor's investment plans. The scenarios considered are below:

- **Consumer Transformation**: This scenario is characterised by electrified heating, consumer behaviour change, energy efficiency and demand side flexibility and is aligned with the UK's 2050 net zero target. The Sponsor's outlook for 2023 – 2025 is based on this central scenario, it is therefore the baseline scenario.

- **Leading the Way**: This scenario goes beyond consumer transformation and assumes the fastest credible decarbonisation, significant lifestyle change, and a mixture of hydrogen and electrification for heating. This scenario is also aligned with the UK's 2050 net zero target.
- **Falling Short**: This scenario falls behind the other two scenarios and does not achieve the UK's 2050 net zero goal. It is characterised by the slowest credible decarbonisation, minimal behaviour changes and decarbonisation in power and transport but not heat.

The Sponsor's current business planning activities utilise the Consumer Transformation scenario as a baseline, so no impact assessment is carried out on this scenario. The Sponsor's assessment concluded that in 2030 there was no significant adverse impact under the Leading the Way scenario and a low adverse covenant impact under the Falling Short scenario. The impact under the Falling Short scenario is on the Sponsor's Energy Networks division which is particularly impacted by the pace of transition, while the adverse impacts on the Renewables and Retail divisions are not expected to be significant under any of the scenarios considered by the Sponsor.

Although the Sponsor's analysis sets out that there is a low adverse covenant impact under the Falling Short scenario, the Group's covenant advisor concluded that the impacts are not expected to impact the resilience of the Group's funding strategy. This conclusion was reached on the basis that the Group is not expected to have additional funding needs under the Group climate scenarios considered and factoring in the current covenant strength and anticipated covenant growth in the period to 2030.

Based on the Sponsor's initial impact analysis physical risks are expected to have no or low covenant impacts, which can be mitigated via the Sponsor's adaptation actions.

Scenario analysis has not been considered by the Group's covenant advisor for the Sponsor's ultimate parent, Iberdrola. Further, although the different scenarios considered by Mercer and the Group's covenant advisor appear to provide a reasonable basis for comparison, further consideration will be required in future years to ensure the Group and the Sponsor's scenarios align. The Trustee is considering these factors as part as its ongoing governance and risk management.

Climate opportunities

The Group's Sponsor could also benefit from climate-related opportunities over the short, medium and long term. Opportunities primarily relate to investments in renewables and networks, which will play a key role in the energy transition.

Scenario assumptions and limitations

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

- The further into the future you go, the less reliable any quantitative modelling will be.
- 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.
- Financial stability and insurance 'breakdown' are 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.
- Most adaptation costs and social factors are not priced into the models. These include population health and climate-related migration.

National Grid Electricity

Net assets[10] as at 31 March 2023: £2,589m.

The following information should be read in conjunction with the Group's disclaimers included in Appendix D.

Time periods

The Group Trustee assessed the climate-related risks and opportunities over multiple time horizons. The Group Trustee has decided the most appropriate time horizons for the Group are:

- short term: 1-3 years.
- medium term: 4-10 years.
- long term: 11-20 years.

When deciding the relevant time horizons, the Group Trustee has taken into account the liabilities of the Group and its obligations to pay benefits.

Climate scenarios

The Group Trustee has undertaken climate change scenario analysis to better understand the impact climate change could have on the Group's assets and liabilities.

The analysis looks at five climate change scenarios. Each scenario considers what might happen when transitioning to a low carbon economy under different conditions. The Group Trustee has chosen these scenarios because it believes that they provide a reasonable range of possible climate change outcomes. These scenarios were developed by Aon and are based on detailed assumptions. They are only illustrative and are subject to considerable uncertainty.

The Group Trustee established a "base case" scenario against which the five climate change scenarios are compared.

	1	2	3
	Base scenario	**No transition**	**Disorderly transition**	**Abrupt transition**
	+2ºC – 2.5ºC	**+4ºC**	**<3ºC**	**1.5 - 2ºC**
	Emission reductions start now and continue in a measured way in line with the objectives of the Paris Agreement and the UK government's legally binding commitment to reduce emissions in the UK to net zero by 2050.	No further action is taken to reduce greenhouse gas ("GHG") emissions leading to significant global warming.	Limited action is taken and insufficient consideration is given to sustainable long-term policies to manager global warming effectively.	Action on climate change is delayed for five years at which point we experience more frequent extreme weather events and governments have to address GHG emissions.

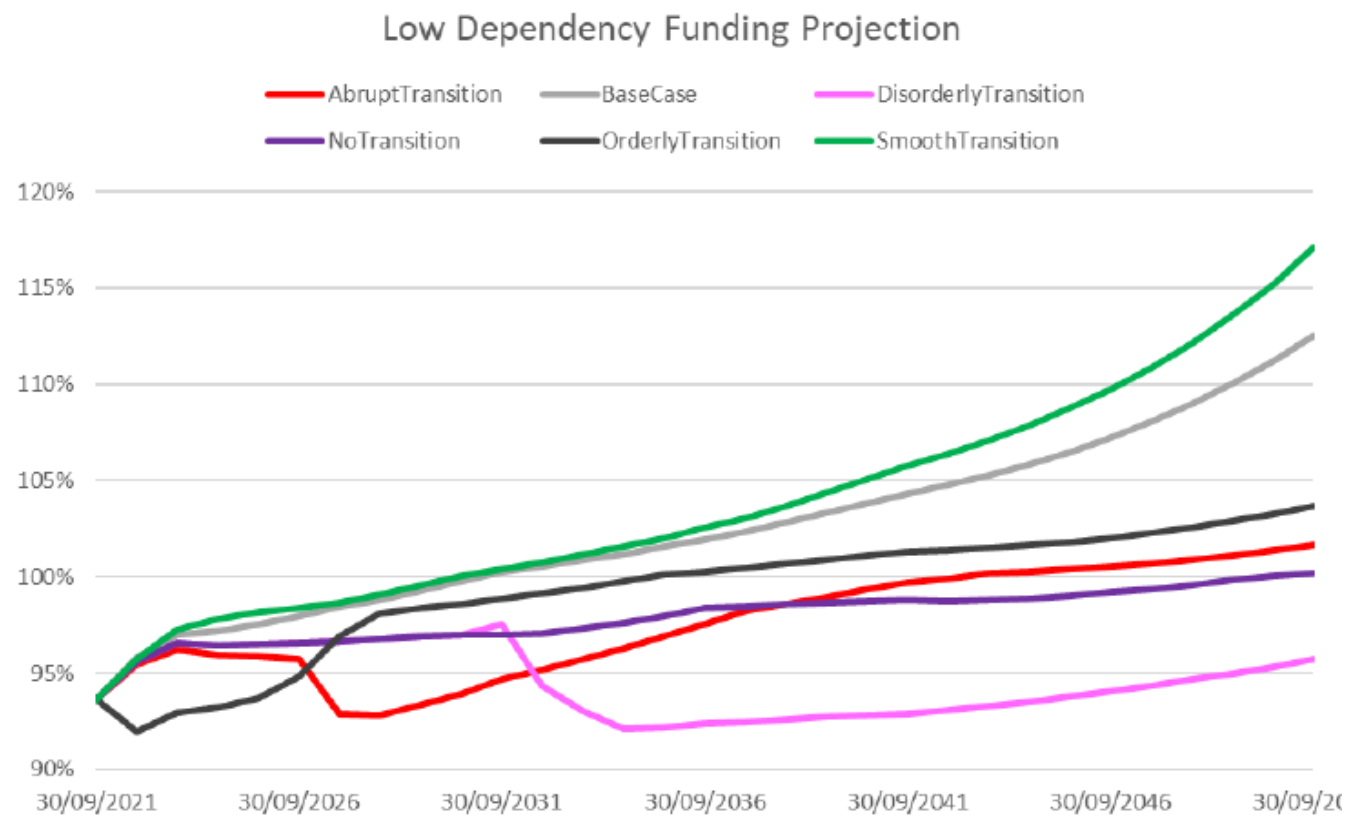
[10] Source: Scheme Trustee Report and Accounts for the year-ending 31 March 2023.

4	5
Orderly Transition	**Smooth Transition**
1.3 - 2ºC	**<1.5ºC**
Immediate and coordinated action to tackle climate change is taken using carbon taxes and environmental regulation.	Rapid advancement of green technology and government action on climate change which achieves a smooth transition to a low carbon economy.

Impact of scenarios

The IC reviewed scenario analysis which considered the potential impact of climate change on the current strategic asset allocation and liabilities (measured on the strategic liability basis) and, therefore, its funding position. The analysis is presented in the chart and table below:

Funding level projections under the climate change scenarios



Source: National Grid.

Asset return projections under the climate change scenarios

	Base case	No transition	Disorderly transition	Abrupt transition	Orderly transition	Smooth transition
Short-term return[1] (% p.a.)	0.7	0.5	0.5	0.4	-0.6	0.9
Medium-term return[1] (% p.a.)	0.6	0.3	0.4	0.2	1.0	0.5
Long-term return[1] (% p.a.)	0.4	0.3	0.3	0.5	0.2	0.4

Source: National Grid.

Conclusions

Based on the analysis, the IC considers that the investment strategy exhibits reasonable resilience under most of the climate scenarios, whilst acknowledging there are scenarios that could lead to a material deterioration in the funding level. However, this risk is mitigated by the Group's low risk strategy/proportion of equities, the diversification of assets, and high levels of hedging against changes in interest rates and inflation, especially as the de-risking progresses according to the agreed flight plan.

Of the scenarios, the IC believes a Disorderly Transition scenario to be of most concern. After 10 years the funding level deteriorates sharply and does not recover by the end of the 30-year modelling period. This leaves the Group materially worse off relative to the base case.

The Group Trustee, supported by the IC, will consider further opportunities to mitigate these potential shocks, such as further de-risking and more climate transition focused approaches, to provide further downside protection.

Action taken following the scenario analysis

The Group Trustee has not taken any action as a result of the climate change scenario modelling specifically, given that the Group is expected to be reasonably resilient to climate change. However, ongoing de-risking has been undertaken more generally, as the Group's funding level has improved.

Impact of scenarios on covenant

- **Covenant considerations:** The Group is directly supported by National Grid Electricity Transmission plc. As part of its detailed covenant reviews, the Group's covenant adviser considers the possible impact of climate-related risks and opportunities on the sponsor over the short, medium and long term. This informs its view on the resilience of the employer covenant under various climate scenarios. Any material covenant risks and opportunities identified are then considered as part of half-yearly covenant monitoring and reported to the Group Trustee so they can be factored into Group strategy considerations.
- **Transition risks and opportunities:** Given the nature of the business, the Group's sponsor will play a pivotal role in the UK's transition to net zero and as such, transition risks and opportunities are a key consideration when assessing and monitoring employer covenant.

  The investment required to support the decarbonisation of energy is a great opportunity for the sponsor, supporting its position as critical national infrastructure, and could lead to material growth in the size of the business. However, there are also risk considerations around the successful delivery and financing of significant electricity transmission projects (noting 17 major projects were approved by Ofgem in December 22). Such risks could have cost, operational, reputational and regulatory implications over the short, medium and long term and will continue to be closely monitored by the Group's covenant advisor.
- **Physical risks:** In addition to transition risks, in a 'hothouse' scenario in which global warming cannot be limited to a 1.5-degree Celsius rise, the sponsor's exposure to physical risks increases over time. Higher temperatures and more extreme weather patterns could lead to damage to physical assets and challenge the company's ability to meet electricity demands.

The impact of such risks and opportunities materialising on covenant will depend on the level of covenant reliance at that time.

Climate opportunities

The Group Trustee expects potential opportunities to arise in the Group's assets associated with (but not limited to) the following themes:

- Clean energy: Green power generation, clean technology innovation, sustainable biofuels.
- Environmental resources: Water, agriculture, waste management.
- Energy and material efficiency: Advanced materials, building efficiency, power grid efficiency.
- Environmental services: Environmental protection, business services.

The Group Trustee expects its investment adviser to raise any such opportunities (as relevant to the Group) to the Group Trustee's attention in a timely manner. The investment opportunities that arise through the transition to a low carbon economy are then considered by the Group Trustee on a case-by-case basis.

Scenario assumptions and limitations

The purpose of the scenario model is to consider the long-term exposure of the Group to climate-related risks and the pattern of asset returns over the long term. In particular, the model considers different climate change scenarios and the approximate impact on asset/liability values over the long term.

The model used assumes a deterministic projection of assets and low dependency liabilities, using standard actuarial techniques to discount and project expected cashflows.

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

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

The model intends to illustrate the climate-related risks the Group is currently exposed to, highlighting areas where risk mitigation could be achieved through changing the portfolio allocation.

- Other relevant issues such as governance, costs, and implementation (including manager selection and due diligence) must be considered when making changes to the investment strategy.

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

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

Key Assumptions				
	Temperature risk by 2100	**Reach net zero by**	**Carbon price (2030/2050)**	**Introduction of environmental regulation**
No transition	+4C	After 2050	$40/$50	None
Disorderly transition	<3C	After 2050	$65/$340	Late and aggressive
Abrupt transition	1.5C – 2C	2050	$135/$280	Aggressive
Orderly transition	1.3C – 2C	2050	£100/$215	Co-ordinated
Smooth transition	<1.5C	2045	$80/$165	High co-ordination

Northern Powergrid

Net assets[11] as at 31 March 2023: £1,152m.

The following information should be read in conjunction with the Group's disclaimers included in Appendix D.

Time periods

The Group Trustees assessed the climate-related risks and opportunities over multiple time horizons and decided the most appropriate time horizons for the Group are:

- short term: 1-3 years.
- medium term: 4-10 years.
- long term: 11-20 years.

When deciding the relevant time horizons, the Group Trustees have taken into account the liabilities of the Group and its obligations to pay benefits.

Climate scenarios

The Group Trustees have undertaken climate change scenario analysis to better understand the impact climate change could have on the Group's assets and liabilities.

The analysis looks at five climate change scenarios. Each scenario considers what might happen when transitioning to a low carbon economy under different conditions. The Group Trustees have chosen these scenarios because they believe that those scenarios provide a reasonable range of possible climate change outcomes. The scenarios were developed by Aon and are based on detailed assumptions. They are only illustrative and are subject to considerable uncertainty.

A "base case" scenario was established by the Group Trustees' investment consultant, Aon, against which the five climate change scenarios are compared.

[11] Source: Scheme Trustee Report and Accounts for the year-ending 31 March 2023.

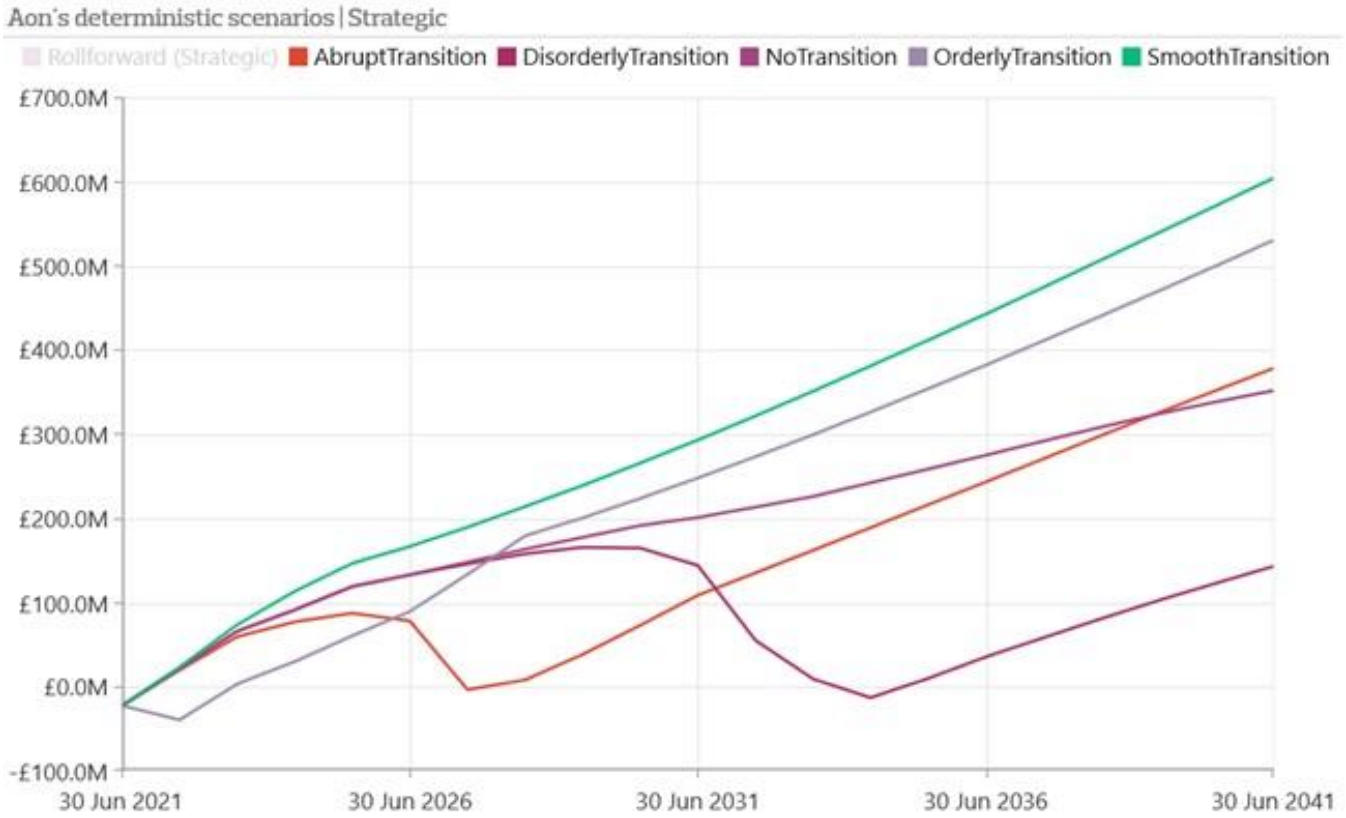
1	2
Base scenario **+2ºC – 2.5ºC** Emission reductions start now and continue in a measured way in line with the objectives of the Paris Agreement and the UK government's legally binding commitment to reduce emissions in the UK to net zero by 2050.	**No Transition** **+4ºC** No further action is taken to reduce GHG emissions leading to significant global warming.	**Disorderly transition** **+3 – 4ºC** Considers the impact of climate change if insufficient sustainable policy action is undertaken to manage global temperatures effectively over the next 10 years.

3	4	5
Abrupt transition **+<2ºC** Explores the impact of delayed action on climate change for five years with governments eventually forced to address GHG emissions due to increasing extreme weather events.	**Orderly transition** **+<2ºC** Considers the impact of immediate and coordinated action to tackle climate change using carbon taxes and environmental regulation.	**Smooth transition** **<1.5ºC** Rapid advancement of green technology and government action on climate change which achieves a smooth transition to a low carbon economy.

Impact of scenarios

The Funding and Investment Committee (F&IC) reviewed scenario analysis which considered the potential impact of climate change on the Group's strategic asset allocation and liabilities (measured on the strategic liability basis) and, therefore, its funding position. The analysis is presented in the chart and table below:

Funding level projections under each climate scenario



Source: Northern Powergrid .

Asset return projections under the climate change scenarios

Projected asset returns (% p.a.)	Base case	No transition	Disorderly transition	Orderly transition	Abrupt transition	Smooth transition
Short term	0.9	0.7	0.7	(0.5)	0.4	1.1
Medium term	1.0	0.6	0.3	0.8	0.3	1.1
Long term	1.2	0.6	0.2	1.0	0.9	1.3

Conclusions

Based on the F&IC's analysis, the Group Trustees consider that the investment strategy is relatively resilient to climate change risk, acknowledging that there are scenarios that could lead to a material deterioration in the funding level. The decision to reduce the Group's allocation to equities, as well as the level of diversification in the Group's assets and the degree of liability hedging in place, will help mitigate the risk alongside the current covenant strength.

Of these scenarios, the Group Trustees believe a Disorderly Transition scenario to be of most concern, given the potential for this scenario to impact on the Group's funding level within the timeframe of the existing long-term funding plans. Under that scenario, the Group is projected to experience a significant deficit shock within the next decade.

The Group Trustees, supported by the F&IC, will consider further opportunities to mitigate these potential shocks, such as further de-risking and more climate transition focused approaches, to provide further downside protection.

Action taken following the scenario analysis

The Group Trustees have not taken any action as a result of the climate change scenario modelling given the de-risking that had already been agreed.

Climate opportunities

- **Listed Infrastructure:** The manager identified that the renewable energy market represents an attractive investment opportunity. The manager expects that opportunities will become apparent as the pathway to net zero requires the replacement of fossil fuel energy with electric energy, backed by renewable energy, and with the expected increased electrification of economies. To achieve the net zero target, communities will need to invest in renewable energy and increased resilience of the electric grid, both of which are significant opportunities for electric utilities.
- **Property**: Property Unit Trust
  The manager believes that commissioning net zero carbon studies will over time present climate-related investment opportunities such as:
  - Reduced operating costs through a focus on energy, water and waste efficiency, in a move to more efficient buildings.
  - Delivering returns on investment for technology procurement at assets.
  - Reduced reliance of fossil fuel energy and potential susceptibility shifts in energy policy, taxes and levies through the use of lower-emission sources of energy.
  - Reduced exposure to GHG emissions and therefore less sensitivity to the cost of carbon.
  - Reduced risk of early write demands and / or reduced demand by failing to transition to a low carbon economy.
  - Reputational gains of aligning to the Paris Commitment which may result in increased demand for goods/services and increased revenue through demand for lower emission products and services.
- **UK Property:** The manager is seeing increasing demand from tenants and the wider market for low carbon and climate resilient buildings. The manager is developing mitigation plans to address any climate-related risks present in its portfolios. By doing so, the underlying assets within its portfolios will remain attractive to occupiers and maximise building occupancy. In practice, this will mean that the manager looks at investing in low-carbon options, and work with underlying managers to also make these necessary investments. This could include options such as, but not limited to, rooftop photovoltaics, highly energy efficient systems, sustainable transport options and accessible and healthy buildings.
- **Insurance-Linked Securities:** The manager believes that there will be a sustained and growing demand for re/insurance coverage as the market adapts to climate change. For example, for emerging types of risk such as wildfire, there has been an increased demand for coverage resulting in a number of new issuances of wildfire catastrophe bonds. The manager also expects demand long-term from new insurance markets as they adopt to evolving risks and require insurance coverage to build resilience.
- **Equity:** The industry, utility and basic materials sectors are among the most exposed to transition risks but may also see the greatest opportunity going forward. As electric vehicles, renewables and other alternative fuels become cheaper relative to conventional alternatives, companies stand to benefit significantly from this growth. While not all participants in these growing markets are likely to be captured in today's global equity indices, many existing corporates are likely to profit significantly. Those companies that are formulating effective transition plans today and committing the required capital are among the most likely to benefit.
  - Beyond the low-carbon technologies already in use today, there are also many potential innovative solutions that could present opportunities. These include carbon capture and storage, direct air capture, low- or zero-carbon hydrogen and ammonia production and nature-based solutions.
  - Yet volume growth and investment returns are not intrinsically correlated. Thematic focus on constraints will be required to protect returns. Investors should focus on three areas to evaluate opportunities and produce targeted investment strategies: geological scarcity, technological innovation and regulatory change.

- **Fixed Income:** Government and currency opportunities: Governments are increasingly looking to issue "green" versions of their debt. Often green bonds trade at a premium to their counterparts and can offer attractive relative value opportunities in addition to the non-financial benefits that may be attractive to investors.
- **Corporate bonds:** Much of the new issuance within the corporate bond market is likely to have an ESG bias to it over the coming years, with particular attention towards issuers potentially exposed to material climate risks. The Bond Plus Manager is well placed to understand the materiality of these risks and as such, can understand the market's pricing of these risks and determine where they see climate-related opportunities in the future.
- **Asset-backed securities:** The climate-related opportunities in the ABS asset class are the range of new green ABS bonds that are coming on the market.

Scenario assumptions and limitations

The purpose of the scenario model is to consider the long-term exposure of the Group to climate-related risks and the pattern of asset returns over the long term.

In particular, the model considers different climate change scenarios and the approximate impact on asset/liability values over the long term.

The model assumes a deterministic projection of assets and low dependency liabilities, using standard actuarial techniques to discount and project expected cashflows.

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

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

The model intends to illustrate the climate-related risks to which the Group is currently exposed, highlighting areas where risk mitigation could be achieved through changing the portfolio allocation.

Other relevant issues such as governance, costs and implementation (including manager selection and due diligence) must be considered when making changes to the investment strategy.

Investment risk is only captured in the deviance from the base case, but this is not the only risk that the Group faces. Other risks include covenant risk, longevity risk, timing of member options, basis risks and operational risks.

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

Key Assumptions				
	Temperature risk by 2100	**Reach net zero by**	**Carbon price (2030/2050)**	**Introduction of environmental regulation**
No transition	+4C	After 2050	$40/$50	None
Disorderly transition	<3C	After 2050	$65/$340	Late and aggressive
Abrupt transition	1.5C – 2C	2050	$135/$280	Aggressive
Orderly transition	1.3C – 2C	2050	£100/$215	Co-ordinated
Smooth transition	<1.5C	2045	$80/$165	High co-ordination

Scenario Covenant Assessment

The Group Trustees' covenant adviser has noted that the environmental risk is moderately negative and reflects the exposure of Northern Powergrid's distribution businesses to physical climate risk. This exposure is mitigated by reinforcing the distribution network and regulatory protections that reduce the adverse impact on operational cash flows of more extreme weather events.

The Group is fully funded on a technical provisions (TP) basis to the extent that the deficit repair contributions (DRCs) have ceased. As a result of this, the Group is not reliant on DRCs as the Group is both fully funded and hedged so the sponsor covenant risk is reduced.

RWE

Net assets[12] as at 31 March 2023: £4,296m.

Time periods

The Group Trustees believe that it is important to consider both the expected timing of the climate transition, over which the Group's path to Net-Zero will take place, as well as the duration of the Group's liabilities when deciding on the relevant timeframes over which climate-related risks and opportunities are expected to impact the Group. Having taken these considerations into account, the Group Trustees have agreed the following timeframes.

- **Short term:** The period to 2024 which corresponds to the next Actuarial Valuation cycle in which the Group Trustees will revisit the funding strategy.
- **Medium term:** The period to 2030 in which transition risk is expected to dominate and is consistent with the next three Actuarial Valuation cycles.
- **Long Term:** The period to 2042, over which the Group will mature significantly. This period starts to incorporate a greater degree of physical risk exposure.

Climate scenarios

	Lowest Common Denominator	**Inevitable Policy Response**	**Global Coordinated Action**	**Climate Emergency**
Description	A 'business as usual' scenario where current policies continue with no further attempt to incentivise additional emission reductions.	A delay in meaningful action but a rapid shift in policy in the mid/late 2020s. Policies are implemented but not in a completely co-ordinated manner.	Policy makers agree on and immediately implement policies to reduce emissions in a globally co-ordinated manner.	An immediate, ambitious, and co-ordinated response in which aggressive policy is pursued and more extensive technology shifts are achieved.
Temperature rise vs pre-industrial	3.5ºC	2.0ºC	2.0ºC	1.5ºC
Renewable energy by 2050	30-40%	80-85%	65-70%	80-85%
Transition risk level (shorter term)	Low	High	Low – Medium	Medium – High
Physical risk level (longer term)	High	Low – Medium	Low – Medium	Low
Innogy Section funding impact relative to base case funding increase of 23%	By 2042, the funding level is expected to **increase by 12%** relative to the base case under this scenario	By 2042, the funding level is not expected to change materially under this scenario relative to the base case	By 2042, the funding level is expected to **decrease by 8%** relative to the base case under this scenario	By 2042, the funding level is expected to **decrease by 3%** relative to the base case under this scenario
Potential Innogy Section Covenant	• Principal activity of the business is developing, owning, and operating offshore wind farms in the UK, with a handful of onshore windfarms. Offshore wind farms form a			

[12] Source: Scheme Trustee Report and Accounts for the year-ending 31 March 2023.

<table>
<tr><td>impact (Sponsor - RWE Renewables UK Swindon, Guarantor – RWE Renewables UK Swindon Limited)</td><td colspan="4">core part of the UK government’s decarbonisation strategy, therefore transition risks to the Company are very limited, while there may be some climate-related opportunities.
• The Covenant is most uncertain under the Lowest Common Denominator scenario which is expected to have a positive impact on funding. The Group Trustees are reassured by the potential negative correlation between the Company and the Section (such that the Company is expected to be more robust and able to provide support in scenarios with less positive funding outcomes and vice versa).
• Although there is reasonable visibility over the short- and medium-term time horizons identified, there is expected to be greater variability beyond this point, and therefore the Group Trustees consider this closely as part of strategic reviews.
Given the strong current funding position and expected gradual decrease in the size of liabilities, the Section’s expected future reliance on the Covenant is low.</td></tr>
<tr><td>RWE Section funding impact relative to base case funding increase of 26%</td><td>By 2042, the funding level is expected to increase by 9% relative to the base case under this scenario.</td><td>By 2042, the funding level is expected to decrease by 3% relative to the base case under this scenario.</td><td>By 2042, the funding level is expected to decrease by 9% relative to the base case under this scenario.</td><td>By 2042, the funding level is expected to decrease by 5% relative to the base case under this scenario.</td></tr>
<tr><td>Potential RWE Section Covenant impact (Sponsor – RWE Generation UK)</td><td colspan="4">• Principal activity of the business is owning, and operating gas fired power stations in the UK, as well as several biomass and hydro power stations.
• Over the short term, the UK’s reliance on gas fired stations is high, as alternatives start to become operational, and therefore demand for these stations appears strong. In the long term, there is less visibility on what the business may look like. This will vary depending on future technological investment and therefore the availability of free cashflow. There is also a higher level of political risk and uncertainty.
• The Covenant is most uncertain under the Climate Emergency scenario which also has a small negative impact on funding. The Group Trustees will therefore continue to engage with the Company to ensure resilience is pursued under such a scenario as well as considering other actions that can be taken to mitigate the future uncertainty of outcomes. The Group Trustees are also reassured by the tending-to-strong rating of the Covenant in the short term. The Group Trustees do however recognise that there is significant variability beyond this point, and this is therefore considered closely as part of strategic reviews and discussions with the Sponsor.
Given the strong current funding position and gradual expected decrease in size of liabilities, the Section’s expected future reliance on the Covenant is low.</td></tr>
</table>

Base case: This is the central funding projection against which the climate scenarios are considered. It projects, using the Investment Adviser’s investment model, the assets and liabilities of each Section over the next 20 years. This considers commonly used central UK life expectancy projections for the liabilities (which includes an assumed long-term rate of improvement of 1.5% p.a. over the next 20 years). It assumes that the current asset portfolio of each Section remains the same, which is consistent with Group Trustees’ strategic discussions to date. It also does not make any explicit future allowance for climate change outcomes within the assumptions, but there is an implicit assumption that future outcomes will rhyme with history (which has exhibited other such large external shocks). We expect that current market pricing, which is to some extent built into the model, only allows for a small amount of transition risk (similar to the Lowest Common Denominator scenario) and makes no allowance for physical risk. For the Innogy Section this assumes a 23% improvement in funding (on a self-sufficiency basis) from 99% to 122% by 2042. For the RWE Section this assumes a 26% improvement in funding (on a self-sufficiency basis) from 98% to 124% by 2042.

It’s worth noting that the analysis is a top-down assessment of the Group. The Group Trustees also consider detailed bottom-up Responsible Investment (“RI”) reporting which assesses the underlying exposures of the

Group's specific assets through the use of multiple metrics, which include exposure to climate-related risks and opportunities.

The Group Trustees selected the climate scenarios on the basis that they reflect a plausible range of outcomes consistent with current scientific consensus. Whilst there were no issues with the data or its analysis which have limited the comprehensiveness of the assessment of the scenarios, the Group Trustees recognise that there is a great deal of uncertainty around the assumptions used, and the expected outcome, under each of the scenarios analysed. Despite this uncertainty, the Group Trustees remain confident about the general direction of travel and resilience demonstrated through the analysis. The Group Trustees also expect that other plausible scenarios can be constructed, and other alternative scenarios were considered at a qualitative level as part of the Group Trustees' wider discussion. One of the scenarios qualitatively considered recognised that the path of global, political, and regulatory action towards a net-zero world was unlikely to be linear and could involve the reversal of commitments and policies made under previous regimes. There was a recognition that this could increase the total physical and transition costs relating to climate change incurred within the Group's assets and create difficulty for the Sponsor's business. While the Group Trustees recognised that it was unlikely to significantly alter the main conclusion, that the funding strategy was likely to remain robust, it was important to continue to consider going forward. This was particularly the case given the dual impact on the Group's assets and Sponsor.

The climate change scenario analysis was conducted as at 31 March 2022 (i.e. at the end of the previous scheme year). For the scheme year ending 31 March 2023, in line with regulatory requirements, the RIC discussed whether the analysis should be repeated, and agreed that an update was not required this year. In coming to this decision, the Group Trustees considered whether there were sufficient changes in: data availability, investment and funding strategy, modelling capabilities, key scenario assumptions and industry best practice to warrant an update; and concluded that they did not. The Group Trustees did, however, review and discuss the previous analysis and reiterated the key priorities identified, the progress against which can be seen throughout this Statement. This decision will be reviewed again ahead of the production of the next TCFD report in 2024.

Impact of scenarios

Overall: Following a detailed consideration by the Group's Responsible Investment Committee ("RIC"), the Group's funding strategy is expected to be resilient to the potential impacts of the climate scenarios based on the analysis. Both Sections' funding levels are strong, and due to the Group's investment strategy, the overall portfolio is relatively de-risked, with return seeking asset exposure diversified across a range of asset classes. The Group's expected return on assets is, therefore, sufficiently ahead of the liabilities so that under all the scenarios considered, the funding level would expect to improve over the long-term, despite the impact of the scenarios. The RIC do, however, closely monitor, using a number of climate metrics, the exposure of the underlying assets held to specific climate-related risks and opportunities, and consider the impact of these on the Group's investment strategy. The Group Trustees also recognise that continuing ongoing discussions with the Sponsor in respect of each Section remains important to ensure that, particularly in the case of an uncertain longer-term picture, a robust funding plan remains in place.

Innogy Section: The analysis identified that two of the four scenarios considered are expected to have a negative effect on the Innogy Section's funding level. The most pronounced impact was in the "Global Co-ordinated Action" scenario, which would result in a funding level increase of only 15% over the longer-term relative to the base case increase of 23%. If all of the impact was crystallised immediately, with an associated market overreaction (an unlikely scenario), this could see an immediate fall of 5% in the current funding position. By contrast, it was identified that the "Lowest Common Denominator" scenario had a positive impact on the funding level relative to the base case (with life expectancy improving significantly less than current expectations), however this would not be a positive impact for members so shouldn't be interpreted as a positive outcome.

RWE Section: The analysis resulted in similar conclusions for the RWE Section. Three of the four scenarios considered have a negative effect on the Section's funding level in the long term. The most pronounced impact was in the "Global Coordinated Action" scenario, which would result in a funding level increase of only 16% over the longer-term relative to the base case increase of 26%. If all of the impact was crystallised immediately, with an

associated market overreaction (an unlikely scenario), this could see an immediate fall of 6% in the current funding position. As with the Innogy Section, the “Lowest Common Denominator” scenario was shown to be the most favourable to the RWE Section funding.

Interpretation: In some climate scenarios, our modelling process implies reduced life expectancies (relative to other scenarios and/or schemes’ central mortality assumptions) and therefore a relative reduction in the Sections’ liabilities. This is a plausible potential outcome arising from the negative impacts of climate change. This can suggest a relative improvement in the expected funding position for the Sections, even when combined with associated reductions in the value of the Sections’ assets (given their low-risk nature). However, it is important to recognise that an assessment of what is in the best interests of the Group and its members is a much broader question than the impact on funding level alone. Key considerations may be a reduction in the quality (and length) of members’ lives, and the quality of the environment that they will retire into. Consequently, the results of any such modelling should not be assumed to reflect any complacency or acceptance (either implicit or explicit) that the Group Trustees consider global inaction or business-as-usual with respect to climate change to be in the best interests of the Group or its members. The Group Trustees believe that climate change is a systemic risk of unprecedented scale and severity. Actions to address it are a collective priority, given the risks it presents to individual pension schemes, the ongoing resilience of the savings universe, and the planet as a whole.

Actions the Group Trustees have taken: As part of the Group’s broader RI strategy, the Group Trustees have taken a number of actions to manage climate-related risks and exploit the associated opportunities. These are set out in more detail in the Metrics and the Targets sections of the TCFD report.

Climate opportunities

Specific investments (such as the Group’s recent commitment into a new private fund, which invests directly in wind, solar, biomass, and other opportunistic long-term renewable assets) have been made to take advantage of climate opportunities.

- **Short term:** Encouraging existing funds to consider, and where possible reduce exposure to, transition risks and engage with companies to develop a strong transition plan. Also considering investing in assets/companies/sectors that are engaged in contributing to and helping the world to adapt to the decarbonisation of the global economy.
- **Medium term:** Disinvest from companies who still do not have a transition plan in place. Also considering investing in assets/companies/sectors that are engaged in contributing to and helping the world to adapt to the decarbonisation of the global economy.
- **Long term:** Aligning the Group’s investments with the RI policies of leading insurers may increase the likelihood of credit assets being taken in specie, marginally reducing the cost of settlement transactions. Also considering investing in assets/companies/sectors that are engaged in contributing to and helping the world to adapt to the decarbonisation of the global economy.

Climate-related risks

The Group Trustees have identified the following climate-related risks, relevant to the Group over each of the time periods specified earlier in the report.

	Short Term	Medium Term	Long Term
Primary types of risk	• Regulatory • Reputational • Transparency & data • Transition	• Reputational • Transparency & data • Transition	• Transition • Physical
Key risk exposure	The Group is exposed to regulatory risks, including fines, if it does not comply with evolving regulatory requirements. The Group Trustees (and sponsor) are exposed to reputational risks if the Group Trustees' policies are misaligned with peers. The Group Trustees also recognise the risks associated with improving data and transparency in terms of decision making and the new exposures this may identify. The Group Trustees may be exposed to transition risks, such as regulatory (e.g., ban on petrol/diesel car production from 2030) or societal (e.g. reduction in meat consumption) changes impacting the business of invested companies, through its holdings in various asset classes (including equity, credit, property, and infrastructure).	The Group Trustees (and sponsor) are exposed to reputational risks if the Group Trustees' policies are misaligned with peers. The Group Trustees also recognise the risks associated with improving data and transparency in terms of decision making and the new exposures this may identify. The Group Trustees may be exposed to transition risks, such as regulatory or societal changes impacting the business of invested companies, through its holdings in various asset classes (including equity, credit, property and infrastructure). The Group Trustees are exposed to the impact on insurer pricing of climate risk (to the extent that they consider settlement activity in the future), including the impact on future expected returns and other financial and demographic assumptions.	The Group Trustees may be exposed to transition risks, such as regulatory or societal changes impacting the business of invested companies over the transition period, and physical risks, such as damage to physical property and assets, as well as impacts on mortality outcomes in the longer term, through its holdings in various asset classes (including equity, credit, property, and infrastructure). The Group Trustees are exposed to the impact on insurer pricing of climate risk (to the extent that they consider settlement activity in the future), including the impact on future expected returns and other financial and demographic assumptions.

Scenario assumptions and limitations

As part of the analysis, the Group Trustees explored the effects of climate-related risks and opportunities on the Group over different time horizons. The results presented provide an overview of the gradual impact over time. As a test to this assumption and to consider the potential impact over the short-medium term time horizon, the Group Trustees also considered the impact on the Group assuming that there is an instantaneous shock, under which markets react to the long-term impacts of climate change over a very short period of time in the immediate future. Markets have also historically been twice as volatile as justified by subsequent outcomes and therefore the Group

Trustees have also considered this as an additional stress as part of the analysis. While this is unlikely in practice, it does assist in testing the underlying assumptions and conclusions of the analysis.

A potential limitation of the scenarios considered in this analysis is that they are derived on the basis of all other factors being equal during the efforts to transition to a low carbon economy. This is unlikely to occur in practice. Second order effects, such as higher levels of investment, employment, and productivity-enhancing innovation, are hard to estimate, and represent the reason why the climate change scenarios cannot be the sole driver of the Group's investment strategy and risk management decisions.

There are limitations in the forecasting and prediction of the path of global political action. Within the scenarios considered, there are linear assumptions made about how this might occur. Although these recognise the additional cost of seeking to act fast in a short space of time, they are limited by this assumption which is very unlikely to be true in practice, given the variability in approaches, and policies, over the time periods considered.

Scenario Covenant Assessment

RWE Renewables UK Swindon Ltd (Innogy Section)

- **Short term:** The current operating assets all benefit from subsidies and are cash generative. The current pipeline is well established, and has projects in various stages, which are commercially driven, with commitment from RWE and the UK Government. Short term performance will not be driven by any delays or acceleration in policy shifts, and the Sponsor is likely to remain robust.
- **Medium and long term:** In the medium and long term, different scenarios will have varying degrees of effect on the Group's Sponsor. The Sponsor is expected to remain robust under most of the scenarios considered with the exception of the climate emergency scenario where financial performance might be expected to improve if there is an accelerated rate of decarbonisation.

RWE Generation UK Plc. (RWE Section)

- **Short term:** It currently appears that the UK is locked into a reliance of gas fired station over the short term, as carbon-free alternatives require a material lead time to become operational. The short-term demand for the gas fired stations appears strong and the Sponsor has proved its ability to take advantage of the short-term volatility in the gas and electricity markets.
- **Medium and long term:** Over the medium term, the resilience of the Sponsor remains strongest in those scenarios where decarbonisation is delayed, whereas in scenarios where decarbonisation is accelerated, additional capital expenditure will be required to refit and convert existing infrastructure. Over the long term, there is no visibility on what the RWE Generation UK Plc business may look like. The uncertainty is so high that the business could potentially provide no Sponsor support to the Section, however, given the Group's maturity, it is unlikely to have Sponsor reliance at that point in time.

Schneider

Net assets[13] as at 31 March 2023: £18m.

Time periods

The Trustees define the short-term, medium-term and long-term as shown in the table below. In determining the timeframes, the Trustees have taken account of the Group's liabilities and the funding strategy.

Horizon	Timeframe	Expected behaviour of horizon matched investments
Short term	Up to 5 years	Targeting a moderate level of return for a low level of short-term risk
Medium term	6-10 years	Targeting a medium level of return for an intermediate level of short-term risk
Long term	11+ years	Targeting a high level of return for a high level of short-term risk but lower level of long-term risk

Climate scenarios

The Group Trustee has chosen to use three climate scenarios: one which is 'Paris-Aligned', as required, and two alternative scenarios which result in a more severe global temperature rise by the end of the century. The scenarios reflect the Trustee's reasoned assessment of plausible climate pathways and are robust in that they align with those published by the Network on Greening the Financial System (NGFS) and incorporate third-party data from MSCI. In choosing these scenarios, the Trustee has considered not just the implied temperature rise, but also the nature of the transition to a net zero economy, and its associated impacts. The scenarios effectively cover a broad spectrum of potential climate pathways, helping the Trustee to better prepare for a breadth of potential outcomes.

- The **Orderly Transition Scenario** models the early implementation of policies and technologies required to limit global warming to 1.5°C by 2100. It implies that a coordinated, global effort to reduce greenhouse gas emissions is undertaken immediately and smoothly, allowing economic actors to plan for, respond to and make the necessary investments to adapt to a changing policy and technology landscape. The Paris Agreement targets are broadly achieved.
- The **Disorderly Transition Scenario** models a late implementation of policies and technologies required to limit climate change, and therefore assumes that global warming reaches 2°C by 2100. It implies that policy actors are uncoordinated, and action begins later, resulting in more drastic policies and shorter time horizons to reduce emissions. It also means that the revenue-generating opportunities of low-carbon technologies are not fully realized until later years. The Paris Agreement targets are partly achieved.
- The **Hot House Scenario** models a failed transition, in which the world does not take enhanced action to address climate change and continues towards a path aligned with existing Nationally Determined Contributions (NDCs) set under the Paris Agreement. Nationally Determined Contributions imply some additional policy implementation over current policies, as many countries are not yet on track to meet their NDCs. As a result, the world experiences very little transition risk but the physical risks of climate change are exacerbated and more uncertain. Global warming of 3°C or more is experienced by the end of the century.

These scenarios have been adopted to help the Trustee consider the potential effects on the Group of different climate scenarios. This provides insight into the resilience of the investments and the potential for adverse climate scenarios to impact the Group. As part of the identification and impact assessment process, in future iterations of

[13] Source: Scheme Trustee Report and Accounts for the year-ending 31 March 2023.

this report the Trustee will consider the likely impact on the Group over the short-, medium- and long-term of different climate scenarios.

Impact of scenarios

To quantify the financial impact of the CRROs associated with each scenario, SEI has retained MSCI to analyse a Climate Value at Risk (CVaR) metric for each fund the Group is invested in. This metric provides a forward-looking valuation assessment to measure climate-related risks and opportunities affecting the Group's assets. The Trustee believes that analysing the results set out below will help it focus its time and resources on the most material issues. It will allow the Trustee to review with its advisers whether adjustments to investment holdings should be made to limit exposures to climate-related risks and maximise exposures to opportunities.

SEI has reported the CVaR for each fund the Group holds across each of the three scenarios. The forward-looking CVaR metric represents the aggregate, estimated financial impact of a given climate change scenario, expressed as a shock to the discounted present value of the fund under consideration. (In turn, this can be understood as the potential shock to the enterprise market value of the underlying securities in the fund, which results from the scenario assumptions.) In most cases this figure represents downside risk (<0%), but may, in some circumstances, reflect upside opportunity (>0%).

To provide greater context, the CVaR for a given portfolio is an aggregation of the policy risks, technology opportunities, and physical risks impacting each security in the portfolio. The policy and technology costs and revenues associated with each security reflect a forecast out to 2080, discounted back to their present value. The physical risk costs are forecast out to 2100, and again discounted back to their present value. As such, future costs and revenues are less impactful than near-term costs and revenues. The CVaR metrics disclosed below have been decomposed into their 'transition risk' and 'physical risk' components, and then aggregated.

CVaR data is unavailable for the Liquid Alternative Fund (HDG) as its underlying holdings are largely derivative instruments. Similarly, CVaR data is unavailable for the Group's LDI holdings, as CVaR metrics are not produced for this area of the market (physical/leveraged UK government bond funds).

CVaR Metrics

Transition CVaR				
Fund Name	**Data Coverage (% MV)**	**Orderly Transition Scenario**	**Disorderly Transition Scenario**	**Hot House Scenario**
Global Select Equity Fund	96%	-11.3%	-8.7%	-2.9%
Factor Allocation Global Equity Fund	99%	-10.6%	-8.1%	-2.7%
Global Managed Volatility Fund	98%	-10.5%	-8.4%	-2.4%
Dynamic Asset Allocation Fund	91%	-7.0%	-5.2%	-1.4%
Emerging Markets Equity Fund	96%	-9.0%	-5.6%	-1.1%
Emerging Markets Debt Fund (HDG)	9%	-25.2%	-16.7%	-7.7%
High Yield Fixed Income Fund (HDG)	72%	-19.2%	-15.9%	-7.1%
Global Opportunistic Fixed Income Fund (HDG)	74%	-10.1%	-7.7%	-2.2%
Liquid Alternative Fund (HDG)	Unavailable			
UK Credit Fixed Interest Fund	73%	-5.9%	-4.3%	-0.7%
UK Long Duration Credit Fund	78%	-10.9%	-7.8%	-1.3%

Physical CVaR				
Fund Name	**Data Coverage (% MV)**	**Orderly Transition Scenario**	**Disorderly Transition Scenario**	**Hot House Scenario**
Global Select Equity Fund	96%	-2.1%	-3.1%	-5.9%
Factor Allocation Global Equity Fund	99%	-2.4%	-3.6%	-6.9%
Global Managed Volatility Fund	98%	-2.0%	-3.0%	-6.5%
Dynamic Asset Allocation Fund	91%	-1.3%	-2.0%	-3.9%
Emerging Markets Equity Fund	96%	-4.9%	-6.6%	-11.1%
Emerging Markets Debt Fund (HDG)	9%	-3.2%	-4.8%	-9.9%
High Yield Fixed Income Fund (HDG)	72%	-2.0%	-3.0%	-6.5%
Global Opportunistic Fixed Income Fund (HDG)	74%	-2.0%	-2.9%	-5.7%
Liquid Alternative Fund (HDG)	Unavailable			
UK Credit Fixed Interest Fund	73%	-2.7%	-4.2%	-8.0%
UK Long Duration Credit Fund	78%	-3.7%	-5.1%	-9.2%

Aggregate CVaR				
Fund Name	**Data Coverage (% MV)**	**Orderly Transition Scenario**	**Disorderly Transition Scenario**	**Hot House Scenario**
Global Select Equity Fund	96%	-13.4%	-11.8%	-8.8%
Factor Allocation Global Equity Fund	99%	-13.0%	-11.7%	-9.6%
Global Managed Volatility Fund	98%	-12.4%	-11.4%	-8.8%
Dynamic Asset Allocation Fund	91%	-8.3%	-7.2%	-5.4%
Emerging Markets Equity Fund	96%	-13.9%	-12.2%	-12.2%
Emerging Markets Debt Fund (HDG)	9%	-28.4%	-21.5%	-17.6%
High Yield Fixed Income Fund (HDG)	72%	-21.2%	-18.9%	-13.6%
Global Opportunistic Fixed Income Fund (HDG)	74%	-12.1%	-10.5%	-7.9%
Liquid Alternative Fund (HDG)	Unavailable			
UK Credit Fixed Interest Fund	73%	-8.5%	-8.5%	-8.7%
UK Long Duration Credit Fund	78%	-14.6%	-12.8%	-10.5%

Source: SEI, MSCI. Data as at 31 March 2023. Aggregate CVaR represents a weighted sum of the covered positions, capped at +/- 100% for any individual security position. As a result, Transition CVaR and Physical CVaR may not sum to Aggregate CVaR.

Longevity or demographic impacts on the Group's liabilities under various climate scenarios are yet to be modelled by the Group Actuary.

Investment strategy resilience

Climate-related scenario analysis allows the Trustee to develop insight into how the physical and transition risks and opportunities arising from climate change might impact the investments over time. Importantly, scenario analysis is not meant to predict the future, but rather to provide a deeper understanding of the CRROs to which the Group may be exposed.

- **Orderly Transition:** In this scenario, the funds are exposed to the highest policy-related transition risks (as well as the greatest technology opportunities) relative to the other scenarios, on aggregate. This results in the highest overall Transition CVaR across our three scenarios for all funds. This is due, in part, to the discounting of future costs in CVaR modelling – near term costs and revenues associated with transition risks are weighted more heavily than costs and revenues experienced at a future date.

For the Orderly Transition, physical risk is modelled using a mid-range forecast of the physical risks associated with climate change under a 1.5°C scenario. In this scenario, the funds are exposed to the lowest levels of Physical CVaR associated with chronic and acute physical impacts of climate change. This is because early action slows the accumulation of carbon dioxide in the Earth's atmosphere and achieves net zero by 2050.

- **Disorderly Transition:** In this scenario, the funds typically experience a more moderate level of transition policy risk and technology opportunities, resulting in a more moderate overall Transition CVaR figure, relative to the Orderly Transition. This is because future costs and benefits are discounted more heavily than their near-term counterparts.

  Physical risk is modelled using a mid-range forecast of the physical risks associated with climate change under a 2.0°C scenario. In this scenario, portfolios are exposed to greater levels of Physical CVaR – associated with the chronic and acute physical impacts of climate change – than under an Orderly Transition, as the world experiences greater levels of warming and its resultant impacts.

- **Hot House Scenario:** The funds are subject to the least transition policy risk and technology opportunities, relative to the other scenarios. While the use of low-carbon technologies will continue to grow, such growth occurs at a slower pace than for the Orderly and Disorderly Transition scenarios, resulting in more heavily discounted future benefits.

  Physical risk is modelled using a 95th percentile forecast of physical risks associated with climate change under a 3.0°C scenario. In this case, a more aggressive physical risk model is applied because there are more unknowns. Physical risk models are continuing to evolve, and the Intergovernmental Panel on Climate Change assessments paint an increasingly concerning picture of the risks associated with climate change. MSCI's estimate of physical risk in this scenario is therefore deliberately at the high-end of the spectrum. The resulting Physical CVaR is somewhat moderated by future cost discounting.

- **Aggregate Climate Risk:** Overall, Aggregate CVaR tends to be lowest under the Hot House Scenario and highest under the Orderly Transition. This may seem counterintuitive at first but can be understood by referring to the components of aggregate climate risk: transition and physical risk. As mentioned previously, transition risk tends to be greatest under the Orderly Transition. At the other end of the temperate rise spectrum, the Hot House Scenario carries higher physical risk, but exposes the funds analysed to less transition risk. However, the physical risks modelled are generally projected to materialise further into the future, and the CVaR methodology discounts them more heavily than the near-term costs associated with transition risk. Therefore, in moving from the Orderly Transition to the Hot House Scenario the fall in transition risk more than offsets the increase in physical risk, leading to a fall in Aggregate CVaR.

The results of the analysis suggest that the Group's assets could be adversely impacted by climate risk under each of the three scenarios. In aggregate, the magnitude of this impact is likely to be in the region of 5% of Group assets (depending upon the realised future climate pathway), though any such impact would likely materialise over a significant length of time. The investment strategy is expected to be more resilient to climate pathways that are more closely aligned with the Hot House Scenario (at least in the short to medium-term), because the climate risks associated with such pathways – primarily physical – are anticipated to materialise further into the future. The transition risks more heavily associated with the Orderly Transition Scenario pose more imminent challenges for the investment strategy and its resilience to them.

Scenario assumptions and limitations

Schneider made the following assumptions for the scenarios:

- **Orderly Transition Scenario**: Transition risk analysis references the 1.5^{o}C NGFS REMIND (Orderly) assessment model that follows an SSP2 pathway for scenario assumptions. Physical risk analysis uses an Average extreme weather risk assumption to model downside potential.

- **Disorderly Transition Scenario**: Transition risk analysis references the 2ºC NGFS REMIND (Disorderly) assessment model that follows an SSP2 pathway for scenario assumptions. Physical risk analysis uses an Average extreme weather risk assumption to model downside potential.
- **Hot House Scenario**: Transition risk analysis references 3ºC NGFS REMIND (Hot House) assessment model that follows an SPSS2 pathway for scenario assumptions. Physical analysis uses an Aggressive extreme weather risk assumption to model downside potential.

The limitations the Group Trustee faces today are not necessarily limitations that will be faced in the future, as this is an area that is changing rapidly, with research organisations continually developing new methodologies and companies generating better data. Climate Value at Risk (CVaR) metrics are commonly used to assess the potential financial losses associated with climate-related risks. While CVaR metrics can provide valuable insights, there are several limitations to consider when using CVaR metrics:

- Uncertain Climate Models: CVaR metrics rely on climate models to estimate future climate scenarios. However, climate models have inherent uncertainties and limitations. They may not capture the full complexity of the climate system or accurately predict regional or local climate changes, making it challenging to accurately assess the associated financial risks.
- Limited Historical Data: CVaR metrics require historical data to estimate the relationship between climate variables and financial losses. However, the availability of long-term, high-quality climate data is often limited, particularly for localized regions or specific sectors. This lack of comprehensive historical data introduces uncertainties into the calculations and reduces the accuracy of the risk assessment.
- Complex Interactions and Feedbacks: Climate risks are interconnected and often involve complex feedback mechanisms. For example, climate change impacts affect various sectors simultaneously, such as agriculture, energy, infrastructure, and insurance. CVaR metrics may struggle to capture these interdependencies accurately, potentially leading to an underestimation or overestimation of financial risks.
- Nonlinear and Threshold Effects: Climate change impacts are often nonlinear, meaning that small changes in climate variables could lead to disproportionately large impacts. Furthermore, some climate-related risks have threshold effects, where the risk increases significantly beyond a certain point. CVaR metrics might not fully account for these nonlinearities and thresholds, leading to an incomplete representation of the potential financial losses.
- Dynamic Nature of Climate Risks: Climate risks are dynamic and evolve over time due to changes in climate patterns, technological advancements, policy developments, and adaptation measures. CVaR metrics typically assume a static relationship between climate variables and financial losses, which might not capture the evolving nature of risks accurately.
- Limited Scope: CVaR metrics generally focus on physical climate risks, such as extreme weather events, sea-level rise, and temperature changes. They may not adequately capture other climate-related risks, including transitional risks associated with the transition to a low-carbon economy or liability risks related to climate litigation and regulatory changes. Therefore, relying solely on CVaR metrics may provide an incomplete picture of the overall financial risks associated with climate change.
- Data coverage for the CVaR metric is limited across certain asset classes, most notably government bonds and other fixed income assets. Caution is advised when interpreting the CVaR metrics for funds with data coverage that is below 80%.
- CVaR is a tool intended to illustrate a range of possible outcomes, not to forecast actual future portfolio value.
- The CVaR metrics are useful for comparison purposes and identifying concentrations of risk, but do not provide much insight into absolute risk levels.
- The CVaR methodology discounts risks likely to occur further into the future more heavily than those likely to materialise in the near-term. As transition risks are more imminent than physical risks, this means the methodology tends to place more weight on transition risks.
- The CVaR metric is a headline figure, representative of the potential shock to the aggregate enterprise market value of the underlying securities in the fund, which results from the climate assumptions being considered. It does not provide insight into the nature or timing of the underlying climate risks.
- The CVaR metric does not provide insight into the balance of climate risks and opportunities for the scenario considered.

Climate opportunities

The efforts to mitigate and adapt to climate change will likely result in new opportunities, such as through resource efficiency and cost savings, the adoption and utilisation of low-emission energy sources and the development of new products and services, and improved resilience along the supply chain. Climate-related opportunities will vary depending on the region, market and industry in which an organisation operates.

Integrating climate-related risks and opportunities ("CRRO") into the Group's investment strategy will be an important activity. The Group Trustee is early in the journey towards long-term management of climate-related risks and opportunities. As such, establishing effective governance structures, tools and processes for identifying climate-related risks and opportunities has been central to the Trustee's ability to manage climate-related risks and opportunities.

The Trustee will use climate-related metrics and scenario analysis to guide its risk management activities going forward. In years to come, the Trustee expects improvements in the availability, scope and reliability of climate-related metrics such as total emissions, carbon footprint and weighted average carbon intensity to aid future decision-making. The Trustee recognises that not all investments in carbon-intensive companies are necessarily misaligned with the management of climate-related risks and opportunities; for example, heavy emitters with ambitious and realistic science-based targets are likely to play an important role in the transition to a low-carbon economy.

The Trustee believes that stewardship (i.e., shareholder engagement and voting) is an effective means of positively impacting the behaviour of investee companies and also improving transparency; therefore, engagement is favoured over divestment.

It is expected that CRROs will become an integral part of the Trustee's risk management framework and that the following factors will likely influence the future exposure of the Group to CRRO:

- Climate scenario analyses, including the impact of climate-related risks and opportunities on projected future funding levels and the timeframe in which the Group might achieve its long-term targets.
- The availability, via the Fiduciary Manager and Investment Managers, of reliable and complete information sufficient to enable assessment of the Group's exposures to CRROs. This would include reliable and complete information relating to climate-related metrics such as carbon footprint.
- Inquiry into the extent that areas of the Group are significantly exposed to climate-related risks.
- The philosophy, process and practice of underlying Investment Managers in assessing and managing climate-related risks in the selection of investments. (It is noted here that as Fiduciary Manager, SEI considers ESG factors including climate change to be an integral part of its manager research and due diligence process. However, to date, no minimum threshold has been established with respect to these capabilities in order for a firm to be hired as an underlying Investment Manager.)
- The extent to which the Fiduciary Manager and Investment Managers actively participate in industry groups and promote better practices and transparency related to CRROs. (The Trustee notes that the Fiduciary Manager, SEI, is a signatory of the UN Principles for Responsible Investment (UN PRI). Additionally, SEI and/or its affiliates are participants in and/or signatories to a range of collaborative industry organisations, including Climate Action 100+, the UK Investment Consultants Sustainability Working Group, and the UK Stewardship Code 2020.)
- Stewardship (shareholder engagement and voting) conducted by SEI, the Fiduciary Manager, on the Group's behalf.

SSE Southern

Net assets[14] as at 31 March 2023: £1,808m.

Time periods

The Group is a long-term investor. Given the nature of climate change and the time-horizons over which impacts of climate change may be felt, it can be expected that climate risk will impact the Group in various ways. However, it is important first to define the different time-horizons which the Group Trustee may consider, in order to clarify whether the different risks and opportunities arising from climate change may impact the Group in the short-, medium- or long-term. In the context of the Group, the Group Trustee considers short, medium and long-term time horizons. The Group Trustee has defined what these time-horizons mean in more detail as set out below:

- **Short term:** period to the Group's next triennial actuarial valuation (31 March 2025, 2 yrs).
- **Medium term:** period to the Group's target date to be 100% funded on a gilts basis (31 March 2030, 7 yrs).
- **Long term:** period to broadly align with the duration of the Group's liabilities (31 March 2040, 17 yrs).

Climate scenarios

In order to test the resilience of the Group's funding and investment strategy to climate risk, The Group Trustee carried out climate scenario analysis, considering the Group's assets and market conditions as at 28 February 2023, liabilities projected from the March 2022 valuation. This analysis was undertaken to assess the resilience of the Group's combined funding and investment strategy over the short-, medium- and long-term time horizons to a number of different climate scenarios with a focus on both upside and downside funding outcomes. These climate scenarios estimate the impact to the Group of temperature rises equivalent to 1.5°C, 2°C and 4°C above pre-industrial times, as detailed in the scenario graphic below. The Group Trustee has used these three scenarios, as working in conjunction with its investment advisor, it believes these to be an appropriate assessment of the broad range of potential outcomes.

The scenario analysis was based on top-down analysis of the Group's strategy, using a model produced by the Group's investment advisor, Hymans Robertson. The scenario analysis considers the potential impact on funding outcomes under three scenarios, which differ by how quickly and decisively the world responds (or fails to respond) to climate change. The table overleaf summarises these scenarios and how they correlate to the variance of the world's transition to a low carbon economy.

[14] Source: Scheme Trustee Report and Accounts for the year-ending 31 March 2023.

Aggressive mitigation — Business as usual

Green Revolution	Delayed Transition	Head in the Sand
Concerted policy action starting now e.g., carbon pricing, green subsidies. Public and private spending on "green solutions". Improved disclosures encourage market prices to shift quickly. Transition risks in the short term, but less physical risk in the long term. High expectation of achieving <2°C warming.	No significant action in the short-term, meaning the response must be stronger when it does happen. Shorter and sharper period of transition. Greater (but delayed) transition risks but similar physical risks in the long term. High expectation of achieving <2°C warming.	No or little policy action for many years. Growing fears over ultimate consequences leads to market uncertainty and price adjustments. Ineffective and piecemeal action increases uncertainty. Transition risks exceeded by physical risks. Low/no expectation of achieving <2°C warming.

Impact of scenarios

The Group Trustee is planning to implement a revised investment strategy following the completion of the recent triennial valuation. Therefore, in testing the resilience of the Group's overall strategy to climate change, the Group Trustee performed climate scenario analysis allowing for the proposed changes to the investment strategy – both for the immediate evolution and those proposed for each of the de-risking triggers – so the analysis formed part of the Group Trustee's decision-making process as to which investment strategies the Group should adopt moving forward. The Group Trustee considered:

- The potential impact of various climate scenarios on the revised investment strategy as proposed for immediate adoption following the completion of the 2022 triennial actuarial valuation.
- The potential impact of various climate scenarios on the future investment strategies proposed under the Group's updated de-risking framework following the completion of the 2022 triennial actuarial valuation.

Climate Scenarios – Outputs

The Group Trustee considered two key outputs when understanding the resilience of the Group to each of the climate scenarios:

- 'Likelihood of success': this means the probability that the Group will be 100% funded (i.e. assets are at least equivalent to the liabilities) over the relevant time periods.
- 'Average of worst 5% of funding levels over X years': this means the possible fall in the funding level over the relevant time periods in the worst 5% of cases.

The output from the analysis is set out in the following tables.

Strategy	**Impact of climate scenario of likelihood of success**		
	Short term **2 years**	**Medium Term** **7 years**	**Long term** **17 years**
Proposed strategy	**Base: 17%** Green revolution: +1% Delayed transition: -1% Head in the sand: -1%	**Base: 48%** Green revolution: 0% Delayed transition: -4% Head in the sand: -1%	**Base: 71%** Green revolution: 0% Delayed transition: +1% Head in the sand: -3%
92.5% trigger	**Base: 26%** Green revolution: +1% Delayed transition: -1% Head in the sand: -3%	**Base: 56%** Green revolution: -1% Delayed transition: -4% Head in the sand: -2%	**Base: 76%** Green revolution: -2% Delayed transition: +2% Head in the sand: -2%
95.0% trigger	**Base: 36%** Green revolution: +1% Delayed transition: -1% Head in the sand: -3%	**Base: 61%** Green revolution: -2% Delayed transition: -4% Head in the sand: -2%	**Base: 79%** Green revolution: -2% Delayed transition: +1% Head in the sand: -3%
97.5% trigger	**Base: 53%** Green revolution: +1% Delayed transition: 0% Head in the sand: 0%	**Base: 69%** Green revolution: 0% Delayed transition: -3% Head in the sand: -2%	**Base: 83%** Green revolution: -1% Delayed transition: +1% Head in the sand: -5%
100% trigger	**Base: 69%** Green revolution: +1% Delayed transition: 0% Head in the sand: +1%	**Base: 77%** Green revolution: +1% Delayed transition:-1% Head in the sand: -1%	**Base: 87%** Green revolution: -2% Delayed transition: 0% Head in the sand: -4%

Strategy	Average of worst 5% of funding levels		
	Short term **2 years**	**Medium Term** **7 years**	**Long term** **17 years**
Proposed strategy	**Base: 78%** Green revolution: 0% Delayed transition: 0% Head in the sand: +1%	**Base: 69%** Green revolution: -1% Delayed transition: -1% Head in the sand: 0%	**Base: 43%** Green revolution: -4% Delayed transition: +3% Head in the sand: -9%
92.5% trigger	**Base: 82%** Green revolution: 0% Delayed transition: 0% Head in the sand: +1%	**Base: 74%** Green revolution: -1% Delayed transition: -1% Head in the sand: 0%	**Base: 55%** Green revolution: -3% Delayed transition: +2% Head in the sand: -7%
95.0% trigger	**Base: 85%** Green revolution: 0% Delayed transition: 0% Head in the sand: +1%	**Base: 78%** Green revolution: -1% Delayed transition: -1% Head in the sand: 0%	**Base: 63%** Green revolution: -1% Delayed transition: +1% Head in the sand: -4%
97.5% trigger	**Base: 88%** Green revolution: 0% Delayed transition: 0% Head in the sand: +1%	**Base: 81%** Green revolution: -1% Delayed transition: -1% Head in the sand: 0%	**Base: 69%** Green revolution: -1% Delayed transition: +1% Head in the sand: -2%
100% trigger	**Base: 91%** Green revolution: 0% Delayed transition: 0% Head in the sand: +1%	**Base: 84%** Green revolution: -1% Delayed transition:-1% Head in the sand: 0%	**Base: 74%** Green revolution: 0% Delayed transition: +1% Head in the sand: -2%

Climate scenarios conclusions

The key takeaway is that the investment strategies in the proposed de-risking framework are all relatively resilient to the climate stresses applied. This is the case over all of the time periods modelled, with a c7% range (-5% to +2%) of impact on probability of success around the central base case.

Over the medium term, 7-year horizon, the “delayed transition” scenario has the greatest impact on funding outcomes (limited progress on climate preparations in the short term, with a sharp transition in the medium term that is highly disruptive for the global economy).

Over the longer term, the head in the sand scenario is most impactful on funding outcomes. Understandably, the variability around the base case increases over the long term (17yrs), as the economic impacts from climate change are expected to be more pronounced over longer horizons.

It is important that, in absence of a strong belief of which climate scenario may transpire in practice, the Group continues to factor climate risk into all strategic, asset class and investment manager considerations and decision making.

Based on the output of the scenario analysis, the Group Trustee agreed to continue with the approach outlined above and integrate climate risk and opportunities into decision making where appropriate. This analysis will be carried out on at least a triennial basis, alongside each future investment strategy review and triennial Actuarial Valuation. In the interim years, the Group Trustee will consider whether to refresh the analysis, stating whether or not they choose to do so and why in the relevant TCFD report covering that period.

Climate opportunities

- **Investment:** This is limited beyond current planned actions given the Group's low risk strategy and funding position. As part of future de-risking potentially through buy-ins, we expect insurers will be seeking out climate positive opportunities as part of its own climate risk and opportunities assessments under TCFD, due to its long-term investment horizons and economies of scale.
- **Funding:** There is the potential for buy-ins to hedge proportion of longevity risk and mitigate risk.

Scenario assumptions and limitations

This modelling is a form of asset-liability modelling ("ALM").

The Group Trustee's advisor's ESS (Economic Scenario Service) produces stochastic projections for a wide array of asset class returns and other economic factors, which can be used as part of any quantitative risk management exercise - whether that be carrying out asset-liability modelling (ALM), strategic asset allocations (SAA), or any other exercise designed to quantify financial risk exposure. The ESS models are regularly updated to capture the latest market conditions and are maintained and documented by a dedicated specialist team. The models don't make explicit assumptions for climate change or any other economic/political factors like trade wars, pandemics, etc.

However, climate change can be factored in indirectly by weighting the existing ESS outputs to 'tilt towards' possible climate scenarios. For each climate scenario, a weight is calculated for each of the 5,000 projections run for the ALM exercise so that the projections with higher volatility in the specified time period are emphasised in that scenario.

All scenarios involve a period of 'stress', which happens at different points over the selected modelling horizon. Each period of stress encompasses a combination of transition and physical risks, but whereas the early periods are assumed to be nearly all transition risk, the later periods include more physical risk as the impact of climate change is felt. It has therefore been assumed that the later the stress happens, the more intense the climate risk impact will be.

The approach taken is to assess the impact of climate change on the whole range of projected outcomes for the Group's funding position (assets and liabilities combined) and the Group Trustee has not carried out detailed analysis of the impact on the assets and liabilities independently. The impact of the various scenarios tested is that the range of funding outcomes becomes wider and more uncertain, rather than having a direct impact on Group assets or liabilities independently.

Please note that impact of climate change on longevity and sponsor covenant is not included in the analysis.

UK Power Networks

Net assets[15] as at 31 March 2023: £3,159m.

The following information should be read in conjunction with the Group's disclaimers included in Appendix D.

Time periods

The Group Trustee has developed a Climate Related Risk Register, which rates risks as follows:

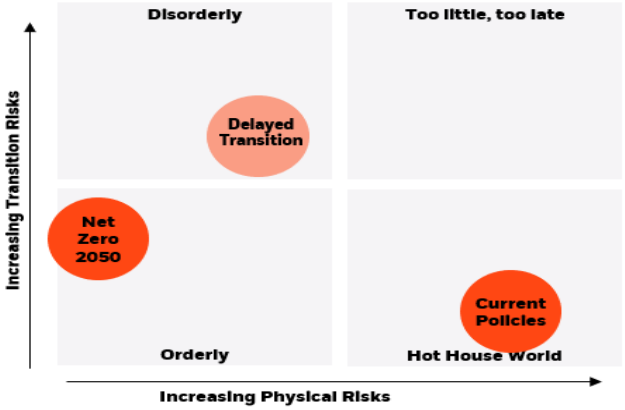
- Short-term to be 1 year.
- Medium-term to be 3-5 years.
- Long-term to be 10 years.

Climate scenarios

Overview of scenarios

In Aladdin Climate reporting, the below climate-related scenarios are modelled as an instantaneous shock to an asset, or a sector benchmark through the Temperature Alignment models. All of these scenarios model Transition and Physical Risk and are defined by the Network for Greening the Financial System ("NGFS"). The Current Policies scenario is Aladdin Climate's base scenario, for Transition Risk to which the Net Zero 2050 and Delayed Transition scenario are compared, for Physical risk we use a base scenario where we assume no additional climate damages in future.

Net Zero 2050	Delayed Transition	Current Policies
Model type Transition and Physical Risk	**Model type** Transition and Physical Risk	**Model type** Transition and Physical Risk
Temperature rise* 1.5 degrees	**Temperature rise*** 1.8 degrees	**Temperature rise*** 3.3 degrees
Scenario source NGFS	**Scenario source** NGFS	**Scenario source** NGFS



Aladdin Climate's models are intended to highlight the potential impact of climate policies and outcomes on the economy and on financial markets. Given the uncertainty in how policy makers, economies and companies may respond and adapt to the projected scenarios and the long term nature of the scenarios, we inherently need to make a number of simplifying assumptions in our modelling. This allows Aladdin Climate to provide investors with insight into where they may face climate risks and opportunities within their portfolios, but not a forecast or prediction in how asset values will actually evolve.

*Policy ambition temperature rise by 2081-2100 relative to 1850-1900 source: NGFS https://www.ngfs.net/ngfs-scenarios-portal/explore/
Source: NGFS, August 2022, BlackRock December 2022.

[15] Source: Scheme Trustee Report and Accounts for the year-ending 31 March 2023.

Physical and transition risk: Impact on strategies

Asset Classes (as at 31 December 2022)	Value (in millions of £)	Allocation (%)	Physical Climate Adj. Value %		Transition Climate Adj. Value %	
			Net Zero 2050	Delayed Transition	Net Zero 2050	Delayed Transition
Growth Strategy	1,039.40	34.3%				
Equities	209.9	6.9%				
American Century Global Small Cap Equity	12.6	0.4%	-	-	-	-
BlackRock ACS World ESG Equity	88.3	2.9%	-5.3%	-5.6%	-3.8%	-6.9%
BlackRock Factor Strategy	42	1.4%	-5.1%	-5.3%	-6.5%	-8.9%
BlackRock Thematic Strategy	24.1	0.8%	-4.7%	-5.0%	-2.3%	-5.3%
JPM China A-Share Opportunities Fund	8.5	0.3%	-	-	-	-
Schroders Emerging Market Equity	34.4	1.1%	-	-	-	-
Bonds	194.2	6.4%				
BlackRock Global Treasuries	44.9	1.5%	-0.3%	-0.3%	-0.3%	-0.1%
iShares $ TIPS ETF	34.1	1.1%	-0.2%	-0.2%	-0.3%	-0.1%
iShares China Index Fund	19.7	0.7%	-0.7%	-0.7%	-0.3%	-0.3%
Neuberger Berman EMD	23.7	0.8%	-	-	-	-
Payden & Rygel EMD (HC)	6.3	0.2%	-	-	-	-
PGIM Global Credit	45	1.5%	-0.6%	-0.6%	-1.9%	-1.9%
T Rowe Global High Yield	20.5	0.7%	-	-	-	-
Alternatives	606.9	20.0%				
Equitix Infrastructure Equity	67.5	2.2%	-	-	-	-
Barings European Private Loan Fund	123.2	4.1%	-	-	-	-
BlackRock Reditus Fund	160.7	5.3%	-	-	-	-
Blackstone Breds IV	66.9	2.2%	-	-	-	-
Harbourvest	59.1	1.9%	-	-	-	-
Partners Fund	129.6	4.3%	-	-	-	-
Cash	28.3	0.9%	0.0%	0.0%	0.0%	0.0%
Total Liability Hedging Strategy	1,995.20	65.7%				
Insight LDI	1,995.20	65.7%	-0.5%	-0.5%	5.7%	3.4%
Total Fund	3,034.50	100.0%				

The potential impact of transition and physical risk on the LDI portfolio and pension scheme liabilities has been modelled separately in Aladdin through calibration of user specified stress tests intended to be consistent with the climate scenarios shown. The potential impact of transition and physical risk on corporate bond or credit portfolios has been calculated based on the estimated impact on the spread over the government bond rate only.

Estimates are based on assumptions and are subject to change. Due to differences in the scenario counterfactuals and valuation methodologies, Physical and Transition Risk should not be added to show a total climate risk. Individual securities not covered by Aladdin Climate are assumed to be impacted in line with the relevant portfolio average. Source: BlackRock as at May 2023, based on holdings as at 31 December 2022. Analysis based on model calibrations as at 26 April 2023. Where the impact on a strategy is not shown or marked with a dash, this is due to insufficient data coverage on the underlying investments. Cash is assumed to be non-applicable and assumed to experience an impact of 0.0%.

Physical and transition risk: Impact on total assets, liabilities and funding

	31 December 2022	Physical Climate Impact		Transition Climate Impact	
		Net Zero 2050	Delayed Transition	Net Zero 2050	Delayed Transition
Assets	3,034.5	3,016.0	3,015.6	3,140.4	3,090.2
Liabilities	3,053.1	3,043.9	3,043.9	3,172.1	3,126.3
Surplus (deficit)	-18.5	-27.9	-28.3	-31.7	-36.1
Funding ratio (%)	99.4%	99.1%	99.1%	99.0%	98.8%
Change in deficit	-	+9.3	+9.8	+13.2	+17.6
Change in funding ratio (%)	-	-0.3%	-0.3%	-0.4%	-0.5%

The potential impact of transition and physical risk on the LDI portfolio and pension scheme liabilities has been modelled separately in Aladdin through calibration of user specified stress tests intended to be consistent with the climate scenarios shown. The potential impact of transition and physical risk on corporate bond or credit portfolios has been calculated based on the estimated impact on the spread over the government bond rate only.

Estimates are based on assumptions and are subject to change. Due to differences in the scenario counterfactuals and valuation methodologies, Physical and Transition Risk should not be added to show a total climate risk. Individual securities not covered by Aladdin Climate are assumed to be impacted in line with the relevant portfolio average. Source: BlackRock as at May 2023, based on holdings as at 31 December 2022. Analysis based on model calibrations as at 26 April 2023. Where the impact on a strategy is not shown, this is due to insufficient data coverage on the underlying investments. Cash is assumed to be non-applicable and assumed to experience an impact of 0.0%.

Physical and transition risk: Data coverage by portfolio

There are a number of portfolios for which we do not have adequate data (defined as less than 50% coverage) on the underlying holdings to provide quantitative scenario analysis. These have been excluded from the analysis. These include:

American Century Global Small Cap Equity
JPM China A-Share Opportunities Fund
Schroders Emerging Market Equity
Neuberger Berman EMD
Payden & Rygel EMD (HC)
T Rowe Global High Yield
Equitix Infrastructure Equity
Barings European Private Loan Fund
BlackRock Reditus Fund
Blackstone Breds IV
HarbourVest
Partners Fund

We have also not included tactical asset allocation positions or cash in this analysis. Where BlackRock has conducted analysis on portfolios managed by other investment managers, we are reliant on the accuracy of the holdings data and/or any other information provided by those managers. The portfolios that have been included in the analysis based on sufficient coverage, are listed below.

	Coverage
BlackRock ACS World ESG Equity	>90%
BlackRock Factor Strategy	>90%
BlackRock Thematic Strategy	>90%
BlackRock Global Treasuries	>90%
iShares $ TIPS ETF	>90%
iShares China Index Fund	>90%
PGIM Global Credit	>90%
Insight LDI	>90%

Source: BlackRock as at May 2023, based on holdings as at 31 December 2022. Note that coverage is estimated based on the incorporation of derivative mark-to-market exposure as at 31 December 2022.

UK sovereign bonds*

Orderly transition – transition risk

Rationale	Catalysts	Calibration
• A transition to Global Net Zero by 2050 is achieved via immediate and smooth policy responses • Carbon taxes are channelled back to the economy via government investment	• UK sees up to 2% p.a. GDP gains peaking in 2027 (50% of carbon tax assumed to be reinvested into the economy) • UK inflation around 1.9% higher peaking in 2026, largely driven by repricing of carbon prices • Price of carbon rises to over 800 $/ton by 2050.	The UK yield curve rises modestly as growth accelerates. Higher inflation however drives most of the impact on UK LDI assets and pension liabilities There is assumed to be no significant central bank response to higher inflation.

Orderly transition – physical risk

Rationale	Catalysts	Calibration
• Robust corrective action is taken to reduce emissions is taken but temperatures still rise by 1.5°C by c 2100 relative to pre-industrial levels	• Physical changes such as higher temperatures, sea-level rises and hurricanes impact GDP. • The impacts are largely felt from 2050 onwards	The UK yield curve increases modestly in the near term, but more for longer tenors as physical risks become for evident.

Disorderly transition – transition risk

Rationale	Catalysts	Calibration
• A delayed transition starts in 2030 • Carbon taxes are used to cut income tax, thus boosting private consumption • There is a negative shock to business confidence as stringent policies are introduced	• There is a negative impact on UK GDP particularly in the early to mid 2030s • UK inflation around 1% higher than in a base case peaking in 2032 largely driven by repricing of carbon prices • Price of carbon rises from 0 in 2030 to over 1000 $/ton by 2050	The middle of the UK yield curve rises modestly as the risk premia (probability of default) applied to the UK increases. Higher inflation is priced in from 2030 onwards There is assumed to be no significant central bank response to higher inflation.

Disorderly transition – physical risk

Rationale	Catalysts	Calibration
• Some corrective action to reduce emissions is take but temperatures still rise by 1.8°C by c 2100 relative to pre-industrial levels	• Physical changes such as higher temperatures, sea-level rises and hurricanes impact GDP. • The impacts are largely felt from 2050 onwards	The UK yield curve increases modestly in the near term, but more for longer tenors as physical risks become for evident.

*** The impact of transition and physical risk on the LDI portfolio and pension scheme liabilities has been modelled separately in Aladdin through calibration of user specified stress tests intended to be consistent with the climate scenarios shown.**
Source: BlackRock, December 2022.

Integration of climate risk into the design of the Group's asset allocation

The Group Trustee recognises climate change is a significant, systemic risk that it faces and that failure to consider the risks and opportunities it presents could impact the security of members' benefits over the short, medium, and long term. The Group Trustee is supportive of the UK's transition to a lower carbon economy, giving due consideration to such risks and opportunities, and through compliance with all relevant legislation and considering, with support from its advisers, all regulatory guidance and best practice.

The Group Trustee has delegated to BlackRock, as its Fiduciary Manager, the responsibility to design a diversified Strategic Asset Allocation ("SAA") that is consistent with the long-term investment objectives for the Group. The SAA is deemed consistent based on a number of requirements, including consistency with the BlackRock Investment Institute's ("BII") expected return assumptions across asset classes and an acute understanding of the Group's specific requirements. In addition, the consideration of Environmental, Social and Governance ("ESG") factors that feature into the selection of managers, as well as the choice of mandates with ESG-optimised or exclusionary screen characteristics form part of the overall investment strategy.

BII's expected return assumptions, referred to as Capital Market Assumptions ("CMAs"), are macroeconomic and asset return forecasts. These inherently account for the impact of climate change. Underpinning BlackRock's CMAs is the view that managing climate-related risks will help support economic growth and offer investors the ability to generate better risk-adjusted returns. Climate change and the global energy transition are expected to be drivers of asset returns, and consequently fundamental to making strategic investment decisions.

Through the use of these Capital Market Assumptions, climate risk is integrated throughout the design of the SAA for the Group. A high-level overview of this approach is set out below.

Climate-Aware Capital Market Assumptions

These base return assumptions form a critical input in the design of the long-term strategic allocation for the Group. The inputs to the asset return models are adapted to account for climate change impacts through three principal channels:

- **Macroeconomic impact:** A long-run model of climate change is used to account for the physical damages, energy transition and the impact of public policies and their impact on macro variables, such as level of GDP.

  Two long-term economic scenarios are modelled: a green transition (the base case underlying the Capital Market Assumptions) and a no-climate-action scenario. In the green transition scenario, co-ordinated climate mitigation and fiscal policies, along with technological innovation in areas such as carbon capture, result in global temperature rises by 2100 remaining below 2 degrees Celsius, broadly within that of Paris Agreement. In contrast, the no-climate-action scenario projects materially higher increase in global temperatures of 5.8 degrees Celsius and a worse economic outcome.

- **The Repricing channel (discount rate):** A consequence of shifting societal preferences for sustainability is that the price investors are willing to pay for assets perceived to be sustainable is changing, meaning the discount rate used to value these securities is also changing. For credit and equity markets the future cost of capital estimates are adjusted at the sector level, such that all else equal, more/less sustainable sectors have lower/higher future costs of capital.

- **The Fundamentals channel (cashflow/earnings):** Climate change and the efforts to address it will impact the profitability and growth prospects of companies. The impact on corporate earnings at the sector level of a green economic transition is estimated. To arrive at these estimates, firstly the sensitivity of earnings to carbon pricing initiatives is assessed, which is expected to be a core tenet of climate mitigation policies. The physical and transition risks and opportunities at the sector level are also taken into account.

Scenario Analysis

We have highlighted earlier in this section that Aladdin Climate's models are intended to highlight the potential impact of climate policies and outcomes on the economy and on financial markets. In Aladdin Climate reporting, the climate-related scenarios are modelled as an instantaneous shock to an asset, or a sector benchmark. Given the uncertainty in how policy makers, economies and companies may respond and adapt to the projected scenarios and the long-term nature of the scenarios, a large number of simplifying assumptions need to be made. This allows Aladdin Climate to provide investors with insight into where they may face climate risks and opportunities within their portfolios but is not a forecast or prediction in how asset values will actually evolve. The Group's asset allocation also has a significant proportion of assets are in LDI (c65% of the allocation*) and a sizeable allocation to private markets (c20%*) where there is insufficient coverage data to be included in the scenario analysis. Therefore, the primary method of integration of climate risks within the portfolio construction process for the Group's asset allocation is through the Climate-Aware Capital Market Assumptions and the selection of underlying asset managers.

*as at 31 December 2022

Additional information

Glossary

Term	Definition
TCFD	The Task Force on Climate-Related Financial Disclosures (TCFD) is a global guideline that recommends climate disclosures for businesses. It is currently mandatory in select regions (i.e., New Zealand), but voluntary elsewhere globally. The Task Force calls for businesses to create a governance structure around climate risk, incorporate climate considerations into corporate strategy and risk management, and disclose the specific metrics and targets used to assess climate risk.
Coverage	Percentage of portfolio for which there is data, uncovered securities are assumed to be impacted in line with the average of those covered
NGFS	Network for Greening the Financial System. It is a voluntary group of Central Banks and Supervisors who work to develop and share best practice in the financial sector with respect to managing environmental and climate-related risks.
PCAV	Physical climate adjusted value
TCAV	Transition climate adjusted value

Source: BlackRock, December 2022.

Scenarios | Physical risk

Understanding Physical Risk

Physical climate risk can manifest in both acute and chronic ways. Acute risks are event-driven, such as increasing extreme weather, increased wildfires, more widespread drought. Chronic risks are longer-term and generally less obvious, covering impacts including more volatile and higher average temperatures, rising sea levels, shifts in biodiversity, wind and cloud patterns, and soil quality. Physical climate risk, among other risks, has impacts on both short- and long- term investing, with both direct (e.g., damage to property or consumer locations) and indirect (e.g., supply chain disruption) impacts. BlackRock has partnered with climate scientists and research groups to better quantify the financial implications of Physical Risk, combining local climate and econometric data with our financial models to understand the effects of a changing climate.

Physical Climate Scenario Analysis

By combining scenario projections from peer reviewed climate science with econometric models, we can better understand the financial implications of varying carbon emissions pathways on portfolios. Aladdin Climate models the following NGFS scenarios[1]:

Net Zero by 2050 – an orderly scenario developed by NGFS. Global warming is limited to c. 1.5ºC through stringent climate policies and innovation, with CO_2 emissions reaching "net zero" in c. 2050

Delayed Transition - a disorderly scenario developed by NGFS. It assumes that no action is taken in the near term, and that strong policies are then needed from 2030 onwards to limit warming to below 2ºC

Source: BlackRock, December 2022.

Scenarios | Transition risk

Understanding Transition Risk

Transition Risk identifies the risks and opportunities that arise from exposure to society's transition to a lower-carbon economy. The transition is already re-wiring the economy across sectors impacting investments through policy, technology, and behavioural change. However, the speed and shape of the transition is uncertain and uneven. Investors will need to identify and manage risks and opportunities resulting from the transition across their portfolios, with an awareness for differentiations across market channels, sectors, and regions. Aladdin Climate quantifies this impact of transitioning to a lower-carbon economy at the asset level, allowing for meaningful risk identification and portfolio analysis. These analytics are a product of collaboration across BlackRock's economic researchers, energy value chain experts, and financial analysts.

Transition Scenario Analysis

Transition scenario analysis is a key analytical technique used to model the potential transition scenarios for our economy, and the varying shapes and speeds of response. Such scenarios evaluate the potential futures of economic activity (e.g., GDP and population) alongside energy and land use patterns, as well as embed complex assumptions regarding the socioeconomic drivers of policy, technology, and consumer preferences. While there is vast uncertainty in what will happen, transition scenario analysis enables an understanding of what could happen, and the potential impacts to securities, issuers, and portfolios. Current scenarios referred to as "Net Zero" help us understand what society needs to do to reach Net Zero emissions by 2050 and limit average annual temperature rise to 1.5°C - 2°C by the end of the century, consistent with the Paris Agreement. Aladdin Climate currently models the following NGFS scenarios:

Current Policies – a "hot house world" scenario developed by NGFS. Current Policies assumes that only currently implemented policies are preserved, leading to high Physical Risk. Emissions grow until 2080 leading to about 3 °C of warming, resulting in irreversible changes like higher sea level rise.

Net Zero by 2050 – an orderly scenario developed by NGFS. Global warming is limited to c. 1.5ºC through stringent climate policies and innovation, with CO_2 emissions reaching "net zero" in c. 2050

Delayed Transition - a disorderly scenario developed by NGFS. It assumes that no action is taken in the near term, and that strong policies are then needed from 2030 onwards to limit warming to below 2ºC

Aladdin Climate uses the Current Policies scenario as the "counterfactual" scenario, i.e. other scenarios are compared to that counterfactual to derive transition risk impact.

Source: BlackRock, December 2022.

BlackRock Disclaimers

- The BlackRock data, models and methodologies are not fixed and are likely to change over time.
- BlackRock does not endorse any conclusions relating to the BlackRock data, models, methodologies as being definitive.
- The BlackRock data, models and methodologies rely on comparatively new analysis and there is limited peer review or comparable data available.

Uniper

Net assets[16] as at 31 March 2023: £363m.

Climate scenarios

VLK has undertaken scenario analysis on the portfolio. Working with MSCI ESG, a percentage figure is shown in the quantitative metrics which represents the present value of the aggregated future policy risks costs, technology opportunity profits and extreme weather event costs and profits expressed as a percentage of the portfolio's market value, should the scenario in question be realised. This is based on the listed equity and corporate bonds where data was available.

This figure was calculated under three different scenarios – where the implied temperature rise is 1.5%, 2% and 3%. The quantitative analysis shows the portfolio is relatively resilient under the different scenarios.

Impact of scenarios

MSCI ESG Research employs a hybrid top-down and bottom-up methodology to calculate climate change risks and opportunities such as future policies targeting emission reductions, the potential of low carbon technologies and extreme weather hazards. Using estimates of future carbon prices under specific policy scenarios, MSCI ESG Research then calculates the costs associated with such emissions reductions targets and computes "Policy Climate Value-at-Risk" metrics for over 22,000 companies.

Physical climate risk scenarios define possible climatic consequences resulting from increased levels of GHG emissions, and the ensuing financial burden (or opportunity) shouldered by businesses due to impacts on their facilities. Using the past 35 years of observed weather patterns to set a historical baseline as well as climate models, MSCI ESG Research brings both acute and chronic climate developments into perspective by modelling both costs from asset damage and business interruption respectively. The breakdown for the 1.5% scenario across the different factors is shown below.

SCENARIO	CLIMATE VAR CONTRIBUTION
Low Carbon Transition Risk Scenarios *Selected Model: REMIND | 1.5°C | NGFS | DISORDERLY*	**-5.21%**
Policy Risk Direct Emissions (Scope 1)	-3.56%
Policy Risk Electricity Use (Scope 2)	-0.28%
Policy Risk Value Chain (Scope 3)	-4.01%
Technology Opportunities	+2.64%
Physical Climate Scenarios *Selected Model: Average*	**-8.31%**
Extreme Cold	+0.51%
Extreme Heat	-5.27%
Precipitation	-0.05%
Extreme Snowfall	+0.01%
Extreme Wind	-0.04%
Coastal Flooding	-2.71%
Fluvial Flooding	-0.28%
Tropical Cyclones	-0.45%
River Low Flow	-0.51%
Wildfire	-0.00%
Aggregated Climate VaR	**-13.52%**

Source: Uniper.

[16] Source: Scheme Trustee Report and Accounts for the year-ending 31 March 2023.

United Utilities PLC

Net assets[17] as at 31 March 2023: £382m.

Introduction and Context

The Group Trustee has put in place a low-risk investment strategy, using a cashflow driven investment approach that involves purchasing a range of liability matching investments that seek to match projected benefit outgoings. The focus is on choosing investments with the right cashflow profile and a low probability of loss.

Within the portfolio that invests in corporate bonds, the Trustee put in place climate-related exclusions to improve the portfolio's resilience to climate change risks. Within the portfolio that invests in gilts, the Trustee has also authorised the use of "green gilts" to support the Trustee's objectives in relation to climate risk and opportunity integration.

It is important to note that subsequent to the Group year end, the Trustee took the decision to further increase security for members, through the purchase of an insurance "buy-in" policy covering a significant portion of the liabilities. ESG factors, and specifically climate change, were considered as part of this decision-making process, and insurer management of climate change risks formed a key part of the insurer selection exercise.

Time periods

As a long-term investor, the Trustee recognises the risks and opportunities arising from climate change are diverse and continuously evolving. The Trustee believes it is important to understand how the Group's exposure to these risks may change over time, when the risk exposure may be greatest and what actions can be taken now, or in the future, to avoid those risks becoming financially material.

To help with this assessment, the Trustee considered climate scenario analysis across the following short, medium, and long-term time horizons:

Short Term	**Medium Term**	**Long Term**
3 years	**7 years**	**12 years**
Consistent with the frequency of the triennial actuarial valuation.	Aligned with expected changes in climate change data quality and climate regulations.	The Group is closed to new entrants and so a very long horizon would not be suitable. 12 years is not dissimilar to the duration of the liabilities.

Climate scenarios

The Trustee conducted a scenario analysis in 2022 and considered two climate scenarios:

- **A Rapid Transition:** Average temperature increase of 1.5°C by 2100. This could be driven by a change in policy, consideration of stranded assets or of the expected costs associated with companies and governments aligning their businesses and economies to the Paris Agreement goals more rapidly. Risks under this scenario include the potential for sudden divestments occur across multiple securities in the short term (by 2025) in order to reflect the costs associated with a faster transition. Following this shock there is a partial recovery, and in the very long term this scenario would be expected to be a positive outcome for the climate, and for financial markets.

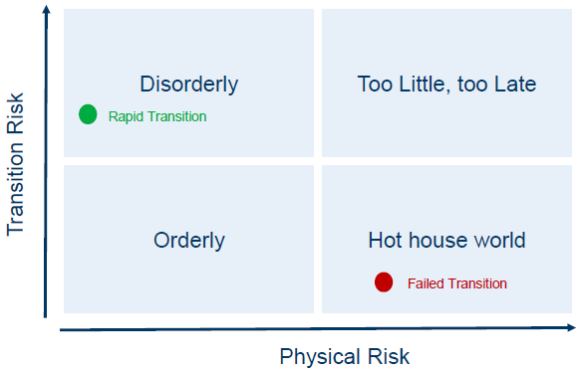
[17] Source: Scheme Trustee Report and Accounts for the year-ending 31 March 2023.

- **A Failed Transition:** Average temperature increase above 4°C by 2100. Under this scenario, the world fails to coordinate a transition to a low carbon economy. Physical climate impacts cause large reductions in economic productivity and increasing impacts from extreme weather events. These are reflected in asset repricing events in the late 2020s and 2030s.

The Trustee's adviser works with Ortec Finance and Cambridge Econometrics to develop climate scenarios and models grounded in the latest climate and economic research, with a focus on providing practical insights. Two scenarios were selected in order to ensure that both transition and physical risks could be assessed at relative extremes of a series of plausible outcomes. Each scenario covers a level of warming driven by Greenhouse Gas levels. These levels are determined by the policies enacted and technological developments. The impact of warming comes via damage resulting from acute events (e.g., hurricanes) and chronic damages caused by reduced agricultural and human productivity. The "E3ME" model maps this to economic impacts, and Ortec's scenario generator maps these to asset return impacts, via assumptions on what is priced in currently and how future pricing shocks will occur.

Each scenario tests key elements of climate resilience for pension schemes:

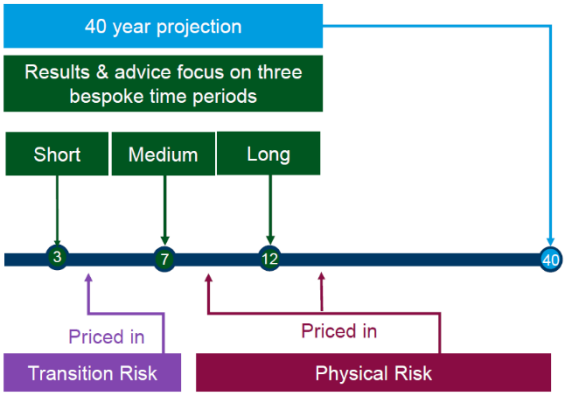
- Is the asset portfolio resilient to the financial effects of a rapid decarbonisation of the economy to meet Paris Agreement goals (Rapid Transition)?
- Is the asset portfolio resilient to the risks of plausible, severe climate change impacts (Failed Transition) and is the governance and stewardship approach consistent with the need to avoid this scenario?



Time frames

The scenarios are 40-year projections.

For the Group, the analysis is focused on the defined short-, medium- and long-term time frames of 3, 7 and 12 years for alignment with the liability profile and the broader journey plan of the Group.



In shorter timeframes, transition risk tends to dominate while over longer time frames physical risk will be the key driver of climate impacts.

Under the rapid transition, risks are priced in around 2025 (i.e., within 3 years). All scenarios have shocks relating to future physical damage around the late 2020s and the 2030s. The shocks are most impactful in failed transition scenarios. These "pricing in" shocks reflect likely market dynamics and mean climate impacts are, under these scenarios, likely to fall within the Group's investment timeframes.

Are climate change factors already priced into financial markets?

In designing scenario analysis, a fundamental decision is whether to assume that any climate impacts are priced in today. That is, whether investment markets have already reflected climate risks and opportunities within the price of securities issued by companies and governments.

The Group's climate scenario analysis takes a climate aware baseline into account which works on the basis that:

- At a market level, transition risks are reasonably priced in (since the broad direction of government policies and commitments are known, albeit this can change).
- However, long term physical risks are more likely to be mispriced, given the uncertainty. Transition risks remain at the sector and individual country level and due to the potential for more extreme transition scenarios to occur. We express this by modelling scenarios relative to a baseline scenario.

The Group's analysis therefore assumed a baseline position with the following weightings for the actual outcome priced in:

- 40% Orderly Transition[18]
- 10% Rapid Transition
- 10% Failed Transition

The remaining 40% represented low impact scenarios and the potential for the transition to have an overall positive impact on markets.

It is important to note that these assumptions are not "predictions" or guarantees about what is priced in. They are estimates that aim to provide a guideline for what may already be factored into financial markets.

The result of this approach is:

- Climate scenario analysis and general asset / liability modelling work that the Group has received are consistent in their assumptions and approach.
- The results can be driven by what happens in a scenario and what didn't happen but was priced in. For example, a rapid transition scenario will benefit from avoiding some of the physical damage that is priced in, and the failed transition scenario would expect to initially "benefit" from avoiding priced in transition costs, though the long-term costs would be higher.

Impact of scenarios

The scenario analysis was conducted for the Group as at 31 March 2022, based on the investment and funding strategy that was in place at that time, which involved:

- Investing in a low-risk portfolio of corporate bonds and liability driven investments
- Fully hedging inflation and interest rate risk
- To adopt a low risk, prudent funding strategy, with a stable and strong funding position.

As at the analysis date of 31 March 2022, the Group's invested assets totalled **£498m**, all of which was invested in corporate bonds (including secured finance bonds) and liability driven investments. However, as noted in the introduction to the section for this Group, the Trustee has now carried out further de-risking, securing a bulk annuity policy that covers a significant proportion of the Group's liabilities. The residual assets not invested in the bulk annuity policy now only total **£77m**, as at 31 July 2023.

Clearly, this marks a significant change in investment approach. As such, the Group Trustee and its advisers do not consider that showing the results of scenario analysis conducted on the legacy investment strategy would be helpful for readers. Indeed, it may be misleading. However, of more interest is the conclusions that were drawn from the analysis, and how these have been integrated in the Group Trustee's approach to climate risk and opportunity management.

[18] * Scenario with an average temperature increase of less than 2.0°C by 2100. Under this scenario, political and social organisations to act quickly and in an orderly way to implement the recommendations of the Paris Agreement to limit global warming to below 2C.

Conclusions from the scenario analysis

Short Term (3 years)	In the short term, there are no material impacts compared to the baseline as transition risks (which are the first to take effect) are only noticeable from approximately year 4 on. The Trustee did note that it would be possible for repricing shocks to occur within a 3-year period, but this would be a low likelihood scenario, particularly given the low-risk funding approach adopted. While short term risk is "visible" mainly in investment returns, market data also feeds into the valuation of the liabilities (in particular, through bond yields and inflation metrics). Therefore, the market impact has the potential to affect both the assets and the liabilities. The Group has taken a number of steps to de-risk the investment strategy over time and has a prudent funding approach. As such, the level of exposure to higher risk assets such as equities (which tend to be more at risk of the impact of climate change, particularly over short periods) is nil. The Trustee has also engaged with the covenant adviser and the company to understand and mitigate risks to the covenant – primarily through putting in place a very low risk investment strategy and prudent funding basis.
Medium Term (7 years)	Over the medium term, transition risks dominate. A market shock under a rapid transition scenario may have the potential to causing a deterioration of c3% in funding level terms around year 4, with a recovery to a deterioration of only 1% by year 7. The timing of any shock or recovery is uncertain. It is worth noting that the transition shock impacts credit markets via a widening of credit spreads followed by a rebound as these spreads normalise without a material increase in downgrades or defaults. It is possible that additional downgrades and defaults could limit the rebound. Given the Group's bond-based investment strategy, it is credit defaults that represent one of the more significant financial risks.
Long Term (12 years)	Over the long term, physical impacts become significant, with a failed transition being more impactful. At this timeframe, transition risks are now marginal whilst physical risks are starting to be more fully priced in. The Group's projections started to show a more material deterioration under the failed transition scenario beyond a 14-year point. It is however possible for physical risks to be priced in materially within 12 years.

The analysis considered by the Trustee in 2022 led to the following key findings and actions being taken forward:

1. **Over the long term, a successful transition is imperative:** The Trustee believes that a successful transition to a lower carbon world leads to enhanced outcomes for financial markets and Group funding when compared to scenarios associated with higher temperature outcomes. This is largely driven by lower physical damages. Accordingly, the Trustee will seek to align the investment and funding strategy to position for a successful transition.

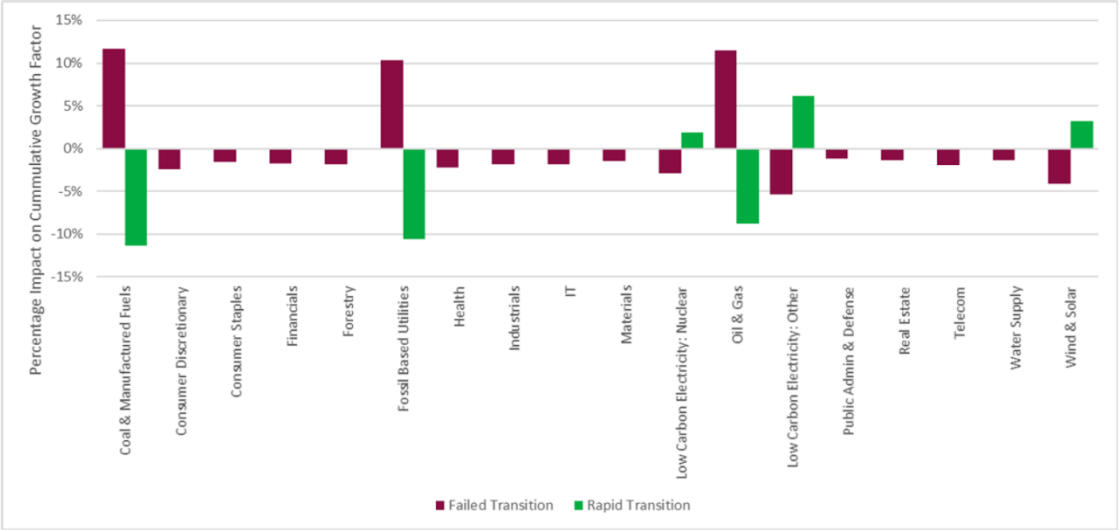
   Example of actions taken: The Trustee assessed how different insurers manage climate change risks as a key part of the insurer selection process for the bulk annuity policy, including arranging for professional advice to be provided on this matter.

2. **Sustainable investment allocations can protect against transition risks:** Investment mandates that incorporate explicit consideration of climate change would be expected to be more resilient to long term impacts of climate change. The Trustee has therefore taken action on this in the way the portfolios are managed.

   Example of actions taken: The Trustee has implemented exclusions on certain sectors and companies in the corporate bond portfolio. This includes screening out companies involved in mining and extraction of thermal coal, thermal-coal-power generation and oil sands (generating 20% or more of revenues from these activities). Additionally, there are exclusions on investment in companies considered by the investment manager to be failing to meet minimum standards on climate change transition planning,

including "red lines" such as not having an operational greenhouse gas emissions target, or not having plans for coal phase-out.

3. **Sector exposure is important:** 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, as shown below.



Example of actions taken: The Trustee will use this analysis and examine sector allocations when engaging with its appointed investment managers, and with the insurer (when considering the bulk annuity policy and the assets backing the policy). This forms a constructive engagement point for the Trustee when meeting with investment managers and the insurer, to allow the Trustee to understand key risk exposures and whether any action may be required.

4. **Awareness of future shocks:** As markets react to new information because of the changing physical environment and government policies, investors may be vulnerable to short, sharp shocks. Understanding the potential impact that such repricing events can have ahead of time helps the Trustee to understand and manage this risk.

Example of actions taken: Mindful of this risk, and other long-term risks, the Trustee has taken further steps to provide benefit security for our members through the purchase of the bulk annuity insurance policy (post the Group year-end). Further, while the Group's asset size falls below the threshold at which scenario analysis is currently mandatory, the Trustee of the Group intends to continue to conduct scenario analysis at least triennially in order to ensure that the evolving nature of climate risks are understood and that a mitigation strategy can be maintained.

Scenario assumptions and limitations

The Trustee notes that climate scenario modelling is a complex process and is aware of its limitations. In particular:

- As noted earlier in this section, the investment strategy has fundamentally changed since the Trustee considered climate scenario analysis in 2022. This makes the analysis results no longer directly relevant and highlights the need to continue to update models over time, both for strategic changes but also for new developments in climate science and climate change modelling methods and assumptions.
- The further into the future you go, the less reliable any quantitative modelling will be.
- There is a likelihood that physical impacts are 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.
- Financial stability and insurance 'breakdown' are 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.
- Most adaptation costs and social factors are not priced into the existing climate change models. These include population health and climate-related migration.
- New and emerging risks, such as the impact of climate change on biodiversity loss, and vice versa, is expected to be integrated into climate scenario modelling over time once the supporting science and impact on econometrics and finance is better understood.

Western Power Distribution

Net assets[19] as at 31 March 2023: £1,943m.

Time periods

Consistent with guidance from the Pensions Regulator and the position of our Group, we consider:

- Short-term to be 5 years.
- Medium-term to be 10 years.
- Long-term to be 20 years.

We use these time periods alongside the metrics, scenarios and target-setting to inform our engagement with Cardano and with our asset managers.

Climate scenarios

Our three scenarios are 1.5°C Paris-aligned transition, 2°C "late transition" and 3°C "slow transition" or "hot house".

- **Paris-aligned transition:** this is our goal: AIM/CGE7 1.5°C assumes measures are taken that will keep the rise in temperature limited to 1.5°C.
- **Late transition:** following a review in conjunction with Cardano, this is a forecast of what we think is most likely to happen: Late AIM/CGE 2°C assumes measures are introduced to tackle climate change but are introduced too late to meet the Paris Agreement.
- **Slow transition:** this is our hot-house scenario: AIM/CGE 3°C assumes current policies being continued. According to the UN, we are currently on track for 3°C warming.

We use scenario analysis due to the complexities involved in forecasting the degree of warming that will result from climate change, including the policy uncertainty, multiple environmental tipping points, and as potential technology advances.

Each scenario consists of a degree of warming and a measure of financial risk. In other words, what do we expect the financial risk to be, and across which asset classes / investments, based on a certain degree of warming.

As informed by Cardano, we acknowledge challenges with scenarios, including:

- That physical risks can only be modelled to around 15 years.
- That there are challenges in modelling environmental tipping points, including issues such as disruption to food supply chains.
- That there are limitations in using observed data to understand future impacts of climate change given the effects of warming are exponential.

Scenarios are not intended to be forecasts, rather they are a starting point / risk management tool and can be both quantitative and qualitative. This is how we have interpreted the results. Due to the known limitations in the modelling, we believe that the expected loss to our portfolio due to the physical risks associated with climate change of 2 and 3 degrees of warming to be significantly higher than the results suggest.

We have chosen to disclose three scenarios, because we believe this provides us with metrics that can inform our investment decisions. They are scenarios that highlight the impact of physical risks and transition risks and so enable us to draw conclusions about the different components of climate change-related risks and opportunities.

[19] Source: Scheme Trustee Report and Accounts for the year-ending 31 March 2023.

Impact of scenarios

Our scenario analysis is used to produce a Climate Value at Risk (CVaR), which is the measure we use to assess the financial risk exposures of a portfolio. It estimates the financial value at risk to the corporate equity and credit exposures of warming scenarios at 1.5°C, 2°C and 3°C. The expected loss is calculated by considering the potential loss associated with the transition risks and the loss associated with the physical risks.

Within the analysis we include the Group's exposure to Equity and Credit (where possible). A number of the Group's holdings at this stage have not been included due the lack of an industry-established methodology to make the assessments.

We display the results as a percentage loss to our investments. The higher the loss, the less resilient our investment strategy is to CCRO.

A series of assumptions are necessary when undertaking scenario analysis (documented below) and, as such, we consider the scenarios as a starting point for investment decision-making, alongside metrics and targets, which follow in sections 4 and 5.

Value at Risk in Scenario	**1.5 degree CVaR**	**2 degree CVaR**	**3 degree CVaR**
Transition Risk	-2.3%	-1.0%	-0.1%
Physical Risk	-1.8%	-1.8%	-3.0%
Aggregated CVar	-4.2%	-2.9%	-3.1%

Source: Cardano, MSCI. Equity & Credit Fund data represents emissions as at 31/12/2022 with portfolio allocations as at 31/03/2023.

Interpreting the results

As temperatures increase, the costs associated with transition risks decrease as companies are assumed to have more time to decarbonise their economic activities (and as such, there are less up-front costs involved). Physical risks however increase, which is due to the expectation that weather events become more frequent and more severe.

For physical risks, the modelling only considers the period to around 2040. This is because it is too complex to model the physical risks associated with climate change beyond about 15 years. As such, in our view, the physical risks presented here are unlikely to capture the full financial effects of a warming climate.

We will use this scenario analysis to help inform our investment decision-making, to ensure our portfolio is robust when it comes to climate change-related risks and opportunities. In other words, the numbers here are a starting point for our investment decision-making and should be considered alongside the metrics and target setting.

We want to point out that as part of our scenario analysis:

- We are comfortable looking at the aggregate exposure across direct holdings
- Corporate Exposure refers to the net corporate exposure and includes direct exposure to public equities and corporate bonds.

CVaR allows for the relative risks of debt and equity. For example, equity may be more vulnerable to a shock or loss than credit. It is not additive across different stand-alone components; therefore, we do not separate CVaR between asset classes.

Scenario analysis informing our decision making

Engagement with companies and governments: We believe it is more important to engage with companies and governments and to supply enabling capital to achieve long-term transformation and decarbonisation than it is to hit short term carbon footprint target metrics. For example, emerging markets, which have higher carbon footprints, in part because they produce carbon intensive goods consumed by developed markets, require capital in order to transform their economies.

Asset manager engagement:

The Group Trustees expect:

- UK-regulated asset managers to be signatories of the Stewardship Code.
- Non-UK regulated managers to exercise their voting rights in a manner consistent with a focus on medium- and longer- term investment performance.

As part of their responsibilities, where applicable, the Group Trustees expect the Group's asset managers to:

- Engage with investee companies with the aim to protect and enhance the value of assets.
- Exercise the Group Trustees' voting rights, in relation to the Group's assets.
- Incorporate the Group Trustees' views on climate change risk and opportunities.

Climate opportunities

We have been investing in Forestry since 2020. In addition to growing and maintaining woodland, we also explore the possibility of renewable energy opportunities on our land via the development of windfarms. At present, the portfolio is helping to support a more sustainable world. For example, our manager Bidwells latest estimate stated that the Group's Forestry holding has 5,250T of CO2 net carbon benefit per year. In addition to this, via windfarms, the Group is currently supporting the generation of renewable energy equivalent to 11200 homes, and this is expected to increase over time as new windfarms are developed.

Scenario assumptions and limitations

In completing the analysis, we have relied on Cardano and the methodology that MSCI has developed to calculate Climate Value at Risk. Without covering all of the methodology used, broadly speaking, this operates by breaking risk into three parts:

- **Transition risk:** This is broadly calculated by considering a company's exposure to carbon emissions and an assumed carbon price. To the degree that that carbon price is not currently embedded in the company's cost base, this increases the cost to the company causing a loss of profitability. The carbon price assumptions are linked to the climate change scenario that is selected. In a 1.5°C scenario, carbon prices are assumed to increase more rapidly than in the 3°C scenario, creating more transition risk for businesses. Within transition risks, we consider environmental solutions. This is usually a partial offset, as it looks at green revenues and patents and assumes that, to the extent that companies are generating green revenues or hold green patents, both factors will be growing portions of a company's revenues in the future, offsetting some of the negative impacts of transition and physical risk. These factors will be more valuable in faster transition scenarios.
- **Physical risk:** This risk looks at the potential losses that can occur due to more extreme physical risks, particularly over the next 15-year time horizon and is based on Cardano's modelling of the company's risk exposures. This does not allow for the economic impact that higher temperatures might have, for example, slowing economic growth.

Any scenario analysis is heavily dependent on the underlying assumptions made. Following discussions with Cardano, we believe that the key assumptions underlying the modelling are reasonable and we will review them annually to ensure we remain comfortable. However, there are a number of fundamental uncertainties including:

- Uncertainties in future greenhouse gas (GHG) and aerosol emissions.
- Uncertainties in global climate sensitivity due to differences in the way physical processes and feedbacks are simulated in different models. These create further uncertainties in:
  - Expected warming for a given GHG stabilisation scenario.
  - Emission trajectory required to achieve a particular stabilisation level.
  - Estimates of the strength of different feedbacks in the climate system, particularly cloud feedback, oceanic heat uptake, and carbon cycle feedback.
  - Aerosol impacts on the magnitude of the temperature response, clouds and precipitation.
  - Future changes in the Greenland and Antarctic ice sheet mass, particularly due to changes in ice flow.
- Uncertainties surrounding regional projections of climate change, particularly precipitation that may give different results by different methodologies for the same mean global warming.
- Translating the climate change scenarios into impacts on the Group's portfolio also requires a range of assumptions and when doing this we note a number of other uncertainties:
  - Uncertainties around the government policies which will drive transition risks including legislation and regulation, monetary policy and fiscal policy.
  - Uncertainties around the economic impacts on future growth and inflation of both the climate change factors and the government policies.
  - Uncertainties around the market reactions to changes in policy, growth and inflation.

Risk management

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

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

The Scheme Trustee's process for identifying and assessing climate-related risks

As described earlier in the Governance section of this report, investment strategy and implementation are the responsibility of the Group Trustees for the relevant Group. The Group Trustees are therefore responsible for their approach to climate risk management for their respective Group and the oversight of this.

In identifying, assessing, and managing climate-related risks that are relevant for the Scheme, the Scheme Trustee therefore relies on the Group Trustees, in conjunction with their investment advisers, to undertake an assessment of the material climate-related risks and opportunities that are relevant for their Group.

The Scheme Trustee also expects the Group Trustees to:

Climate change scenario analysis

Undertake climate change scenario analysis, appropriate to their Group, supported by their investment advisers.

Metrics and targets

Where appropriate and proportionate in the context of specific Groups and their asset size, undertake an assessment of their Group's progress against any specified targets or metrics.

Scheme Trustee update

This process of identifying and assessing climate-related risks has been reviewed in the process of producing this TCFD report and is still suitable.

Together these elements complement each other, and taken together, give the Scheme Trustee an overview of the climate-related risks and opportunities that the Scheme is exposed to. Where appropriate, the Scheme distinguishes between transition and physical risks. All risks and opportunities are assessed with reference to the time horizons that individual Group Trustees have identified as relevant. The Scheme Trustee also recognises that Group Trustees may consider much shorter or longer time-horizons, dependent on the circumstances of their Group and will ask the Groups to provide detail where such divergence arises.

The Scheme Trustee will ask the Group Trustees to share information on their quantitative and qualitive assessments, in order to support the Scheme Trustee in monitoring and reviewing progress against the Scheme's climate change risk management approach on an ongoing basis.

The only exception to this is the Scheme's investments in the Forestry Sector (comprising c. 0.9% of the Scheme's total assets), for which the Scheme Trustee assesses the climate-related risks and opportunities. In practice, the Scheme Trustee will take a proportionate approach for these investments, given the materiality of the assets in the context of the Scheme overall. The external Forestry Manager (Bidwells) provides quarterly and annual reports detailing performance, forestry and windfarm activity, market commentary as well as investment strategy and recommendations. Every three years, a UK Forestry Sector Forecast Report is produced by the Forestry Manager to provide a long-term investment appraisal and projection update.

More detailed information about the Groups' approach to Risk Management can be found in the Governance and Risk Management Annex.

Managing climate-related risks

The Scheme Trustee recognises the risks posed by climate change and receives regular training on responsible investment to understand how ESG factors, including climate change, could impact the Scheme's assets and liabilities over the short, medium, and long term.

The Scheme Trustee also reviews the capability of its advisers to bring important and relevant climate-related issues and developments to the Scheme Trustee's attention in a timely manner. In addition, the Scheme Trustee includes and reviews climate-related risks in the Scheme's other risk processes and documents, such as the risk register (as part of broader ESG considerations) and the Scheme SIP.

The Scheme Trustee also expects Group Trustees to:

- Receive regular training on responsible investment and to ensure training is of an appropriate level of knowledge and in line with regulation and market practices, to support good decision-making.
- Undertake regular monitoring and reporting of ESG-related factors, and to share this information with the Scheme Trustee from time to time, in order to support the Scheme Trustee to monitor and assess progress against the Scheme's climate risk management approach on an ongoing basis. This could include both quantitative and qualitative indicators. For example, some Groups may have access to ESG ratings, made available to them through their fund managers and investment advisers.
- Establish that their investment advisers have the appropriate capability to bring important, relevant, and timely climate-related issues to their attention and do so.
- Ensure that investment proposals explicitly consider the impact of climate risks and opportunities.
- Engage with their investment managers to understand how climate risks are considered in their investment approach, and stewardship activities are being undertaken appropriately.
- Understand the climate-related risks to the sponsoring employer of each of the respective Groups over the short, medium, and long term.
- Ensure that actuarial advice adequately incorporates climate-related risk factors where they are relevant and material.

Metrics & Targets

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

The Scheme's climate-related metrics

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

As described in the Governance section of this report, the Scheme Trustee expects the Group Trustees to work with the fund managers of their respective Groups to calculate and disclose relevant climate-related metrics in line with the TCFD's recommendations. As part of this, and as described in the Risk Management section of this report, the Scheme Trustee expects Group Trustees to obtain data for climate-related metrics, track progress against a stated target for at least one of those metrics and to review the continued appropriateness of those metrics and targets over time.

This part of the report summarises the metrics that the Groups have calculated (where data is available at this stage), as well as the targets that some of the Groups have set.

Introduction

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

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

Scope 1

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

Scope 2

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

Scope 3

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

In line with the regulatory requirement regarding the Scheme's second published TCFD report (and annually thereafter), the Scheme Trustee has endeavoured to report on Scope 3 emissions (in addition to Scope 1 and 2) as far as it has been able to. Scope 3 emissions are often the largest proportion of an organisation's emissions, but they are also the hardest to measure. The complexity and global nature of an organisation's value chain make it hard to collect accurate data.

For more explanation about greenhouse gas (GHG) emissions, please see the Appendix.

The Scheme's climate-related metrics

The Group Trustees' investment advisers have collected information from the Group's managers on their GHG emissions, in order to calculate climate-related metrics for over 94% of the Scheme's total portfolio.
Overall, there are some differences in the metrics (and the underlying methodologies) that each of the relevant Groups have used, but broadly, the relevant Groups have chosen to report on a combination of the following measures:

Total Greenhouse Gas emissions

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

Where possible, Groups have obtained scopes 1&2 and scope 3 emissions from the managers separately.

Carbon footprint

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

Where possible, Groups have obtained scopes 1&2 and scope 3 emissions from the managers separately.

Carbon Intensity

Volume of carbon emissions per million dollars of revenue (carbon efficiency of a portfolio), expressed in tons CO2e / $M revenue.

Weighted Average Carbon Intensity ("WACI")

The portfolio's exposure to carbon-intensive companies, expressed in tons CO2e/£M revenue. Emissions are allocated based on portfolio weights.

Data coverage

The percentage of data that is available / or not available within a portfolio.

Data quality

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

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

Binary Target Measurement

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

It is measured as the percentage of underlying portfolio investments with a declared net-zero or Paris-aligned target or are already net-zero or Paris-aligned, or that have been verified by the Science Based Target Initiative ("SBTi").

Prudential Regulatory Authority ('PRA') Stress Test

This is designed to show what the impact would be on the value of assets under selected climate scenarios.

Implied Temperature Rise ("ITR")

Analyses the warming scenario that the investment is aligned with on a forward-looking basis. Measured in °C. As a reminder, the 2015 Paris Agreement was to keep global temperature rises to below 2°C above pre-industrial levels.

Climate Value at Risk ("VaR")

Measures the potential future cost and/or profit relating to the holding's exposure to future climate change impacts. This looks at the aggregate of transition and physical cost and profit projections until the end of the century 2100. Measured in %.

Shareholder engagement metrics

Companies engaged on Climate-related Risk and Opportunities (CRRO): The number of engagements with companies held by the Group on CRRO: the Investment Manager will (in conjunction with their specialised climate engagement partners) assess the key climate risks and opportunities in the portfolio holdings and proactively engage to enhance shareholder value. The number of such engagements will be measured.

Climate Action 100+ Companies Engaged: The number of engagements with companies through the Climate Action 100+ initiative: the Investment Manager, through specialised climate engagement partners, will participate in climate-related engagements each year with some of the targeted companies as part of the initiative. The number of such lead engagements will be measured.

Companies achieving milestones on CRRO: The number of engagement milestones achieved on climate-related issues: companies are targeted for engagement and progress is logged, recording examples of positive change ('milestones') over each year. The number of milestones achieved each year will be measured.

Note: The RWE Group Trustees also reported on the RWE Group's exposure to climate-related opportunities. Climate opportunities are determined based on companies that may be considered EU Taxonomy eligible based on the criteria set out in the taxonomy (which provides a minimum standard across sustainability disclosure requirements, effectively producing a "rule book" as to what investments can be considered sustainable. This metric sums the portfolio weight for each underlying security classified under this criterium. The RWE Group Trustees decided to report on climate opportunities as the additional metric in order to provide a balanced picture of both the risks and opportunities that the climate transition will create. It is expected that the metric to measure this will evolve over time. The Group Trustees are also minded to include climate adaptation within the metric definition in the future given the vital role it is likely to play.

The Group's metrics in more detail

The table on the next page summarises the metrics which each Group reported on for the purposes of this report. Most Groups reported on a combination of total GHG emissions, carbon footprint, Binary Target Measurement ("BTM") for the portfolio alignment metric and data coverage.

For the intensity measure some Groups also reported on the WACI and/or carbon intensity.

For the portfolio alignment metric, some Groups elected the implied temperature rise ("ITR") instead of binary target measurements.

Finally, for the additional metric, some Groups chose to report on some less common metrics (compared to data coverage) such as the Prudential

Regulatory Authority ("PRA") stress test scenarios, climate VaR, climate opportunities and engagement metrics.

	Absolute Emissions Metric	Intensity Emissions Metric	Portfolio Alignment Metric	Additional Metric
Central Networks	Total GHG Emissions	Carbon Footprint & Carbon Intensity	BTM SBTI	Data Coverage
EA Technology	Total GHG Emissions	Carbon Footprint	BTM SBTI	Data Coverage
E.ON	Total GHG Emissions	Carbon Footprint	BTM SBTI	Data Coverage
EDF DB	Total GHG Emissions	Carbon Footprint	BTM SBTI	PRA Stress Test Scenarios
EDF DC	Total GHG Emissions	Carbon Footprint & WACI	ITR	Data Coverage + Aggregated 1p5 Climate VaR
Magnox Electric	Total GHG Emissions	Carbon Footprint	BTM SBTI	Data Coverage
Manweb	Total GHG Emissions	Carbon Footprint	ITR	Data Coverage
National Grid Electricity	Total GHG Emissions	Carbon Footprint	BTM SBTI	Data Coverage
Northern Powergrid	Total GHG Emissions	Carbon Footprint	BTM SBTI	Data Coverage
RWE	Total GHG Emissions	Carbon Footprint	BTM SBTI	Climate Opportunities
Schneider	Total GHG Emissions	Carbon Footprint & WACI	ITR	3 x Engagement metrics
SSE Southern	Total GHG Emissions	Carbon Footprint & WACI	BTM SBTI	Data Coverage
UK Power Networks	Total GHG Emissions	Carbon Footprint & Intensity	BTM SBTI	Data Coverage
Uniper	Total GHG Emissions	Carbon Footprint, Carbon Intensity & WACI	ITR	Data Coverage & Climate VaR per scenario
United Utilities PLC	Total GHG Emissions	Carbon Footprint	ITR	Data Coverage & Climate VaR

Source: Groups

The Scheme's GHG emissions carbon metrics

Because not all of the Groups have calculated climate-related metrics at this stage, the reported emissions metrics shown in this report do not include all of the Scheme's GHG emissions. Therefore, the metrics shown underestimate the Scheme's actual GHG emissions across the Scheme's total invested assets overall.

In addition, not all of the fund managers were able to provide all of the requested data. The Scheme Trustee expects that, in future, better information will be available from the managers (driven in part through continued engagement with the fund managers via the Groups and improvements in information availability) and this improvement will be reflected in future years' reporting.

Some of the Group Trustees have calculated climate-related metrics and have also set climate-related targets for at least one of their chosen metrics. These targets help the Group Trustees and ultimately the Scheme Trustee monitor efforts to manage each Group's climate-change risk exposure.

The rest of this report shows the emissions of each asset class in each Group's portfolio, where the Group has obtained data from its fund managers to date. It also summarises the targets chosen by some of the Groups, as well as steps that will be taken by the Groups in order to meet those targets.

Target response analysis

The majority of Groups included in this report provided between one and two targets. The two most popular targets were related to net zero followed by data coverage. In addition to this, one Group reported a target related to GHG footprint and another WACI. Finally, three Groups did not mention any target setting in the information they submitted. The table below summarised what each Group said in relation to their targets. Some Groups explicitly stated their targets, whilst others only made reference to the topic their target applied to.

Group[20]	Chosen Target
Central Networks	▪ To align our investments to support the goal of net zero greenhouse gas emissions by 2050, in line with global efforts to limit warming to 1.5°C. ▪ An interim target for 2030, consistent with a fair share of the 50% global reduction in greenhouse gases, identified as a requirement in the IPCC special report on global warming of 1.5°C.
E.ON	▪ To align our investments to support the goal of net zero greenhouse gas emissions by 2050, in line with global efforts to limit warming to 1.5°C. ▪ An interim target for 2030, consistent with a fair share of the 50% global reduction in greenhouse gases, identified as a requirement in the IPCC special report on global warming of 1.5°C.
EDF DB	▪ To align the Group's investment strategy with the goals of the Paris Agreement, i.e., to aim to reduce total greenhouse gas emissions of the Group's assets to net zero by 2050. ▪ An interim target of a 50% reduction of carbon footprint by 2030 compared to the baseline as at 30 September 2021.
EDF DC	▪ In March 2021[21], Mercer committed the Mercer Growth Fund (and other multi-client multi-asset funds) to achieving net-zero absolute portfolio carbon emissions by 2050[22]. To achieve this, Mercer expects to reduce portfolio carbon emissions intensity (as measured by WACI) by at least 45 per cent from 2019 baseline levels by 2030. The commitment is consistent with targeting a 1.5°C limit on global temperature increases and the Paris Agreement's ambitions.
Magnox Electric	▪ Given the coverage for the Group's carbon metrics data at the current time, the Group Trustee has agreed to set a target of improving Data Quality for the Group. The Group Trustee has agreed to achieve a Data Quality target of 90% for scope 1, 2 and 3 emissions across all of the Group's asset classes.
Manweb	▪ The Trustee has set a target to improve the proportion of the portfolio for which the Trustee has high quality climate-related data, consistent with the metrics chosen. The Trustee believes that by improving the quality of the Group-specific climate-related data available, it will help the Trustee understand in greater detail the climate-related risks that the Group is exposed to.
National Grid Electricity	▪ The Group Trustee has set a target for improving the data quality metric. Without meaningful data from the investment managers, it is very hard for the Group Trustee to measure its climate-risk exposure. So, it is important to set a target to improve the quality of GHG emissions data from the managers.

[20] Note that not all Groups had set a climate-related target at the time of writing.
[21] The commitment was announced March 2021 but uses a 31 December 2019 baseline.
[22] Defined as: absolute carbon emissions (Scope 1&2) per $M of AUM. Note that absolute emissions are the priority for real world emissions outcomes, however, Weighted Average Carbon Intensity (WACI) remains an important measure from a portfolio perspective for decision making in the shorter term.

Northern Powergrid	▪ Based on the observation of data quality summarised on the previous pages, the Group Trustees have agreed to set the following data quality target for its Group's portfolio: By five years' time, achieve above 90% coverage of carbon emissions data across all asset classes split across scopes 1 and 2.
RWE	▪ Medium term: 50% reduction in GHG footprint of the Group's portfolio of assets (excluding government, government-related and derivative assets) by 31 March 2030 (Scope 1 & 2 emissions). ▪ Long term: Net-zero GHG footprint of the Group's portfolio of assets (excluding government, government-related and derivative assets) by 2050 or sooner (Scope 1 & 2 emissions).
SSE Southern	Emissions reduction: ▪ 50% reduction in Scope 1 and 2 WACI emissions by 2030, using the average WACI from the Group's carbon reports for 2020 and 2021 as the base line. ▪ 15% reduction in Scope 1 and 2 WACI emissions by 2025 relative to the baseline. Data quality: ▪ LGIM Buy & maintain to achieve a data quality score of 3 within the next 2 years (up from 2 at present day). ▪ CBRE UK property mandate to achieve a data quality score of 3 within the next 5 years (up from 2 at present day). ▪ For the two mandates currently scoring 1 for data quality that are of long-term strategic importance to the Group (Insight High Grade ABS, Insight Secured Finance I), both mandates to achieve a score of at least 2 within the next 5 years. It should be noted that data coverage and transparency across these asset classes is very limited and any wider industry changes (e.g., development of methods for ABS metrics estimation) would help in achieving this goal.
UK Power Networks	▪ The Group Trustee has set a target to increase the data quality scores for scope 1, 2 and 3 emissions for the overall portfolio to improve to at least 50% over the medium term (3-5 years).
Uniper	▪ The Group Trustee has an ambition to set meaningful targets that are in line with the Group's investment and climate objectives, including to align its portfolio with achieving the goals of the Paris Agreement.
United Utilities PLC	▪ In 2022, the Trustee committed to aim for the Group's investments to have net zero carbon emissions by no later than 2050. ▪ To monitor progress towards this long-term target, the Trustee will also work towards an interim target of having, by 2030, at least 50% of listed assets aligned to a net zero by 2050 target – that is, credible plans in place to reach the 2050 target. The baseline date is 31 March 2023 and progress will be assessed on this basis.

Group Responses

Central Networks

Net assets[23] as at 31 March 2023: £2,998m.

Chosen metrics

We calculate and disclose the following metrics:

- Total GHG emissions. Our total GHG emissions for financed corporate credit and equity GHG Scope 1 and 2 is: 53,655.
- Carbon footprint: Our emissions intensity for GHG Scope 1 and 2 is: 72.0.
- Data availability: This was 86.8%.
- BTM aligned with SBTI: Our alignment metric is: 15.3%.

There is good coverage of GHG emissions data in public listed equity markets. In public credit markets, there is sustainability-related data for some issuers, but not all, particularly emerging markets. There remain both data and methodology challenges for asset classes, such as Property and Hedge Funds. We will work with Cardano and the asset managers to engage companies, policy makers and data providers to improve data quality and coverage.

With the support of our advisers, we reviewed the range of alignment metrics, assessing their strengths and weaknesses, including implied temperature metrics and this binary alignment metric. We have chosen the binary alignment metric, which we believe is more decision-useful, and less reliant on the range of assumptions involved in temperature metrics.

We disclose estimated Scope 3 emissions and portfolio alignment metrics. Portfolio alignment measures the extent to which the portfolio is aligned with well below 2 degrees of warming. These additional disclosures do not constitute our regulatory disclosures, because we are not satisfied that the data is reliable, and the data does include estimates where it is not reported. That said, we see benefits in pension schemes such as ours being transparent in our disclosures to support the further development of data quality and coverage.

[23] Source: Scheme Trustee Report and Accounts for the year-ending 31 March 2023.

Metrics results

Emissions associated with our direct financed exposure

Asset class	% Finance of portfolio exposure	% MSCI coverage of GHG emissions data for Scope 1 + 2	Absolute financed emissions tCO2e / EVIC			Carbon footprint: Emissions intensity tCO2e / EVIC per £m invested		
Scope 1+2	Scope 3 upstream	Scope 3 downstream	Scope 1+2	Scope 3 upstream	Scope 3 downstream	Scope 1+2	Scope 3 upstream	Scope 3 downstream
Public equity	6.9%	100.0%	16,564	26,377	117,557	81	128	572
Public credit	9.9%	66.8%	91,120	154,776	222,238	308	524	752
Total (net) GHG Emissions	16.7%	80.4%	107,685	181,153	339,795	215	362	678

Source: MSCI, Managers (Credit: Beach Point and GoldenTree, Equity: BlackRock Aquila, Egerton and iShares Emerging Markets). Data represents emissions as at 31/12/2022 with allocations as at 31/03/2023.

In the table below we have updated the above analysis to allow for the approximate carbon sequestration benefit of the Forestry portfolio. The data is shown for illustration purposes.

Asset class	% finance of portfolio exposure	% coverage of GHG emissions data for Scope 1 + 2	Absolute financed emissions tCO2e / EVIC	Carbon footprint: Emissions intensity tCO2e / EVIC per £m invested
			Scope 1+2 **only**	Scope 1+2 **only**
Forestry	8.0%	100%	-54,030	-143
Total (net) Equity, Credit and Forestry GHG Emissions	**24.7%**	**86.8%**	**53,655**	**72.0**

Source: MSCI, Managers (Credit: Beach Point and GoldenTree, Equity: BlackRock Aquila, Egerton and iShares Emerging Markets, Forestry: Bidwells). Data represents emissions as at 31/12/2022 with allocations as at 31/03/2023.

The Paris alignment metric helps us understand the extent to which a portfolio is aligned with the goals of the Paris climate agreement, to limit warming well below 2 degrees and towards 1.5 degrees.

We disclose the extent to which portfolio companies have made commitments to net zero GHG emissions, and whether the commitments have been independently reviewed by the science-based targets initiative.

This metric is most useful in helping us understand our own commitment to net zero GHG emissions, and therefore, consistent with guidance published by IIGCC, we have disclosed our physical exposure, not including our derivatives exposure.

Metric 3: SBT alignment % of portfolio aligned with the Paris agreement*
15.3%

Interpreting the results:

The absolute emissions tell us the emissions associated with our investments. While an important metric for us – and the regulator – it is difficult to use this metric for comparison purposes, because it is dependent on the size of the Group at the point that the analysis is conducted.

This is why we disclose an emissions intensity metric, which is the total GHG emissions per £1m invested. This is useful, because, while subject to market fluctuations, it allows us to compare our emissions year-on-year and help us check we are moving in the direction of achieving our targets. For example, both the absolute emissions and emissions intensity should trend to 0 if we're to meet our Net Zero target.

Note that, while we expect our emissions intensity to trend to zero, different regions will have different pathways. For example, some emerging markets may see emissions rise, before they fall. When we make investment decisions we take into account the emissions, the climate change-related risks and opportunities, the asset managers' stewardship activities, and the sectoral and regional characteristics of the portfolio.

Due to the lack of established methodologies and/or data quality issues, not all the investments have been included in the analysis. This includes the Group's investments with Bridgewater, Caxton, and Two Sigma.

In order to advance GHG emissions disclosures and methodologies and improve the range of assets included within TCFD analysis for pension funds, such as the Group, Cardano is participating in a range of sustainable investment working groups.

We report sovereign bonds' carbon footprint separately from this measure for several reasons:

- There is no comparable measure for sovereign bonds to financed EVIC (because countries' debt levels are not comparable).
- Total Sovereign country greenhouse gas emissions involve substantial double counting of emissions with corporate greenhouse gas emissions.
- We believe adding sovereign numbers to corporate numbers can substantially obscure the dynamics of monitoring the changes to the corporate Portfolio Carbon footprint over time. Our preferred approach to Sovereign Carbon Footprint is to consider weighted average GHG emissions per Capita which we record and report separately below.

Sovereign bond carbon footprint

	Average GHG in tons of carbon dioxide equivalent per person	**Funded gilts only (long only)**	**Net exposure Combined gilt exposure (physical + derivative government bonds, long only) ***
UK	6	37%	107%

Source: LDI manager. Data represents exposure and fund holding data as at 31/03/2023. *Interest rate swaps, inflation swaps, futures, cash and money market fund holdings have all been excluded. Short gilt positions have also been excluded.

Limitations, assumptions and methodology

We recognise the importance of managing CCRO – but also the challenges involved in 'doing it well'. We continue to develop and evolve our policies to reflect climate change-related challenges. This reflects the evolution of our thinking on sustainability and the changes underway in the financial services sector, and society more broadly.

When measuring at portfolio level, where we aggregate the emissions of investee companies, our approach is to disclose Scopes 1 and 2 emissions (to avoid double counting). We also report separately on government bond exposures due to aggregation challenges with government bonds, and differing methodologies.

We recognise that there remain gaps in data availability, in particular, regarding Scope 3 emissions.

Scope 3 emissions help us better understand a company's sensitivity to climate change-related risks and opportunities, and its ability to transition. It can therefore help to understand relative performance of different companies within industries.

While we believe companies should disclose their Scope 3 emissions, we note that there are a number of data challenges which will take time to resolve.

Data provider

Cardano employs the services of MSCI to provide them with data and metrics. Measuring the success of sustainability initiatives requires new types of data analysis. A third-party data provider allows us to improve our portfolio analysis and provide valuable insight into ESG factors that can have a significant impact on investment outcomes.

Cardano's primary data source is MSCI ESG and Climate Scenario analytics, which they use to assess the sustainability our investments and is included in their regular reporting.

MSCI use reported, publicly available data, where available. Where it is not available, MSCI provides a proprietary estimation model, that uses reported data from similar industries, sectors and geographies to estimate a company's emissions. We believe that this, in turn, encourages companies to disclose, rather than be subject to estimations.

The quality of disclosure is improving, through voluntary and mandatory reporting initiatives. Examples include, the recent International Sustainability Standards Board climate-related disclosure standard, which has been endorsed by regulators, including in the UK and EU.

Targets

The Trustee Directors have set the following principal target with respect to the Group:

- To align our investments to support the goal of net zero greenhouse gas emissions by 2050, in line with global efforts to limit warming to 1.5°C.

Specifically, we commit to:

- Work in partnership with other asset owners on decarbonisation goals, consistent with an ambition to reach net zero emissions by 2050 or sooner.
- An interim target for 2030, consistent with a fair share of the 50% global reduction in greenhouse gases, identified as a requirement in the IPCC special report on global warming of 1.5°C12.
- Review the progress against our target every year, and to review the target itself at least every three years, to ensure it remains consistent with the latest scientific thinking and is appropriately incentivising the necessary economic transition.

The portfolio Carbon Footprint will be measured against these targets and relative to the appropriate market portfolio representative of the strategic asset allocation of the portfolio.

Our objective is to achieve, where possible, decarbonisation through the transformation of underlying businesses and government activities rather than divestment (because it is in our members' interests to decarbonise the economy-as-a-whole, and by remaining invested we retain our influence on the companies that must transition).

With regards to corporate assets' alignment with the Paris Climate Agreement, the target over time is to consistently increase the proportion of the corporate portfolio that is Net Zero, Aligned to Net Zero or Aligning to Net Zero until 100% of the portfolio is aligned.

We will resist pressure to modify portfolios to meet headline portfolio level decarbonisation targets at the expense of incentivising the necessary real-world transition. Our goal is net zero greenhouse gas emissions globally – and we seek to maximise our influence to achieve this.

For these reasons, portfolio decarbonisation targets will continue to be reviewed at least every three years to ensure they remain appropriate.

Notes to support Net Zero Pathway analysis

The Group's Carbon Footprint projection and ultimate target uses an emissions intensity metric, which is the total GHG emissions per £1m invested. This is useful, because, while subject to market fluctuations, it allows us to compare our emissions year-on-year and help us check we are moving in the direction of achieving our targets.

Both the absolute emissions and emissions intensity should trend to zero net greenhouse gas emissions (not adding greenhouse gases to the atmosphere) if we're to meet our Net Zero target by 2050.

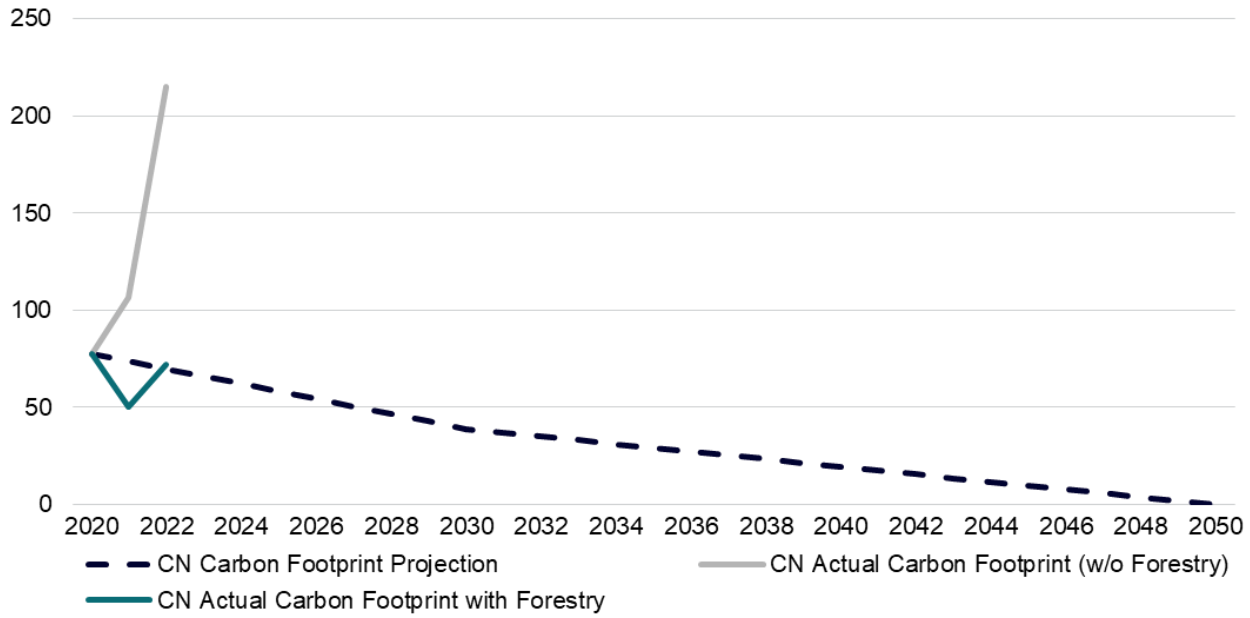
Fully assessing progress of the portfolio towards Net Zero will still take some time. Data is limited in some asset classes so we will continue to first focus on where we have the greatest insight and can have most influence. These data limitations have led us to use 2020 as a base year for our analysis rather than our preferred position as at 2019.

The table below summarises the parameters set for the interim target and shows the progress of the Group against the target using the 31 December 2022 metrics reported above.

Parameter	Value	Rationale
Assets within scope	Listed equities and corporate bond assets (scope 1 and 2 emissions) within funds used in the default arrangements	Data is limited in some asset classes so this analysis is in line with our continued focus on where we have the greatest insight and can have most influence.
Baseline date	31 December 2020	Due to the availability of data at the time of this TCFD report the baseline is taken from 2020 for this pathway analysis. This will also more robust future assessments.
31 December 2020 (baseline) level	**77.6** tonnes CO_2e per £m invested	The baseline level has been calculated as per the following: • **DM Equity:** Proxied by MSCI World as at 31 December 2020. • **EM Equity:** Proxied by MSCI EM as at 31 December 2020. • **Credit:** Emissions intensity data as at 31 December 2020.
31 March 2023 (current) level*	**72.0** tonnes CO_2e per £m invested	The current level has been calculated as an average of the underlying fund carbon footprint figures, weighted by asset value as at 31 March 2023. We note that the methodology could change in the future as the industry evolves. If this is the case, these figures would be restated.

* Data represents emissions as at 31/12/2022 with allocations as at 31/03/2023.

Net zero GHG pathway analysis:



Source: Central Networks.

Interpreting the chart:

- The CN Carbon Footprint Projection comprises three key data points: Our estimated emissions as of 2020 (base year used for this analysis), our 50% emissions reduction target by 2030, and our 100% emissions reduction target by 2050.
- The CN Actual Carbon Footprint (w/o Forestry) focuses on Scope 1 and 2 emissions, without allowing for the offsetting carbon emissions that are gained from holding Forestry.
- The CN Actual Carbon Footprint with Forestry focuses on Scope 1 and 2 emissions, allowing for the offsetting carbon emissions that are gained from holding Forestry.

We note that since 2020 the emissions intensity (excluding Forestry) has increased. This is as a result of:

- The baseline target date of 2020 being during the Covid 19 pandemic, which due to lockdowns, saw fluctuations in energy use.
- The credit proportion of the portfolio that's currently analysed under TCFD has increased substantially since 2020 (17.4% vs 59.3%)
- Credit positions held in the portfolio are considerably more carbon intensive than the equity holdings so despite a lower allocation across equity and credit, the carbon footprint of the portfolio has increased.
  - This is expected and an industry wide pattern as schemes de-risk their investment strategies subsequently moving away from equity and into credit.
- The allocation to Forestry has increased since 2020, so the Carbon offsetting has also increased with this.

The steps we are taking to achieve our target

Steps being taken by Cardano:

- Provide the Trustee Directors with information, metrics and analytics on net zero greenhouse emissions by 2050 to enable the Group to invest in accordance with our net zero commitment and account for climate change-related risks and opportunities.

- Engage with those key to the investment system including data and service providers to ensure that products and services available to the Trustee are consistent with the aim of achieving global Net Zero emissions by 2050 or sooner.
- Ensure any relevant direct and indirect policy engagement is undertaken in support of achieving global net zero greenhouse gas emissions by 2050 or sooner.

Steps being taken by the Trustee Directors:

- Take account of and report on progress against Scope 1 and 2 emissions and, to the extent possible, material portfolio Scope 3 emissions.
- Prioritise the achievement of real economy emissions reductions within the sectors and companies in which we invest.
- Ensuring investment proposals explicitly consider the impact of CCRO.
- Use the reporting provided by Cardano to help us assess progress towards our targets.

Whilst we expect our portfolio to trend towards our 50% emissions reduction target by 2030, we'll take the decisions necessary to align the portfolio consistent with our goal of net zero emissions by 2050.

The method we used to measure performance against our target

In order to help us track progress against our target of net zero greenhouse gas emissions by 2050, Cardano will, at least annually, report to us:

- Our portfolios' absolute GHG emissions.
- Our portfolios' carbon footprint (emissions intensity).
- Data coverage, including use of proxies, relevant methodologies, and steps taken to address data gaps.
- Update our scenarios.

EA Technology

Net assets[24] as at 31 March 2023: £85m.

The following information should be read in conjunction with the Group's disclaimers included in Appendix D.

Chosen metrics

The Group Trustee has chosen to report the following metrics:

- Total GHG emissions
- Carbon footprint
- Data quality
- GHG Intensity
- Binary Target Measurement

Metrics results

Portfolio Emissions - Aggregated Data

Metric[1]	Total Portfolio – Scope 1 & 2	Total Portfolio – Scope 3
Total GHG emissions (**MtCO2e**)	**0.00098**	**0. 00489**
Carbon footprint (**tCO2e/£M**)	**38.00**	**189.81**

Source: MSCI, third party managers American Century, JPM, Neuberger Berman, Payden, PGIM, Schroders, T Rowe Price, Wellington (Note, Schroders provided overall data quality figure but were unable to provide split between estimated and reported so this had been left blank) as of 31 December 2022.

We have determined the overall data coverage of the total portfolio as the weighted average of the data coverage across asset classes. For asset classes where the data is not yet available and / or best practice is still being developed, we have assumed that data coverage is nil.
For scope 3 emissions, the emissions data is based on estimated data only.

The weighted average data coverage across the investment portfolio has been estimated to be 34.5% for scope 1 and 2 emissions combined. The weighted average data coverage across the portfolio has been estimated to be 34.3% for scope 3 emissions.

The Trustee acknowledges that as coverage improves over coming years (in line with the wider industry), it is likely that the Group's absolute measure of emissions (total GHG emissions) may rise before it falls. This may be as the result of steps taken to improve the ESG characteristics of the investment portfolio.

[24] Source: Scheme Trustee Report and Accounts for the year-ending 31 March 2023.

Emissions by Asset Class: Scope 1 and 2

	Alternatives	Cash	Global Equity	Government Bonds	Corporate Bonds	LDI	Total
Market Value (£)	£ 23,971,706.00	£451,104.54	£7,030,127.59	£2,134,309.12	£1,673,776.93	£39,853,227.94	£75,114,252.12
% of total section assets	31.9%	0.6%	9.4%	2.8%	2.2%	53.1%	100.0%
Total GHG Emissions (MtCO2e)	0.00060	0.00000	0.00029	0.00000	0.00009	0.00000	0.00098
Carbon Footprint (tCO2e/£M)	34.48	0.85	41.32	NA	86.12	NA	38.00
Data Quality Reported	29.2%	85.4%	68.6%	NA	46.9%	NA	17.3%
Data Quality Estimated	43.7%	0.4%	10.8%	NA	8.9%	NA	15.2%
Data Quality [1]	72.8%	85.8%	97.9%	NA	65.6%	NA	34.5%
GHG Intensity (t/ $M GDP nominal)	NA	NA	NA	584.55	NA	148.60	95.03
Binary Target Metric [2]	0.0%	0.0%	32.9%	NA	14.8%	NA	6.0%

1. % of Market Value where reported and estimated Carbon Emissions and Carbon Footprint data is available. Total excludes coverage from sovereigns; emissions from sovereigns reported via GHG Intensity Metric.
2. % of Market Value where issuer has SBTI approved target.
Source: MSCI, third party managers American Century, JPM, Neuberger Berman, Payden, PGIM, Schroders, TRowe Price, Wellington (Note, Schroders provided overall data quality figure but were unable to provide split between estimated and reported so this has been left blank) as of 31 December 2022. LDI data has been estimated based on the latest available statistics on national emissions and national debt, in-line with the DWP's statutory guidance.

Emissions by Asset Class: Scope 3

	Alternatives	Cash	Global Equity	Government Bonds	Corporate Bonds	LDI	Total
Market Value (£)	£ 23,971,706.00	£ 451,104.54	£7,030,127.59	£2,134,309.12	£ 1,673,776.93	£39,853,227.94	£75,114,252.12
% of total section assets	31.9%	0.6%	9.4%	2.8%	2.2%	53.1%	100.0%
Total GHG Emissions (MtCO2e)	0.00223	0.00003	0.00208	0.00000	0.00054	0.00000	0.00489
Carbon Footprint (tCO2e/£M)	127.90	77.56	308.30	NA	486.13	NA	189.81
Data Quality Reported	15.5%	0.0%	0.0%	NA	0.0%	NA	4.9%
Data Quality Estimated	57.4%	100.0%	95.3%	NA	66.9%	NA	29.4%
Data Quality [1]	72.8%	100.0%	95.3%	NA	66.9%	NA	34.3%
GHG Intensity (t/ $M GDP nominal)	NA	NA	NA	0.00	NA	0.00	0.00
Binary Target Metric [2]	0.0%	0.0%	0.0%	NA	0.0%	NA	0.0%

1. Data quality is based on estimated scope 3 carbon emissions data.
2. % of Market Value where issuer has SBTI approved target.
Source: MSCI, third party managers American Century, JPM, Neuberger Berman, Payden, PGIM, Schroders, T Rowe Price, Wellington (Note, Schroders provided overall data quality figure but were unable to provide split between estimated and reported so this had been left blank) as of 31 December 2022.

LDI data has been estimated based on the latest available statistics on national emissions and national debt, in-line with the DWP's statutory guidance.

Limitations, assumptions and methodology

Metrics & Targets - Methodologies:

Metric Type	BlackRock Calculation Methodology
Absolute emissions metric: Total GHG Emissions	Total GHG emissions are calculated using MSCI sourced Enterprise Value Including Cash (EVIC) and Scope 1 and 2 emissions. This is an absolute emissions figure that is normalized using Market Value from BlackRock on the portfolio level. Equation outlined below: $\sum_{n}^{i}(\frac{Market\ Value_i}{EV\ Including\ Cash\ (\$m)_i} \times (Carbon\ Emissions\ Scope\ 1+2)_i)$
Emissions **intensity** metric: Carbon Footprint	Carbon footprint is an emissions intensity measure utilizing MSCI sourced EVIC and Scope 1 and 2 emissions. BlackRock market value and Net Asset Value figures are integrated to normalize to the portfolio level. Equation outlined below: $\frac{\sum_{n}^{i}(Carbon\ Emissions\ Scope\ 1+2\ Intensity\ (EVIC_i) \times (Market\ Value_i))}{NAV}$
Emissions **intensity** metric: Weighted Average Carbon Intensity	Weighted Average Carbon Intensity is an emissions intensity metric utilizing MSCI sources sales and Scope 1 and 2 emissions values. BlackRock market value and Net Asset Value figures are integrated to normalize to the portfolio level. Equation outlined below: $\frac{\sum_{n}^{i}(Carbon\ Emissions\ Scope\ 1+2\ Intensity\ (Sales_i) \times (Market\ Value_i))}{NAV}$
Data Quality	MSCI Coverage as measured by Scope 1 and 2 emissions broken down by "Reported", "Estimated" or "Not Reported" (represented as null values for Scope 1 and 2 emissions). Estimated values represent MSCI indication that the scope 1 and 2 emission data is estimated rather than officially reported.
Portfolio Alignment Metric: Binary Target Metric	The percentage market value of a portfolio where issuers have an approved SBTi target and investment is through a corporate bond or equity investment. Derivatives and other complex investment products are not captured
Emission **intensity** metric: **Sovereign** GHG Intensity (t/USD million GDP nominal)	This figure represents GHG intensity of an economy (in tons per USD million GDP nominal). The higher the value the more carbon intensive the economy is. Six greenhouse gases, considered under Kyoto Protocol, are considered for this data point. These gases are carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. GDP is in nominal terms. Utilizes MSCI data.
Emissions **intensity** metric: GHG Emission per Capita (**Sovereigns**)	Tons CO2e per capita. Six greenhouse gases, considered under Kyoto Protocol, are considered for this data point. These gases are carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Utilizes MSCI data.
Total GHG Emissions Scope 3 Only	This figure represents the company's most recently estimated Scope 3 total emissions normalized by the most recently available enterprise value including cash (EVIC) in million USD. This ratio facilitates portfolio analysis by allocating emissions across equity and debt. (t/million USD)
Carbon Footprint Scope 3 Only	This figure represents the company's most recently estimated Scope 3 total emissions normalized by the most recently available enterprise value including cash (EVIC) in million USD. This ratio facilitates portfolio analysis by allocating emissions across equity and debt. (t/million USD)

E.ON

Net assets[25] as at 31 March 2023: £3,299m.

Chosen metrics

We calculate and disclose the following metrics:

- **Absolute financed emissions:** This is the total greenhouse gas (GHG) emissions, in CO2 equivalent, of the portfolio.
- **Carbon footprint:** This is the emissions intensity metric and is represented by the total GHG emissions in CO2 equivalent per £m invested.
- **Data availability (as shown as % coverage):** This is the data availability across our portfolios.
- **Alignment metric**: This is the percentage of companies in our portfolio that are decarbonising their activities consistent with the decarbonisation pathways set out in the Paris Climate Agreement. It is currently 8.7%.

Data coverage is proportion of the analysis for which there is high-quality emissions data and is sourced from MSCI. There is good coverage of GHG emissions data in public listed equity markets. In public credit markets, there is sustainability-related data for some issuers, but not all, particularly emerging markets. There remain both data and methodology challenges for asset classes, such as Property and Hedge Funds. We will work with our Investment Adviser and our asset managers to engage companies, policy makers and data providers to improve data quality and coverage

Concerning the alignment metric, we reviewed a range of them with the support of our advisers, assessing their strengths and weaknesses, including implied temperature metrics and this binary alignment metric. We have chosen the binary alignment metric, which we believe is more decision-useful, and less reliant on the range of assumptions involved in temperature metrics.

Metrics results

Asset class	% exposure financed	% coverage	**Absolute Financed Emissions**			**Carbon Footprint: Emissions intensity per £m invested**		
			Scope 1+2	**Scope 3 upstream**	**Scope 3 downstream**	**Scope 1+2**	**Scope 3 upstream**	**Scope 3 downstream**
Equity long	19.6%	94.7%	36,147	92,816	283,695	56.0	143.9	439.8
Equity short	4.5%	96.5%	13,803	23,312	18,555	93.0	157.0	125.0
Net Equity	**15.1%**	**95.0%**	**22,344**	**69,504**	**265,140**	**35.0**	**109.0**	**415.7**
Net Credit	**6.8%**	**52.1%**	**100,008**	**177,737**	**193,786**	**450.2**	**800.2**	**872.4**

Source: Cardano. Data represents exposure and fund holding data as at 31/03/2023, except for the synthetic equity and multi-asset credit exposure which is as at 31/12/2022.

[25] Source: Scheme Trustee Report and Accounts for the year-ending 31 March 2023.

Interpreting the results:

- The absolute emissions tell us the emissions associated with our investments. While an important metric for us – and the regulator – it is difficult to use this metric for comparison purposes, because it is dependent on the size of the Group at the point we conduct the analysis.
- Therefore, we disclose an emissions intensity metric (or carbon footprint), which is the total GHG emissions per £1m invested. This is useful, because, while subject to market fluctuations, it allows us to compare our emissions year-on-year and help us check we are moving in the direction of achieving our targets. For example, both the absolute emissions and emissions intensity should tend to 0 if we're to meet our net zero target.
- The emissions data does not include the Group's exposure to:
    - Cash.
    - Exposures to funds that have minimal credit and equity exposures or invest in these securities over a short time horizon, mostly using derivatives. These funds include hedge fund strategies and other liquid alternative strategies. We note that these strategies have to date been "hard to reach", but progress is being made via industry groups such as the IIGCC.

  We report sovereign bonds carbon footprint separately from this measure for several reasons:
    1. There is no comparable measure for sovereign bonds to financed EVIC (because countries' debt levels are not comparable)
    2. Total Sovereign country greenhouse gas emissions involves substantial double counting of emissions with corporate greenhouse gas emissions, and
    3. We believe adding sovereign numbers to corporate numbers can substantially obscure the dynamics of monitoring the changes to the corporate Portfolio Carbon footprint over time. Our preferred approach to Sovereign Carbon Footprint is to consider weighted average GHG emissions per Capita which we record and report separately below.

Sovereign bond carbon footprint

	Average GHG in tons of carbon dioxide equivalent per person	**Funded gilts only (long only)**	**Net exposure Combined gilt exposure (physical + derivative government bonds, long only)***
UK	6	55%	86%

Source: LDI manager. Data represents exposure and fund holding data as at 31/03/2023. *Interest rate swaps, inflation swaps, futures, cash and money market fund holdings have all been excluded. Short gilt positions have also been excluded.

Limitations, assumptions and methodology

Limitations

We recognise the importance of managing climate change-related risks and opportunities – but also the challenges involved in 'doing it well'. We continue to develop and evolve our policies to reflect climate change-related challenges. This reflects the evolution of our thinking on sustainability and the changes underway in the financial services sector, and society more broadly.

When measuring at portfolio level, where we aggregate the emissions of investee companies. We recognise that there remain gaps in data availability, in particular, regarding Scope 3 emissions.

Scope 3 emissions help us better understand a company's sensitivity to climate change-related risks and opportunities, and its ability to transition. It can therefore help to understand relative performance of different companies within industries.

While we believe companies should disclose their Scope 3 emissions, we note that there are a number of data challenges which will take time to resolve.

As shown in the emissions table, approximately 22% (net credit and equity exposure financed) of the portfolio's assets are included within the emissions data. We recognise this does not cover most of the portfolio's assets as disclosed in 3.3.1 and that this coverage level is a limitation when disclosing our emissions data. We note that the majority of equity issuing companies are already being covered and that the credit issuing company analysis is still developing.

Data provider

Cardano employ the services of MSCI to provide them with data and metrics. Measuring the success of sustainability initiatives requires new types of data analysis. A third party data provider allows us to improve our portfolio analysis and provide valuable insight into ESG factors that can have a significant impact on investment outcomes.

Our primary data source is MSCI ESG and Climate Scenario analytics, which we use to assess the sustainability of our own investments and those of our managers using analysis provided by Cardano .

MSCI use reported, publicly available data, where available. Where it is not available, MSCI provides a proprietary estimation model, that uses reported data from similar industries, sectors and geographies to estimate a company's emissions. We believe that this, in turn, encourages companies to disclose, rather than be subject to estimations.

The quality of disclosure is improving, through voluntary and mandatory reporting initiatives. Examples include, the recent International Sustainability Standards Board climate-related disclosure standard, which has been endorsed by regulators, including in the UK and EU.

Targets

The Group Trustee has set the following principal target with respect to the Group:

- To align our investments to support the goal of net zero greenhouse gas emissions by 2050, in line with global efforts to limit warming to 1.5°C.

Specifically, we commit to:

- Work in partnership with other asset owners on decarbonisation goals, consistent with an ambition to reach net zero emissions by 2050 or sooner.
- An interim target for 2030, consistent with a fair share of the 50% global reduction in greenhouse gases, identified as a requirement in the IPCC special report on global warming of 1.5°C[26]. 2019 is the baseline year as we have confidence in the climate change data from this year and is prior to the Covid 19 pandemic, which due to lockdowns, saw fluctuations in fossil fuel use.
- Review the progress against our target every year, and to review the target itself at least every three years, to ensure it remains consistent with the latest scientific thinking and is appropriately incentivising the necessary economic transition.

The portfolio Carbon Footprint will be measured against these targets.

[26] https://www.ipcc.ch/reports/

Our objective is to achieve where possible decarbonisation through the transformation of underlying businesses and government activities rather than divestment (because it is in our members' interests to decarbonise the economy-as-a-whole, and by remaining invested we retain our influence on the companies that must transition). When doing so, we consider two simultaneous objectives:

- Aiming for the best financial risk/reward
- Aiming for the maximum influence and impact in achieving the target objectives because we believe this helps address the systematic risks associated with climate change.

The steps we are taking to achieve our target

Our Investment Adviser has committed to:

- Provide us with information, metrics and analytics on net zero greenhouse emissions by 2050 investing and climate change-related risks and opportunities.
- Engage with those key to the investment system including data and service providers to ensure that products and services available to the Group Trustee are consistent with the aim of achieving global Net Zero emissions by 2050 or sooner.
- Ensure any relevant direct and indirect policy engagement is undertaken in support of achieving global net zero greenhouse gas emissions by 2050 or sooner.

We will:

- Take account of and report on progress against Scope 1 and 2 emissions and, to the extent possible, material portfolio Scope 3 emissions.
- Prioritise the achievement of real economy emissions reductions within the sectors and companies in which we invest.
- Use the reporting provided by our Investment Adviser to help us assess progress towards our targets.
- Whilst we expect our portfolio to trend towards our 50% emissions reduction target by 2030, we'll take the decisions necessary to align the portfolio consistent with our net zero emissions by 2050 goal.

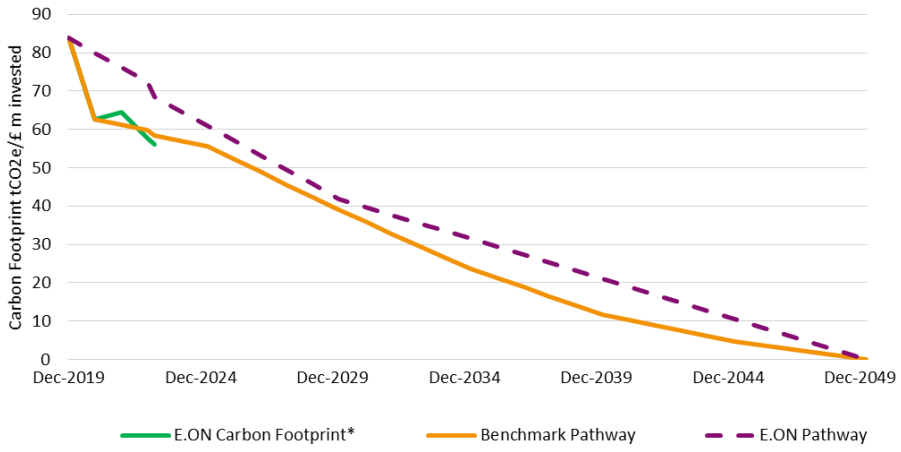
The method we used to measure performance against our target

We have developed a Net Zero decarbonisation framework with our Investment Adviser which is being applied to the management of the Group's assets in order to help the Group Trustee achieve its decarbonisation targets. The framework is based off a four-stage process:

1. **Influence and Support:** influence and support companies to change, remain invested in those with credible plans. This is implemented through engagement with our Investment Adviser and our investment managers.
2. **Avoid or underweight:** avoid companies we think will not successfully make the transition and represent stranded assets and underweight assets that are less likely to successfully transition. Again, this is implemented through engagement with our Investment Adviser and investment managers.
3. **Measure:** measure progress made in the broad markets and economies, and in the portfolio holdings towards Net Zero. Measure or assess the managers capabilities in influence and impact
4. **Re-assess:** assess the portfolios progress against the planned Net Zero pathway and decide how the approach needs to be adjusted.

Notes to support Net Zero Pathway analysis.

- The Group's Carbon Footprint emissions target uses an emissions intensity metric, which is the total GHG emissions per £1m invested. This is useful, because, while subject to market fluctuations, it allows us to compare our emissions year-on-year and help us check we are moving in the direction of achieving our targets.
- Both the absolute emissions and emissions intensity should trend to 0 net greenhouse gas emissions (not adding greenhouse gases to the atmosphere) if we're to meet our Net Zero target by 2050
- Fully assessing progress of the portfolio towards Net Zero will still take some time. Data is limited in some asset classes so we will continue to first focus on the equity portfolio where we have the greatest insight and can have most influence. We therefore show the Long Equity Carbon Footprint for the Group (as shown in the chart below).
- This analysis is used to monitor our long-term effort to contribute to decarbonising the economy. Therefore, we do not include the Short Equity impact, as it does not remove GHG emissions from the atmosphere. It is, however, useful when considering the climate risks of our portfolio.



Source: Cardano
Notes: *This represents the Group's Long Equity Scope 1&2 emissions from March 2021

Interpreting Chart 1 and the 3 lines shown:

- Because we believe issues remain with the quality and coverage of the data, our framework currently focuses on Scope 1 and 2 emissions.
- E.ON Pathway comprises three key data points: Our estimated emissions as of 2019 (our base year), our 50% emissions reduction target by 2030, and our 100% emissions reduction target by 2050.
- Benchmark Pathway is our control. It comprises our estimated emissions as of 2019, and then, using a regional benchmark and the IEA's net zero scenario, forward estimates a decarbonisation pathway. This will be updated annually.
- E.ON Carbon Footprint is our actuals. It comprises our annual emissions. This was estimated in 2019, 2020 and 2021 (using our regional benchmark), and records our portfolio's actual carbon footprint in 2022 and 2023. This will be updated annually.
- The regional benchmark comprises MSCI World Index and MSCI Emerging Markets index. This is because emerging markets have high GHG emissions.
- We will monitor divergence between the E.ON carbon footprint, the benchmark pathway and the E.ON pathway to understand whether we are on track to meet our target.

Conclusions

- As at 31 March 2023, the Group is tracking below both the Group (target) and Benchmark (control) Pathway
- As at 31 March 2022, the Group's greenhouse gas emissions per £1m invested was 64.4 tCO2e for Scopes 1 and 2
- As at 31 March 2023, the Group's greenhouse gas emissions per £1m invested was 56.0 tCO2e for Scopes 1 and 2
- The Group Trustee has established the Net Zero Decarbonisation framework to support the long-term monitoring of our carbon footprint. We recognise that we have 2 data points (2022 and 2023) and so are cautious when drawing conclusions from these short-term results
- In addition, we are cognisant that 2022-2023 was another difficult period for sustainable investment. The outperformance of fossil fuels continued from the previous year, as did the drop in prices for sustainable companies, after stronger performances in 2019 and 2020.
    - Russia's invasion of Ukraine had a major impact on sustainable investment strategies. Oil and gas prices rose immediately, highlighting how crucial Russia's supply of oil and gas is to Europe. Those price rises led to a significant outperformance of fossil fuel companies. Typically, these tend to be underrepresented in sustainable investment strategies, compared to the broader global market.
    - Sustainable companies were hit by rising interest rates, as central banks tried to tackle inflation largely driven by energy prices. Higher discount rates reduced the current valuation of growth-orientated sustainable companies.
- As such, the Group Trustee believes there is no reason to change the investment strategy.

EDF

Net assets[27] as at 31 March 2023: £6,477m.

EDF Defined Benefit Section

Chosen metrics

With regards to quantitative metrics, the Group Trustee – on an annual basis – monitors and reports:

- Total greenhouse gas emissions
- Carbon footprint
- Portfolio alignment metric: Binary target measurement verified by SBTI.
- PRA stress test scenarios (Scenario B): This has been chosen based on the basis that it is a useful metric for assessing the Group's exposure to climate risk and can be used in risk management decisions.

At the December 2022 Group Trustee Board meeting, the Group Trustee agreed to adopt assessments provided by the SBTi as the Group's portfolio alignment metric, which captures a company or issuer's progress against a self-developed decarbonisation target using science-based methodology. The target can be aimed at multiple time horizons, with each company being scored with a binary yes or no assessment on the following target categorisations: "SBTi Approved 1.5C", "SBTi Approved Well Below 2C" or "SBTi Approved 2C". Each of the categorisations all denote the implied global temperature increases that coincide with the decarbonisation target.

The Group Trustee receives these metrics on at least an annual basis as part of an ESG dashboard provided by Redington. The Group Trustee will periodically review its selection of metrics to ensure they remain appropriate for the Group. These were last reviewed in December 2022 when the Group Trustee decided to also start monitoring the SBTi metric. The Group Trustee has also gone through the process of setting explicit targets for the Group which are aligned with the Group Trustee's climate-related beliefs and are complimentary to the Group's wider objectives.

Metrics results

Absolute carbon emissions and carbon footprint

Fund	Fund Value (£m)	MSCI Climate Metrics Coverage %	Absolute Carbon Emissions (tCO2e)						Carbon Footprint (tCO2e / EVIC £m)					
			Current – Scope:			Previous – Scope:			Current – Scope:			Previous – Scope:		
			1+2	3	Total	1+2	3	Total	1+2	3	Total	1+2	3	Total
Liquid Markets (Equities)														
LGIM World Equity Index (MSCI) Fund - GBP Currency Hedged	114.4	-	6,858	46,826	17,160	48,447	255,287	104,610	59.9	409.3	150.0	61.1	322.0	132.0
Stewart Investors Worldwide Sustainability Fund	59.5	96.9%	466	7,955	2,217	-	-	-	7.8	133.7	37.3	-	-	-
Liquid Markets (Multi-Asset)														
Man AHL Target Risk Fund	207.0	-	4,548	111,951	29,177	31,426	191,091	73,466	22.0	540.8	140.9	90.2	548.2	210.8

[27] Source: Scheme Trustee Report and Accounts for the year-ending 31 March 2023. Includes DB and DC.

Fund	Fund Value (£m)	MSCI Climate Metrics Coverage %	Absolute Carbon Emissions (tCO2e)						Carbon Footprint (tCO2e / EVIC £m)					
			Current – Scope:			Previous – Scope:			Current – Scope:			Previous – Scope:		
			1+2	3	Total	1+2	3	Total	1+2	3	Total	1+2	3	Total
Ruffer Absolute Return Fund (Segregated Account)	169.5	-	8,409	47,956	18,959	43,115	602,726	175,715	49.6	282.9	111.8	100.3	1,401.8	408.7
Amundi Multi-Strategy Growth Fund	174.8	-	4,246	26,682	10,116	51,621	187,440	92,858	24.3	152.7	57.9	125.4	455.4	225.6
Liquid and Semi-Liquid Credit														
Beach Point SCF X Fund	64.1	-	10,136	41,488	19,264	26,558	120,806	53,135	158.1	647.0	300.4	179.0	814.3	358.1
BlueBay Leveraged Finance Total Return Fund	229.5	-	34,595	140,513	65,508	41,920	173,404	80,069	150.7	612.1	285.4	179.3	741.6	342.4
CQS Credit Multi Asset Fund	330.1	-	49,744	202,048	94,195	84,074	347,775	160,585	150.7	612.1	285.4	179.3	741.6	342.4
M&G Sustainable Total Return Credit Investment Fund	158.7	74.7%	10,123	67,651	25,006	-	-	-	63.8	426.4	157.6	-	-	-
PIMCO Low Duration Opportunities Fund	69.9	-	4,491	24,458	9,872	25,924	137,965	56,276	64.3	350.1	141.3	83.6	444.9	181.5
Schroders Alternative Securitised Income Fund	175.0	-	12,011	71,501	27,742	-	-	-	68.6	408.5	158.5	-	-	-
Illiquid Credit														
GSAM Broad Street Loan Partners IV (Levered) Fund	25.1	-	12,971	53,035	24,639	12,165	51,992	23,603	516.0	2,110.0	980.2	593.1	2,534.9	1,150.8
GSAM Broad Street Loan Partners IV (Unlevered) Fund	21.2	-	3,278	13,403	6,227	3,425	14,636	6,645	154.8	633.0	294.1	177.9	760.5	345.2
M&G Illiquid Credit Opportunities Fund II	61.3	-	18,018	73,747	34,242	20,555	93,499	41,125	260.1	1,064.6	494.3	294.5	1,339.8	589.3
M&G Illiquid Credit Opportunities Fund V	64.7	-	16,816	68,829	31,959	19,287	87,733	38,589	260.1	1,064.6	494.3	294.5	1,339.8	589.3
M&G Real Estate Debt Fund VI	20.6	-	6,720	34,292	14,264	7,072	36,580	15,120	101.3	516.9	215.0	116.0	600.0	248.0
M&G Senior Commercial Mortgage Loan Fund I	8.8	-	60	442	157	255	876	448	6.8	50.2	17.9	13.1	44.9	22.9
M&G Senior Commercial Mortgage Loan Fund II	5.0	-	34	249	89	67	228	117	6.8	50.2	17.9	13.1	44.9	22.9
Standard Life Long Lease Property Series II Fund	298.2	-	2,036	14,956	5,327	4,987	17,128	8,755	6.8	50.2	17.9	13.1	44.9	22.9
Illiquid Markets														
CBRE Satellite Portfolio	138.8	-	975	7,164	2,551	2,260	7,762	3,968	6.8	50.2	17.9	13.1	44.9	22.9
CBRE UK Property PAIF	124.3	-	849	6,236	2,221	1,960	6,730	3,440	6.8	50.2	17.9	13.1	44.9	22.9
M&G UK Residential Property Fund	21.7	-	148	1,090	388	561	1,927	985	6.8	50.2	17.9	13.1	44.9	22.9
Partners Group Fund	720.4	-	120,285	567,049	245,036	111,931	563,176	235,830	167.0	787.1	340.1	159.0	800.0	335.0
TOTAL PORTFOLIO	**3,262.6**		**338,952**	**1,704,018**	**713,836**	**-**	**-**	**1,151,105**	**103**	**522**	**219**	**96**	**504**	**206**

Please note the total carbon footprint numbers for the total portfolio are reported excluding the LDI portfolio assets.

SBTI and slow climate stress

Fund	Fund Value (£m)	Science Based Targets initiative Rating		PRA Slow Climate Stress	
		Current	Previous	Current	Previous
Liquid Markets (Equities)					
LGIM World Equity Index (MSCI) Fund - GBP Currency Hedged	114.4	39.1%	-	-6.9%	-
Stewart Investors Worldwide Sustainability Fund	59.5	27.4%	-	-4.5%	-
Liquid Markets (Multi-Asset)					
Man AHL Target Risk Fund	207.0	-	-	-11.5%	-
Ruffer Absolute Return Fund (Segregated Account)	169.5	3.3%	-	-4.3%	-
Amundi Multi-Strategy Growth Fund	174.8	13.7%	-	-2.1%	-
Liquid and Semi-Liquid Credit					
Beach Point SCF X Fund	64.1	-	-	-4.8%	-
BlueBay Leveraged Finance Total Return Fund	229.5	5.5%	-	-4.5%	-
CQS Credit Multi Asset Fund	330.1	5.1%	-	-4.5%	-
M&G Sustainable Total Return Credit Investment Fund	158.7	17.7%	-	-1.8%	-
PIMCO Low Duration Opportunities Fund	69.9	3.0%	-	-1.4%	-
Schroders Alternative Securitised Income Fund	175.0	-	-	-1.3%	-
Illiquid Credit					
GSAM Broad Street Loan Partners IV (Levered) Fund	25.1	-	-	-15.1%	-
GSAM Broad Street Loan Partners IV (Unlevered) Fund	21.2	-	-	-4.5%	-
M&G Illiquid Credit Opportunities Fund II	61.3	-	-	-7.7%	-
M&G Illiquid Credit Opportunities Fund V	64.7	-	-	-7.7%	-
M&G Real Estate Debt Fund VI	20.6	-	-	-4.4%	-
M&G Senior Commercial Mortgage Loan Fund I	8.8	-	-	-0.9%	-
M&G Senior Commercial Mortgage Loan Fund II	5.0	-	-	-0.9%	-
Standard Life Long Lease Property Series II Fund	298.2	-	-	-8.0%	-
Illiquid Markets					
CBRE Satellite Portfolio	138.8	-	-	-8.0%	-
CBRE UK Property PAIF	124.3	-	-	-8.0%	-
M&G UK Residential Property Fund	21.7	-	-	-8.0%	-
Partners Group Fund	720.4	-	-	-4.7%	-
TOTAL PORTFOLIO	**3,262.6**	**4.5%**	**-**	**-**	**-**

All “Current Total Portfolio” figures in this table are weighted averages with the exception of “Fund Value” and “ITR” where it is presented.
“Previous” figures show climate metrics from 12 months prior to “Current” figures. Fund-level “Previous” figures may not sum to the “Previous Total Portfolio” figures because the “Total Portfolio” values may contain funds that have now been divested from and not reported in this table.
Where presented, “Science Based Target initiative” or “TPI” scores are all based on look through data where it is available and never proxied. “ITR” is only proxied where there is insufficient data.
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.

Emission metrics are calculated for return seeking assets only.
UNPRI delays with their new reporting system mean 2021 new ratings have not yet been released.

Carbon footprint analysis

- Where possible and where there is reasonable data coverage, the Group 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 Group Trustee monitors 'asset class level' carbon estimates in the absence of reliable, reported line-by-line emissions data from MSCI. The Group Trustee notes using asset class modelling of emissions for assets where this data is not available enables a more holistic view of the Group'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 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).
- The Group Trustee recognises that there is some degree of double counting in including scope 3 emissions. For this reason, scope 3 emissions figures have been adjusted for double counting by applying a de-duplication multiplier of 0.22 to all portfolio companies' scope 3 emissions. This is the discount factor used by the Group's ESG data provider and it is based on the relationship between the total scope 1 and scope 3 emissions of a company. In this way the discount factor is designed to reduce the portfolio's aggregated scope 1, 2 and 3 emissions down to a level more closely reflecting the real-world footprint. The climate metrics reporting the Group Trustee receives from Redington reports "scope 1 & 2" and "scope 3" data separately before aggregating, in an effort to improve transparency.

Portfolio Alignment

The Group Trustee has agreed to adopt the SBTi as its chosen fourth metric, which examines whether a voluntarily disclosed company decarbonization target is aligned with a relevant science-based pathway.

As part of SBTi, a company or issuer will sign a commitment to self-develop a single or multiple pathways to reduce GHG emissions, with 24 months to develop this pathway, submit it for SBTi validation and publish the approved target. The Company/Issuer's chosen decarbonisation target can be aimed at one or all of; the short term, long term or Net Zero, with each company being scored with a binary yes or no assessment on the following target categorisations: "SBTi Approved 1.5 C", "SBTi Approved Well Below 2 C" or "SBTi Approved 2 C", all of which denote the implied global temperature increases the target. Should a company/issuer's decarbonisation pathway not comply with either of the Paris-aligned targets, it will be assigned a 'Not Committed' rating.

Using line-by-line data, Redington can calculate the proportion of assets invested within each fund the Group is invested in, that correspond to each SBTi score classification, ignoring negative allocations. Where line-by-line data is not available, investment managers can also provide these proportions if they have access to the data. A scheme-level score is calculated as the value weighted average of the fund level scores (i.e., for an example scheme XYZ, that is 50% invested in Fund X with an SBTi score of 20% and 50% invested in Fund Y with an SBTi score of 40%, the scheme-level aggregate SBTi score (30%) is calculated through a weighted-average of the fund's weight within the portfolio and SBTi score).
The results of this metric as at 31 March 2023 (the first quarter it was calculated for the Group) is set out at the table above. The Group Trustee will continue to monitor this each quarter.

Limitations, assumptions and methodology

Modelling Assumptions:

- Data used: deaths and populations for years 1960-2020 as published by ONS and used by CMI in the industry standard CMI mortality projections model CMI_2020. 2021 data added to historic data points (but CMI model not updated to CMI_2021 at this stage.)
- For charts, mortality standardised using the European Standard Population 2013 for ages 50-90 as set out in this paper: Revision of the European Standard Population -Report of Eurostat's task force -2013 edition -Products Manuals and Guidelines -Eurostat (europa.eu)
- Model: industry-standard mortality projections model CMI_2020 with varying parameters to reflect short-and long-term impacts of different scenarios on mortality. The key parameters used were the Initial Addition (A) parameter which increases or decreases improvements in the near-term, and the long-term rate parameter (LTR) which increases or decreases improvements in the long term. Adjustments were applied to assumed base mortality to ensure that the rate used in 2020 was the same across all scenarios.
- In the charts in the presentation, male mortality rates are used, assuming standard (SAPS S3PMA) mortality rates. Circles for “actual rates” are based on a run of the CMI model without using the standard smoothing parameters.
- Charts illustrate mortality rates up to 2050, but rates were provided up to 2150 to enable liabilities to be calculated. Descriptions of each scenario and its possible impact on future mortality (short-term and long-term) are provided in the scenario slides.
- Liability impacts of each scenario were calculated based on the ratio of male life expectancy at age 60 and rounded to the nearest 0.5%. It is noted that the impact could be different depending on discount rate. A difference might also be expected for joint life annuities although it’s not likely that they will be significantly different given that figures are rounded to 0.5%.

Limitations:

- these scenarios provide an indication as to what might be expected in particular scenarios, to provide an impact of mortality on liabilities to place alongside the impact from financial variables on the liabilities and the impact on assets from investment returns of the given scenario. The scenarios are not intended to provide the highest or lowest possible outcomes, and are not intended to show what will happen, rather they give a reasonable range of impacts against which to consider the possible impact of climate change on a particular pension scheme. The scenarios are deliberately not given likelihoods, we have not sought in any way to estimate how likely each scenario is.
- Scenarios are essentially expressed relative to a pension scheme’s current position (i.e., the central scenario). If a pension scheme is already specifically reflecting a particular belief on the current path (for example, if it is believed that we are heading to a “No transition” scenario) then variations should be expressed relative to that scenario rather than the central one, otherwise the liability impact of that scenario would be incorrect for that scheme. At this stage we don’t believe pension schemes are reflecting views on climate change in this way, but this may be (explicitly or implicitly) the case in future.

Targets

In particular, the Group Trustee has agreed to align the Group's investment strategy with the goals of the Paris Agreement, i.e., to aim to reduce total greenhouse gas emissions of the Group's assets to net zero by 2050. Given this is a long-term target, the Group Trustee has also set an appropriate interim target of a 50% reduction of carbon footprint by 2030 compared to the baseline as at 30 September 2021. The Group's target was set on the total portfolio carbon footprint (LDI assumed zero emissions). The starting point was 126 tC02e/£m as at 30 September 2021, the 31 March 2023 carbon footprint of the portfolio is 104 tC02e/£m which is a 17.5% reduction since the baseline year.

The Group Trustee has considered the feasibility of such a target by considering the anticipated changes in the Group's asset allocation over time and has conducted several discussions on ways to further reduce the Group's carbon footprint in order to meet this goal. The Group Trustee notes that as the Group continues to de-risk over time from return-seeking assets into LDI or "matching" assets, the carbon footprint of the Group is also expected to reduce due to gilts being expected to generate lower levels of emissions than return-seeking assets over the longer term.

In order to ensure that climate risk does not become an overly large proportion of the Group's total risk, the Group Trustee has also set a climate risk budget based on its third climate metric (i.e., the results of the "Slow Transition PRA stress tests"). In particular, the Group Trustee has determined that this metric should not exceed 50% of the Group's total risk budget. The Group Trustee notes that any changes to the Group's investment strategy should, where possible, aim to not increase the expected loss under a Slow Transition.

These targets are embedded in the governance, strategy, and risk management processes via their inclusion in the quarterly reporting provided to the Group Trustee by Redington. On an annual basis, the Group Trustee will measure performance against this target and furthermore determine whether this should be retained or replaced.

Trustee assessment of metrics and targets as at 31 March 2023

The Group Trustee notes that the Group's total carbon footprint is 219 tCO2e / £m invested, and the total estimated Group carbon emissions is 713,836 tCO2e. The total estimated carbon emissions have proportionally reduced from the 1,151,105 tCO2e last year, as a significantly higher proportion of assets have been invested in the LDI portfolio, which has been excluded in the analysis due to current lack of market consensus. The Group's total carbon footprint of 219 tCO2e/ £m invested is slightly higher than the reported 206 tCO2e / £m invested from the previous year. This is a result of having a greater proportion of assets invested in the Group's illiquid assets (specifically the Partners Group mandate) as the Group could not rebalance as quickly out of these assets following the gilt crisis in 2022.

There is emerging industry consensus regarding the carbon emissions of sovereign bond assets and the Group Trustee has engaged with the Group's LDI manager, LGIM, to understand the emissions attributable to the Group's LDI portfolio. The carbon emissions intensity of the LDI portfolio are 57 (tonnes CO2e per £1m invested). This figure is based on scope 1&2 only and the coverage is of 93.6% of the assets held within the portfolio. The Group Trustee reports the emissions from return-seeking assets separately from sovereign assets, rather than at an aggregated level recognising that there is likely to be a degree of double counting between the two.

With the exception of two mandates (Stewart Investors Worldwide Sustainability Fund and M&G Sustainable Total Return Credit Investment Fund which had 96.9% and 74.7% coverage respectively), the metrics have been modelled at an asset class level by Redington and reviewed by the Group Trustee because data coverage for those funds provided by the investment manager is below 50%. Data coverage for these funds are below 50% due to a combination of reasons with some of them due to the underlying securities the funds invested in are unable to provide the required ESG data at this time, or the investment manager is still developing the process to engage and retrieve this data from the underlying securities, or ESG data is unavailable due to the underlying security (e.g., for derivatives). The expectation is that the output will evolve over time as data availability is likely to improve and increasing public disclosures should increase the speed at which the data becomes available. As and when new data becomes available, the Group Trustee will review the targets which have been set to ensure they remain feasible in light of this new information. The Group Trustee is also engaging with its investment managers to provide more detailed ESG data on its investments, in particular with Partners Group and CBRE, who are expecting to provide more granular data for the Group's next TCFD report. The Group will also monitor whether data quality is improving over time.

This analysis contains estimates of the Group's scope 3 greenhouse gas emissions, i.e., the "financed emissions" associated with the Group's investments. The Group Trustee acknowledges the impact its own actions may have and does consider them, but the Group's scope 1 and scope 2 emissions (e.g., the use of fuel and electricity in office buildings) are nominal in comparison to scope 3 emissions (i.e. the emissions arising from investments).

To date the Group Trustee has used the results to identify the funds with higher emissions. As previously mentioned, this prompted the Group Trustee to consider alternative low-carbon funds. The Group Trustee anticipates using the climate-related risks which are raised through the above-mentioned metrics as an opportunity to engage with investment managers who have materially higher carbon intensity levels. The Group Trustee will continue to explore low-carbon alternative investment options and update investment guidelines for managers where the Group Trustee has discretion to make such changes.

Note: All analysis is provided by the Group's DB Investment Consultant, Redington Ltd (Redington), and the data in the report is sourced from MSCI ©. Please refer to the data disclaimer in the appendix.

EDF Defined Contribution section

Chosen metrics

This report presents carbon data analysis for the Group's popular arrangements (the Mercer Growth Fund) as at 31 December 2022. The data is based on the current allocations of the funds, i.e. including dynamic asset allocation. With regard to quantitative metrics, the Group Trustee, on an annual basis, monitors and reports:

- Total Greenhouse Gas Emissions
- Carbon Footprint
- Weighted Average Carbon Intensity (WACI)
- Implied Temperature Rise
- Aggregated 1p5 Climate VaR
- Data quality

The Group Trustee receives these metrics on an annual basis from the DC Investment Consultant on behalf of MWS, although carbon metrics for active equities are also included in quarterly reports. MWS will periodically review its selection of metrics to ensure they remain appropriate.

Metrics results

Absolute emissions metrics

	Group Assets (£m)	**Proportion in Listed Assets**	**Absolute Emissions (tonnes CO_2E)**
Mercer Growth Fund	45.8	91.5	3,782

Notes: Data Source: MSCI ESG Data, Mercer Calculations. Calculated figures are rebased for representative full coverage. Figures are based on best-available data at time of calculation. Calculation methodologies are subject to change based on evolving market standards.

Emissions Intensity, Portfolio Alignment and Non-Emission Based Metrics

Mercer Growth Fund			**Listed Assets (91.5% of fund)**		**Sovereign Assets (8.5% of fund)**	
Asset Class	Fund Weight	Coverage for WACI / Sales	WACI / $m Sales	Carbon Footprint / £m invested	WACI / $m GDP	Implied Temperature Rise
UK Equity	3.0%	93.6%	120.6	83.1	-	2.4
Europe (ex-UK) Equity	4.0%	100.0%	116.7	73.4	-	2.1
Japan Equity	2.0%	100.0%	77.9	54.6	-	2.6
Multi-Factor Global Equity	7.0%	100.0%	108.7	49.3	-	2.6
Sustainable Global Equity	7.5%	99.6%	37.9	11.9	-	1.9
Emerging Markets Equity	13.0%	100.0%	296.3	143.2	271.0	3.0
Small Cap Equity	8.0%	99.7%	161.5	87.7	-	2.8
Low Volatility Equity	6.5%	99.2%	112.3	30.2	-	2.1
Listed Infrastructure Equity	7.5%	99.7%	833.9	220.6	-	2.9
Global REITs	7.5%	99.8%	88.5	7.5	-	1.8
Systematic Macro	4.0%	0.0%	-	-	-	-
Global High Yield Bonds	17.0%	83.7%	209.3	115.8	-	3.3
Asia High Yield Bonds	3.0%	73.5%	204.1	114.1	271.0	3.7
Emerging Market Debt	7.5%	0.0%	-	-	880.9	-
Absolute Return Bonds	0.3%	73.2%	102.9	49.2	416.0	2.9
Corporate Bonds (UK)	0.3%	92.0%	78.8	49.5	606.4	1.9
Corporate Bonds (US)	0.3%	96.2%	306.2	76.4	-	2.6
Corporate Bonds (Euro)	1.3%	96.8%	124.9	88.3	-	2.1
Cash	0.5%	0.0%	-	-	-	-
Pro-Rated Total	**100.0 %**		**211.4**	**90.4**	**808.6**	**2.8**

Source: MSCI, Mercer Calculations. Proxies: UK Equity – FTSE All Share Index, European Equity – MSCI Europe ex-UK Index, Japan Equity – MSCI Japan Index, Emerging Market Debt – JP Morgan EM GBI, Systematic Macro –Cash, Asia High Yield Bonds – Mercer Global High Yield Bond Fund, Corporate Bonds (UK) –ICE BofAML Sterling Non-Gilt Index, Corporate Bonds (US) – ICE BofAML US Corporate Index, Index-Linked Gilts – MGI UK Inflation Linked Bond Fund, UK Gilts – FTSE Act. Gilt All Stocks Index. USD/GBP Exchange Rate: 0.83132

Data Quality	Non-Eligible	Sovereigns	Verified	Reported	Estimated	Not Reported	Not Estimated
Scope 1 & 2	7.0%	8.5%	0.0%	58.7%	21.8%	3.9%	
Scope 3	7.0%	8.5%			79.9%		4.6%

Scope 3	Upstream	Downstream
Carbon Footprint (tCO2e/£m invested)	123.8	369.0
WACI (tCO2e/$m revenue)	234.9	452.9

Data Source: MSCI ESG and Mercer calculations

Calculated figures are rebased for representative full coverage.

Proxies are applied where appropriate.

Figures are based on best-available data at time of calculation. Calculation methodologies are subject to change based on evolving market standards

Coverage is defined as the proportion of the asset class that usable carbon emission and revenue data are available for, i.e. if we have a coverage value of 99.8% of an underlying fund / asset class this means 0.2% of the data is missing. For the basis of these calculations it is assumed that the missing 0.2% behaves in a similar way to the available data and so the available data is pro-rated to account for the missing data. While this is an assumption, we believe this is a reasonable proxy to be used.

When calculating tonnes of carbon dioxide equivalent emissions (tCO2e) Scope 1 and 2 emissions are reported separately to scope 3 emissions. This is for two reasons; 1) coverage of scope 3 disclosure remains insufficient to use reliably and 2) inclusion may lead to double counting at portfolio level. Scope 1, 2 and 3 emissions are as defined by the GHG protocol - Greenhouse Gas Protocol | (ghgprotocol.org) Please note that Carbon Footprint is provided in USD by the fund manager, we have converted to GBP using the following exchange rate, USD/GBP – 0.83132 as at 31 December 2022. Sourced from Refinitiv.

Data quality for Scope 1 and 2 is split between; not eligible, sovereigns, reported, estimated and not reported. Data quality for Scope 3 is split between; not eligible, sovereigns, estimated and not estimated. Whilst a level of reported data is available under scope 3, given the vast discrepancies in scope 3 calculation methodologies across underlying companies we are using estimated data where possible for consistency in reporting. This approach will be reviewed in future as scope 3 data becomes more reliable.

Upstream Scope 3 emissions: defined as indirect carbon emissions related to purchased or acquired goods and services; and
Downstream Scope 3 emissions: defined as indirect carbon emissions related to sold goods and services.

Carbon metrics analysis

Coverage is defined as the proportion of the asset class that usable carbon emission and revenue data are available for, i.e., if we have a coverage value of 99.8% of an underlying fund / asset class this means 0.2% of the data is missing. For the basis of these calculations, it is assumed that the missing 0.2% behaves in a similar way to the available data and so the available data is pro-rated to account for the missing data. While this is an assumption, we believe this is a reasonable proxy to be used.

When calculating tonnes of carbon dioxide equivalent emissions (tCO2e) Scope 1 and 2 emissions are reported separately to scope 3 emissions. This is for two reasons; 1) coverage of scope 3 disclosure remains insufficient to use reliably and 2) inclusion may lead to double counting at portfolio level. Scope 1, 2 and 3 emissions are as defined by the GHG protocol - Greenhouse Gas Protocol | (ghgprotocol.org) Please note that Carbon Footprint is provided in USD by the fund manager, we have converted to GBP using the following exchange rate, USD/GBP – 0.83132 as at 31 December 2022. Sourced from Refinitiv.

Data quality for Scope 1 and 2 is split between; not eligible, sovereigns, reported, estimated and not reported. Data quality for Scope 3 is split between; not eligible, sovereigns, estimated and not estimated. Whilst a level of reported data is available under scope 3, given the vast discrepancies in scope 3 calculation methodologies across underlying companies we are using estimated data where possible for consistency in reporting. This approach will be reviewed in future as scope 3 data becomes more reliable.

Upstream Scope 3 emissions: defined as indirect carbon emissions related to purchased or acquired goods and services; and Downstream Scope 3 emissions: defined as indirect carbon emissions related to sold goods and services.

All modelling was provided by Mercer.

Limitations, assumptions and methodology

Due to practical data availability, the figures quoted in the report assume that the metrics of the companies not covered by the analysis are representative of the range of companies that have been covered in the analysis – the 'pro-rata' approach (i.e., it is not assumed that companies not covered have zero emissions) in line with statutory guidance. The Group Trustee recognises that the availability of accurate data for some asset classes is an industry-wide issue and will look to MWS to encourage underlying managers, and the companies in which they hold these assets, to improve their climate (and carbon) reporting as quickly as possible.

Climate shock stress tests

In reality, sudden changes in return impacts are more likely than neat, annual averages. Stress testing changes in scenario probability, market awareness, and physical damage impacts help to prepare for this eventuality.

Climate Scenario Analysis Assumptions

	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 organizations 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 and global warming reaches 4.3°C above pre-industrial levels by 2100. Physical climate impacts cause large reductions in economic productivity and increasing impacts from extreme weather events.
Cumulative emissions to 2100	416 GtCO2e	810 GtCO2e	5,127 GtCO2e
Key policy and technology assumptions	An ambitious policy regime is pursued to encourage greater decarbonization 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) 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 through damages to agriculture and change in food prices. 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 report 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:

- The further into the future you go, the less reliable any quantitative modelling will be.
- 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.
- Financial stability and insurance 'breakdown' are 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.
- Most adaptation costs and social factors are not priced into the models. These include population health and climate-related migration.
- New and emerging risks, such as the impact of climate change on biodiversity loss, and vice versa, is expected to be integrated into climate scenario modelling over time once the supporting science and impact on econometrics and finance is better understood.

Targets

The Group Trustee will adopt the targets as set by the delegated investment manager, MWS. The Group Trustee and MWS are committed to reducing the overall WACI over time.

The target for the Mercer Growth Fund has been set against WACI and is aligned with the funds' net-zero commitment.

What is the commitment?

- In March 202128, Mercer committed the Mercer Growth Fund (and other multi-client multi-asset funds) to achieving net-zero absolute portfolio carbon emissions by 205029. To achieve this, Mercer expects to reduce portfolio carbon emissions intensity (as measured by WACI) by at least 45 per cent from 2019 baseline levels by 2030. The commitment is consistent with targeting a 1.5°C limit on global temperature increases and the Paris Agreement's ambitions.
- Robust analysis informed Mercer's view that this carbon reduction target, supported by a climate transition plan, is possible while remaining consistent with investment objectives and risk/return profiles to deliver on both short- and long-term expectations and best interests.
- The goal is to reduce both Absolute Emissions and WACI to net zero by 2050 (considering only Scope 1 and Scope 2) i.e., focused on emissions reductions but likely with some carbon removals included in due course.
- WACI figures are based on listed assets only and does not include sovereign assets. For sovereign exposures, Mercer will be tracking what portion of countries have made net zero commitments and at what date – the weighted average year for reaching net zero should move to 2050 or sooner. Metrics used for country/sovereign exposures are not directly comparable with listed figures, as such the two are not compared, aggregated, or otherwise mixed.

[28] The commitment was announced March 2021 but uses a 31 December 2019 baseline.
[29] Defined as: absolute carbon emissions (Scope 1&2) per $M of AUM. Note that absolute emissions are the priority for real world emissions outcomes, however, Weighted Average Carbon Intensity (WACI) remains an important measure from a portfolio perspective for decision making in the shorter term.

Progress to date is as follows (WACI: tCO2e/$m revenue):

	Mercer Growth	Progress towards target
31 Dec 2019 (Baseline)	329.6	
31 Dec 2022 (Target)	*280.0*	
31 Dec 2022 (Actual)	211.4	-36% (below)

MWS will be working closely with its appointed investment managers to identify and manage a staged emissions reduction plan, oversee allocations to climate solutions, and steward an increase in transition capacity across the funds. It is evident that the Group is making good progress for the Mercer Growth Fund, as the current WACI figure is below the target threshold for the scheme year. The Group Trustee is comfortable maintaining the current target and will continue to monitor progress against the target annually. In order to ensure that the target is met, the MWS IGC adheres to its responsible investment four pillar framework. The four-pillar framework covers the following four key areas which specifically ensures that climate risks are considered across the investment strategy:

- **Integration**: When selecting investment managers, the MWS IGC ensures that it only appoints investment managers who thoroughly consider ESG and climate considerations (risks and opportunities) into their security selection and portfolio construction where relevant. These investment managers are identified by Mercer's manager research team rating investment managers using Mercer's ESG rating process.
- **Stewardship**: The MWS IGC engages with its investment managers to ensure they maintain strong processes in relation to voting to ensure activities and behaviours are aligned with MWS's wider ESG beliefs and carbon emission reduction targets. The MWS IGC also does an annual survey of the engagement activities that are undertaken by its investment managers with investee companies with a focus on those engagements related to MWS's engagement priorities, including climate change.
- **Investment**: MWS's Multi-Asset funds (including the Mercer Growth Fund) hold direct allocations to ESG tilted indices currently through global equities, global high yield bonds and emerging market debt. These allocations will tilt away from higher emitting companies and the MWS IGC keeps under regular review whether additional allocations to ESG tilted allocations can and should be made. The sustainable global equity allocation tracks a Paris-Aligned benchmark which has explicit carbon reduction targets.
- **Screening**: The MWS IGC considers certain screens and whether exclusions are applied. In 2022 MWS introduced fossil fuel exclusions to a number of the underlying funds within the multi-asset funds. The majority of these funds exclude companies that generate more than 1% of their revenue from thermal coal extraction, arctic drilling or oil tar sand mining. The MWS IGC keeps the list of excluded activities under regular review.

The Group Trustee is satisfied that good progress is being made with integrating climate considerations into the Mercer Growth Fund, which is reflected in the reduction shown above and ESG ratings assigned to the appointed underlying investment strategies by the Group Trustee's advisors. The Group Trustee also notes that allocations are being introduced (where feasible) to funds that have a dedicated sustainability focus in terms of exclusions applied and significantly lower carbon emissions compared to global equities.

Magnox Electric

Net assets[30] as at 31 March 2023: £2,651m.

The following information should be read in conjunction with the Group's disclaimers included in Appendix D.

Chosen metrics

The Group Trustee has agreed to report on Total Greenhouse Gas ("GHG") Emissions, Carbon Footprint, Data Quality and Binary Target Measurements, and will report on these metrics annually. Climate-related metrics were requested from all the Group's investment managers, not all of which were able to provide the requested data. The level of Data Quality varied significantly between managers, which was primarily driven by the asset class of the investments held.

The Group Trustee has set an intermediate target to encourage the investment managers of the Group to improve the Data Quality over the next 3 years in order to ensure any subsequent targets provide a material benefit to the climate-related risks and opportunities faced by the Group, subject to the Group Trustee's primary responsibility of ensuring that the liabilities of the Group are paid as they fall due. In due course the Group Trustee aspires to set a more stretching target for the Group (for example a reduction in carbon emissions), when the data is of sufficient quality to provide more reliable insights.

Metrics results

The table below shows a more detailed breakdown of the scope 1 and scope 2 emissions from each Section of the Group (where available).

Section	Total material assets as at 31 March 2022 (£m)	Carbon Footprint (tCO2e/£m invested)	Total GHG Emissions calculated (Tonnes CO2e)[1]	Data Quality (%)	Binary Target Measurements (%)
SLC Section	3,264.6 (95.2%)	111.0	526,847.7	61.9%	45.8%
Cavendish Nuclear Section	83.2 (2.4%)	128.8	15,352.7	79.6%	80.1%
Atkins Section	67.4 (2.0%)	107.1	7,216.6	95.5%	100.0%
NNL Section	12.9 (0.4%)	118.8	2,504.2	80.7%	64.8%
Total Group	**3,428.1 (100.0%)**	**111.4**	**551,921.2**	**63.0%**	**47.8%**

Source: Investment managers. Investment managers provided carbon emissions data in line with the Investment Association's ("IA") Carbon Emissions Template ("CET")[31]. Where managers provided information in USD terms, Aon converted it to GBP terms using the applicable exchange rate as at 31 March 2022. Figures may not sum due to rounding. Notes: (1) Total GHG emissions for the LDI assets is based on the leveraged gilt exposure.

[30] Source: Scheme Trustee Report and Accounts for the year-ending 31 March 2023.

[31] Full information on the CET, including all underlying methodology can be found in the relevant section of the IA's Data Delivery Framework: Data Delivery Frameworks | The Investment Association (theia.org)

The table below shows a more detailed breakdown of the emissions from each asset class of the Group (where available).

Asset Class	Total material assets as at 31 March 2022 (£m)	Carbon Footprint (tCO2e/£m invested)	Total GHG Emissions calculated (Tonnes CO2e)[1]	Data Quality (%)	Binary Target Measurements (%)
Equities	6.7 (0.2%)	7.6	49.0	96.5%	97.9%
Diversified Growth Fund (DGF)	17.1 (0.5%)	71.6	499.0	57.0%	56.6%
Property & Infrastructure	990.0 (28.9%)	19.7	18,060.4	36.3%	6.4%
Liquid Credit	577.4 (16.8%)	94.1	31,986.5	54.3%	14.5%
Illiquid Credit	362.7 (10.6%)	Currently Unavailable			0.0%
LDI	1,432.1 (41.8%)	168.4	498,358.3	100.0%	100.0%
Annuity[2]	42.1 (1.2%)	75.9	2,968.1	92.8%	100.0%
Total Group	**3,428.1 (100.0%)**	**111.4**	**551,921.2**	**63.0%**	**47.8%**

Source: Investment managers. Investment managers provided carbon emissions data in line with the Carbon Emissions Template (CET). Where managers provided information in USD terms, Aon converted it to GBP terms using the applicable exchange rate as at 31 March 2022. Figures may not sum due to rounding. Notes: (1) Total GHG emissions for the LDI assets is based on the leveraged gilt exposure. (2) The annuity manager, Canada Life, provided climate-related metrics as at 31 December 2021.

Key observations

Whilst all managers responded, not all of these, as expected, were in a position to report on carbon and portfolio alignment metrics as at 31 March 2022. The majority of assets have no net zero or Paris-aligned targets; this is an industry-wide issue.

The data quality from the Group's equity managers was much higher than the Group's other growth asset classes, reflecting the available of data from listed companies who also have TCFD disclosure requirements. Due to variability in the methodology used to calculate carbon-related metrics for LDI, the reported emissions of these assets may vary significantly over time.

There was a significant amount of variability in the data quality of the remaining assets, with the availability of data in private markets being particularly poor.

Targets

Climate-related targets help the Group Trustee track its efforts to manage the Group's climate-change risk exposure. Given the coverage for the Group's carbon metrics data at the current time, the Group Trustee has agreed to set a target of improving Data Quality for the Group.

The Group Trustee believes that without meaningful data from the investment managers, it is difficult for the Group Trustee to measure its climate-risk exposure. Therefore, in setting an ambitious target to improve Data Quality, the Group Trustee expects the data received from the Group's investment managers to improve thereby providing better insights on the climate-related risks and opportunities impacting the Group. This will in turn enable the Group Trustee to make more informed investment decisions. In addition, the Group Trustee expects better Data Quality to enable them to consider other targets in future, such as a reduction in carbon emissions, a dedicated net-zero goals, or alignment with the objectives of the Paris Agreement.

Based on the Group Trustee's observations of the Data Quality summarised in the previous section, the Group Trustee has agreed to achieve a Data Quality target of 90% for scope 1, 2 and 3 emissions across all of the Group's asset classes. In doing so, the Group Trustee has agreed to focus initially on improving the Data Quality for asset classes which have the least data coverage, such as illiquid credit, property and infrastructure. The Group Trustee has therefore agreed targets for each asset class in three years' time as follows:

Asset Class	Current Data Quality (%)	3-year Data Quality target (%)
Equities	96.5%	c.100.0%
Diversified Growth Fund (DGF)	57.0%	c.100.0%[1]
Property & Infrastructure	36.3%	c.65.0%
Liquid Credit	54.3%	c.100.0%[1]
Illiquid Credit	0.0%	c.50.0%
LDI	100.0%	100.0%
Annuity	92.8%	c.100.0%
Total	**63.0%**	**c.90.0%**

Notes: (1) Whilst the Group Trustee has agreed that 100% Data Quality may not realistically be achievable for the Group's Liquid Credit and DGF investments, the Group Trustee has agreed to aspire for Data Quality at that level.

Progress against the target will be measured and reported on each year, which the Group Trustee expect to improve through continued engagement with the managers.

Manweb

Net assets[32] as at 31 March 2023: £768m.

Chosen metrics

The Trustee has chosen to present climate-related metrics across four different categories in this report. The climate-related metrics help the Trustee to understand the climate-related risk exposures and opportunities associated with the Group's investment portfolio and identify areas for further risk management, including investment manager portfolio monitoring, voting and engagement activity and priorities.

The chosen metrics are as follows:

- Absolute emissions: Total Greenhouse Gas Emissions
- Emissions intensity: Carbon Footprint
- Portfolio Alignment: Implied Temperature Rise (ITR)
- Additional: Data Quality

The metrics presented in this report are as at 31 December 2022 and are based on the actual asset allocation at that date.

The metrics in this report relate to the Group's invested assets only and exclude emissions associated with the operation of the Group. The metrics in this report are listed below and where metrics relate to emissions, these cover scope 1 and 2 only. The Trustee will begin reporting on scope 3 emissions from its next report.

[32] Source: Scheme Trustee Report and Accounts for the year-ending 31 March 2023.

Metrics results

Asset breakdown	Absolute Emissions (Scope 1 & 2)	Carbon Footprint (Scope 1 & 2)	Implied Temperature Rise
Insight – LDI	61,752 tCO2e	195.3 tCO2e/£m	1.5 – 2.0 degrees Celsius
RREEF – Infrastructure	Not available		
CBRE – Long Lease Property	Not available		
Highbridge – III, IV & V	7,148 tCO2e	114.4 tCO2e/£m	n/a
AMP (Ares) III & IV	Not available		
Deerpath	Not available		
Metric Capital III & IV	Not available		
Audax Capital I & II	Not available		
Angelo Gordon	Not available		
Permira IV & V	3,662 tCO2e	126.3 tCO2e/£m	n/a
Hayfin III & IV	Not available		
Longevity Swap Buffer, Fee and Experience Accounts*	38,106 tCO2e	195.3 tCO2e/£m	1.5 – 2.0 degrees Celsius
FX Hedging and Cash	Not available		
Total assets	110,668 tCO2e	181.0 tCO2e/£m	1.5 – 2.0 degrees Celsius
Data coverage for each metric as a % of total assets	58%		47%

* Insight data provided in respect of Gilts held in LDI portfolio also applied to Gilts held in Longevity Swap accounts (absolute emissions calculated on a pro-rata basis).
All underlying data provided by the relevant investment managers.

The Investment Sub-Committee intends to use the above data to help identify and assess climate risks, in particular when engaging with the Group's respective investment managers.

We note that the climate-related metric data for the Group's private debt and property mandates is limited. However, we recognize that the provision of climate-related metric data has, in general, not historically been included in the loan terms and lease contracts for underlying investments within these mandates. The managers have noted that going forwards the requirement to provide such data will typically be included as a requirement in the contractual terms and therefore we expect the data coverage to improve over time.

In summary, in respect of the data that has been received as at 31 December 2022:

- the total absolute emissions of the Group's assets was 110,668 tCO2e;
- the carbon footprint across the mandates was 181.0 tCO2e/£m;
- the implied temperature rise was 1.5 – 2.0 degrees Celsius;
- in terms of data coverage, the absolute emissions and carbon footprint data covered approximately 58% of the Group's assets and the Implied Temperature Rise metric covered approximately 47% of the Group's assets.

Limitations, assumptions and methodology

The Trustee recognises the challenges associated with various metrics, tools and modelling techniques used to assess climate change risks. Due to the gaps in the data currently available it is not possible to provide the metrics chosen on the Group's total assets at the current time. The Trustee aims to work with its investment adviser and investment managers to continually improve the approach to assessing and managing risks over time as more data becomes available. The Investment Sub-Committee discusses the provision of climate-related data when it meets with the investment managers on an annual basis, including efforts being made to obtain improved data quality in future years. The ability to provide climate-related data will also be a consideration taken into account in any future manager appointment by the Investment Sub-Committee.

Data sources and coverage

Climate-related data has been sourced directly from the Group's investment managers.

For some of the Group's private debt managers, data coverage is low or no data is available at all. Use of proxy data (data of another investment manager's fund that broadly represents a given fund) could be used to provide climate-related data where coverage for a fund is limited or not available. However, the Trustee considered the use of proxy metric data for such funds and has taken the view, based on advice from its investment consultant Mercer, that the characteristics of the proxy fund would likely be too different from the invested assets to be able to make any informed investment decisions with the information and be of limited use from an engagement standpoint.

For some private debt managers' funds, where data is not available from a portion of their underlying portfolio companies, the investment manager has used sector / industry data, together with financial data from the underlying company, to estimate the climate-related data associated with the portfolio company. This has then been used to aggregate the data at the respective fund level and has then been supplied by the investment manager to the Trustee.

In particular, for Highbridge's private debt funds, where emission data was not available from the underlying portfolio company, Highbridge worked with Persefoni, an ESG software vendor that specializes in carbon footprint inventories and climate disclosures, to estimate the carbon footprint for such investment. The estimates calculated by Persefoni will use relevant company data if available, alternatively Persefoni will use industry-specific data to estimate an underlying portfolio company's emission data. The information provided by Highbridge for the Funds in which the Group invests therefore utilise a combination of reported and estimated data. Persefoni applied the Partnership for Carbon Accounting Financials ("PCAF") methodology to calculate carbon emissions from the investment activities of the Funds during the measurement period. The PCAF methodology is based on the Greenhouse Gas Protocol ("GHG") standards.

For Permira's private debt funds emission data is based on the value of investment as a proportion of company enterprise value and aligned with the GHG Protocol and PCAF Global GHG Standard. Scope 1, 2 & 3 emissions are based on portfolio company reporting, where available. Where data was unavailable on the underlying portfolio companies, emissions were estimated by Watershed, an enterprise carbon platform for measuring, reducing, and reporting emissions.

For the long lease property portfolio, the occupiers of the buildings have full operational control and, as such, the Group's property manager relies on the tenants to provide their emissions data. Not all tenants

provide the data at the current time, however in these instances the Group's property manager is engaging with the tenants to try to improve the collection of emissions data going forwards.

For the infrastructure fund held by the Group, the investment manager was not able to provide carbon emissions data. The Group's investment in the infrastructure fund represents a relatively small proportion of the Group's total assets and it is expected the Group will be fully disinvested from the infrastructure fund by 2023 year-end.

Only Scope 1 and 2 emissions data have been included in this report. This means that for some funds and underlying companies the assessment of their carbon footprint could be considered an understatement. Scope 1, 2 and 3 emissions are as defined by the GHG protocol.

Please note that for the Implied Temperature Rise data set out in Section 5, for Insight's data the assumption used is 1.5 – 2.0 degrees Celsius based on analysis by Germanwatch and the Climate Action Tracker. The same approach has been used for the gilts held in the Longevity Swap Buffer, Fee and Experience Accounts given these are allowed for in the Insight portfolio hedge construction.

Liability hedging mandate (LDI portfolio) data

The following assumptions have been made in the calculation of the climate-related metrics for the liability hedging mandates.

- Latest annual data for emissions produced in the UK (i.e. production emissions) as at 31 December 2021, published by the UK government, of 424.5m tonnes of CO2e.
- Emissions associated with imports (energy and non-energy) have been excluded.
- Figures cannot sensibly be aggregated with emissions data for non-gilt assets due to risk of double counting as UK emissions include corporate and household emissions.
- The metrics cover the full economic exposure to UK gilts, which will be from the physical gilt holdings and any exposure from gilt repo and gilt derivatives.
- Gilts posted out as collateral by the Group are included in the gilt valuations whereas gilts received as collateral are excluded.
- Interest rate swaps, inflation swaps, futures, cash and money market fund holdings have all been excluded. Short positions have also been excluded.

Longevity swaps

There is a longevity swap contract in place for the Group. This is a financial transaction that reduces the exposure of a portion of the members living longer than assumed, which would, in isolation, result in an increase in the liabilities.

The Trustee has carried out qualitative climate scenario analysis and has considered the climate-related risk exposures of the longevity swap, specifically:

- The impact on members' life expectancy; and
- The risks relating to the assets held to support the longevity swap contract.

The Trustee has concluded that the risk exposure is low given the structure of the longevity swap contract.

Carbon emissions associated with the longevity swap have not been calculated but the carbon emissions associated with any UK government bonds held as collateral with the longevity swap accounts has been estimated and included in the metric data shown in this report.

Targets

The Trustee has set a target to improve the proportion of the portfolio for which climate-related data is provided, consistent with the metrics chosen. The Trustee believes that by improving the coverage of the Group-specific climate-related data available, it will help the Trustee understand in greater detail the climate-related risks that the Group is exposed to.

As at 31 December 2022, the climate-related data coverage for absolute emissions and carbon footprint data is 58% and the Implied Temperature Rise data coverage is 47% of the Group's total assets. These metrics form the baseline for measuring improvement against. The Trustee has set a target of data coverage of 80% for these metrics by the year 2028. The Trustee intends to review progress against the target on an annual basis.

Approach to achieving the target

The Trustee has communicated to each of the Group's investment managers that this target has been selected by the Trustee and will be measured going forwards.

Whilst it is the intention of the Trustee to achieve the stated target, the Trustee recognises that this is dependent on factors outside of the Trustee's control. However, the Trustee believes that progress can be made towards the target, helped through engagement by the Trustee with the Group's investment managers and also through the Group's investment managers engaging (including via introducing contractual terms regarding the provision of climate-related data) with their underlying portfolio companies where applicable.

The Trustee plans to review the target selected at least annually to ensure that it remains relevant and appropriate to the Group.

National Grid Electricity

Net assets[33] as at 31 March 2023: £2,589m.

The following information should be read in conjunction with the Group's disclaimers included in Appendix D.

Chosen metrics

The Group Trustee uses quantitative measures to help it understand and monitor the Group's exposure to climate-related risks.

The Group Trustee's investment adviser, Aon, collected information from Group's most material managers at the time of writing, including Walter Scott, Insight, PIMCO, LGIM, BlackRock and CBRE, consistent with the managers who provided information for the Strategy Pillar and Risk Management pillars of the draft TCFD report.

Aon collated this information to calculate climate-related metrics for the Group's portfolio. The Group's metrics are as follows:

- Total Greenhouse Gas emissions
- Carbon footprint
- Data quality
- Binary Target Measurement

Metrics observations

Due to the lack of data availability on which assessments could be made, the Group Trustee has focussed on the data coverage. In future, it will also consider the % of emissions which are estimated / verified / reported.

The Binary Target Measurement is the simplest approach to calculate and least reliant on the underlying data and methodologies. The Group Trustee will consider reporting on alternate portfolio alignment metrics in future, once the quality of the underlying portfolio emissions data has improved.

[33] Source: Scheme Trustee Report and Accounts for the year-ending 31 March 2023.

Metrics results

The data gathered for the purposes of this exercise is a 'snapshot' as at 31 March 2022. Subsequently, there have been some changes to the Group's assets which mean that this data will have changed. Over time, a picture of the Group's evolution will build up, and will be shared in future reports.

	Total Greenhouse Gas emissions (tCO2e)	Carbon footprint (tCO2e/£m)	Data Quality	Binary Target Measurement
Equities	1,813	14	98%	32%
Bonds	34,433	118	37%	10%
Property	1,590*	7*	74%	62%**
Total (excluding LDI and longevity swap collateral)	37,836	60	56%	28%
LDI and longevity swap collateral	513,949	165***	95%	95%
Total	551,785	138	83%	75%

Source: Investment managers / Aon / MSCI. Investment managers provided carbon emissions data in line with the Investment Association's ("IA") Carbon Emissions Template ("CET"). Data excludes the Group's investments in private credit and infrastructure. *As at 31 December 2021 due to carbon metrics relating to property assets being reported with one quarter's lag **Proportion of assets with a sustainability plan that has not necessarily been verified by the SBTi ***Estimated as annual UK GHG emissions/£ UK Government Debt (market value of gilts in issuance including green gilts).

Limitations, assumptions and methodology

Notes on the data

- Industry wide carbon calculation methodology for LDI has not yet been established meaning the LDI total emissions figures are subject to change in the future and are based on estimations.
- The LDI/longevity swap collateral figures only cover sovereign bond investments and exclude derivatives at the current time.
- Carbon footprint and data quality have been calculated as a weighted averages across equities, bonds, property and LDI / longevity swap collateral.
- The Binary Target Measurement metrics reported were sourced directly from the managers. As such no judgements and assumptions were made to calculate the portfolio alignment metric, or to address any gaps in the data.

Notes on information provided by the managers

At the time of writing Insight was unable to provide data relating to its Bonds Plus Fund, as the investments in the portfolio include non-physical exposures such as derivatives. Aon is currently engaging with Insight for further clarity around this.

In addition, PIMCO was unable to provide the Binary Target Measurement. Again, Aon is engaging with the manager to obtain this in the near future.

For the CBRE and BlackRock property portfolios, it is currently not possible to have SBTi verified net zero targets for buildings. However, 90% of properties in the BlackRock portfolio had a sustainability asset plan in place as at 30 June 2022, as did 34% of properties in the CBRE portfolio.

Targets

Climate-related targets help the Group Trustee track its efforts to manage the Group's climate-change risk exposure.

The Group Trustee has set a target for improving the data quality metric. Without meaningful data from the investment managers, it is very hard for the Group Trustee to measure its climate-risk exposure. So, it is important to set a target to improve the quality of GHG emissions data from the managers.

Asset class	Current coverage	Future target	Target timescale
Equities	98%	100%	2025
Bonds	37%	55%	2027
Property	74%	95%	2027
LDI / longevity swap collateral	95%	100%	2027
Total*	56%	75%	2027

***Note:** Excludes the Group's investments in private credit and infrastructure on the grounds of immateriality at 31 March 2022.

What is the Group Trustee doing to reach the target?

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

To improve data coverage, the Group Trustee will engage with the Group's investment managers to improve the availability and reporting of emissions data for each asset class in which the Group is invested. Through ongoing pressure from asset owners collectively and new regulatory requirements for asset managers, the Group Trustee expects data quality to improve over time and will engage further with the managers if progress does not meet the Group Trustee's expectations.

Future evolution of the investment strategy

As highlighted above, the climate metrics in this report cover the Group's most material managers at the time of writing, consistent with the managers who provided information for the Strategy and Risk Management sections of the report.

Going forward, the Group Trustee anticipates that the Group's asset allocation will evolve over time, as the Group continues to de-risk the investment strategy towards meeting its Long-Term Financial Objective. In particular, the Group Trustee expects to transition the assets towards a portfolio comprising of the Group's illiquid assets (private credit and infrastructure) alongside the Liability Driven Investment strategy in place.

The Group Trustee therefore expects that its data quality targets will evolve in line with the asset allocation over time. For example, the Group Trustee may no longer need to set a target for the allocation to equities, if the equity exposure is removed by the date of the Group's next year-end as currently planned.

The Group Trustee will therefore review the Group's allocation at the time of preparing next year's TCFD report and revise its data quality targets as required.

Northern Powergrid

Net assets[34] as at 31 March 2023: £1,152m.

The following information should be read in conjunction with the Group's disclaimers included in Appendix D.

Chosen metrics

The Group Trustees use some quantitative measures to help them understand and monitor the Group's exposure to climate-related risks. This includes information on GHGs in the atmosphere, including water vapour, carbon dioxide, methane, and nitrous oxide, keep the Earth's surface and atmosphere warm because they absorb sunlight and re-emit it as heat in all directions including back down to Earth. Adding more GHGs to the atmosphere makes it even more effective at preventing heat from leaving the Earth's atmosphere.

The Group Trustees have agreed that their investment adviser, Aon, will collect information from the Group's managers on the GHG emissions within their portfolios. This information will be used to calculate climate-related metrics for the Group's portfolio. The Group's metrics are as follows:

- Total Greenhouse Gas emissions
- Carbon footprint
- Data quality
- Binary Target Measurement

Metrics results

The table below shows a more detailed breakdown of the scope 1 and 2 emissions from each asset class in the Group's portfolio (where available).

Asset class	Asset Valuation (% of total AUM)	Total Scope 1&2 emissions (tCO2)	Scope 1&2 carbon footprint (tCO2/£m invested)	BTM (% of assets)
Equities	7.5%	12,747	103.0	49.3%
Alternatives	23.1%	35,133	116.8	33.7%
Liability Matching Asse	69.2%	105,685	128.0	66.4%
Cash	0.3%	-	-	-
Total	**100%**	**153,564**	**93.0**	**41.6%**

Source: Investment managers.
Note 1: Carbon data was provided in USD terms, Aon has converted it to GBP terms using the 31 March 2022 USD/ GBP exchange rate.
Note 2: Numbers may not sum up due to rounding.
Note 3: Cash has been excluded from the analysis on the basis of materiality.

[34] Source: Scheme Trustee Report and Accounts for the year-ending 31 March 2023.

Limitations, assumptions and methodology

Data observations

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

The Group Trustees also note that there is not yet an industry-wide standard on calculating some of these metrics and that different managers may use different methods and assumptions when providing data.

These issues are commonplace across the industry at the current time and highlight the importance of TCFD-aligned reporting to improve transparency on carbon-related data. The Group Trustees expect that in the future better information will be available from managers as the industry aligns to expectations and best practice standards.

The information below summarises the observations on data gathered from the Group's managers:

- **Current position:** Aon requested emissions data from the Group's managers, which represent all of the Group's assets.
- **Data availability:** Data was received from managers covering 61.2% of the Group Trustees' portfolio. Data was not available for around 38.8% of the Group's assets.

Data availability

Data availability for the carbon emission for the Group's assets amounted to 61.2%. The main detractors from data availability were:

- Investment managers providing carbon data applicable only to a part of their portfolio:
  - The managers are only able to source information for part of their portfolios, due to unavailability of data, especially for alternative investment asset classes.
- Absence of meaningful data for assets such as insurance linked securities and derivatives.
  - The manager of the insurance-linked securities mandate does not track or record carbon emissions data. Due to the nature of the asset class as it is not currently possible to collate data on carbon emissions that can be attributed to the fund.
  - The manager of the Bonds Plus fund is not able to report on carbon emissions due to the complete lack of data available from any data provider and the nature of the underlying derivates based assets.

Data availability by manager

- **LGIM:** The manager started tracking the data on Binary Target Measure (BMT) since 30 September 2022. Hence, the data is shown as at Q3 2022.
- **CBRE:** Currently not possible to have net zero targets validated by SBTi (Science based Target initiative) for buildings. Instead, CBRE provided % of assets with a sustainability plan. Additionally, the manager set a net zero target for the fund of 2040 or sooner.
- **Securis**: The manager does not track or record carbon emissions data as the portfolio is exclusively in insurance-linked securities. The manager does not track GHG emissions data, or any associated global temperature rises on investments in the portfolio.
- **Insight:** Not able to report on carbon emissions due to the lack of data available from any data provider and the nature of the underlying derivatives-based assets.

Aon, on behalf of the Group Trustees, will engage with the Group's managers that were unable to supply full emissions data for this analysis in order to improve carbon data transparency and reporting in the future.

Targets

Climate-related targets help the Group Trustees track efforts to manage the Group's climate-change risk exposure.

The Group Trustees have set a target for improving the data quality metric. Without meaningful data from the investment managers, it is extremely hard for them to measure the Group's climate-risk exposure. So, it is important to set a target to improve the quality of GHG emissions data from the managers.

- Based on the observation of data quality summarised on the previous pages, the Group Trustees have agreed to set the following data quality target for its Group's portfolio: By five years' time, achieve above 90% coverage of carbon emissions data across all asset classes split across scopes 1 and 2.

  The Group Trustees recognise that this target may be revised in the future years of reporting when data availability improves.

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

The Group Trustees will be taking the following steps to reach the target:

- Step 1 Increase data availability

  Observation: data was unavailable for two mandates and the data coverage was limited for certain mandates, mainly within the alternative and liability matching assets.

  Solution: The Group Trustees will engage with the managers directly, or through Aon to request higher data availability and coverage for mandates that lacked data. Through engagement, it is expected that this will identify opportunities to improve data quality or investigate alternative sources of data. However, for some of the asset classes in which the Group invests, particularly in the alternative mandates, it may be some time before meaningful carbon data becomes available.

- Step 2 Facilitate consistent reporting

  Observation: The Group Trustees have relied on manager data, however, due to the lack of industry-wide standard on calculating some of these metrics, the information may not be consistent year on year.

  Solution: The Group Trustees will engage with the managers directly, or through Aon to ensure that the carbon information provided is consistent on the annual basis. However, the Group Trustees recognise that the reporting may change in line with the evolving industry practices.

RWE

Net assets[35] as at 31 March 2023: £4,296m.

Chosen metrics

The Group Trustees of the RWE Group conduct a detailed Responsible Investment ("RI") metrics analysis annually, which seeks to assess the Group's exposure to climate-related risks and opportunities. While the Group Trustees' remit considers a broad array of RI metrics, the output below focuses on a few specific climate metrics considered as part of that. This analysis was first conducted as at 31 December 2020, and has been updated annually since then, as the Group Trustees continue to develop a robust RI monitoring framework. The scorecard developed with the analysis is reviewed annually by the RI Committee ("RIC"), which is a sub-committee of the Group Trustees, and the scorecard is used as a tool to identify manager engagements, areas for focus (e.g., questioning if mandate design changes are required) and to conduct investment manager selections. This is supplemented by the top-down climate change scenario analysis outlined within the Strategy section of the TCFD report.

Throughout this section of the report, where Green House Gas ("GHG") emissions are referenced, this covers the following: carbon dioxide, nitrous oxide, methane, sulphur hexafluoride, nitrogen trifluoride, hydrofluorocarbons and perfluorocarbons, which are the greenhouse gases within scope of the Paris Agreement. The emissions are reported in tonnes of CO2 equivalent ("tCO2e").

The Trustees have chosen the following metrics:

- Total GHG emissions
- GHG Footprint
- % of assets with SBTI approved targets
- Climate opportunities

For RWE, climate opportunities are determined based on companies that may be considered EU Taxonomy eligible based on the criteria set out in the taxonomy (which provides a minimum standard across sustainability disclosure requirements, effectively producing a "rule book" as to what investments can be considered sustainable. This metric sums the portfolio weight for each underlying security classified under this criterium.

The Group Trustees decided to report on climate opportunities as the additional metric in order to provide a balanced picture of both the risks and opportunities that the climate transition will create. It is expected that the metric to measure this will evolve over time. The Group Trustees are also minded to include climate adaptation within the metric definition in the future given the vital role it is likely to play.

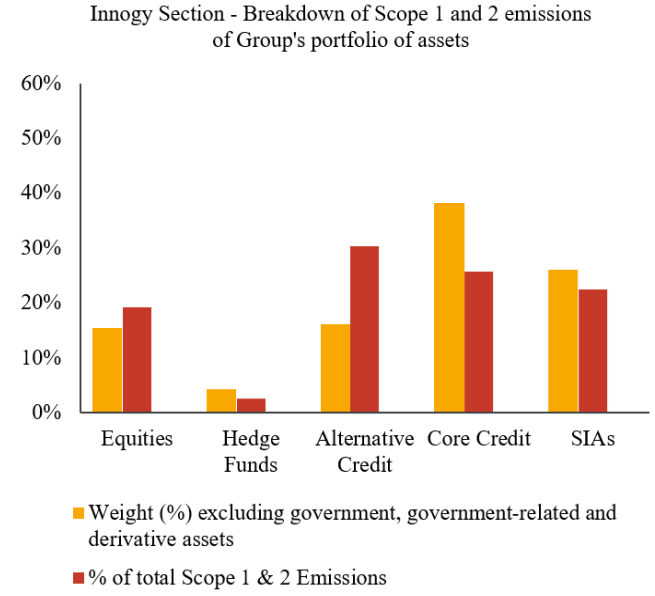
[35] Source: Scheme Trustee Report and Accounts for the year-ending 31 March 2023.

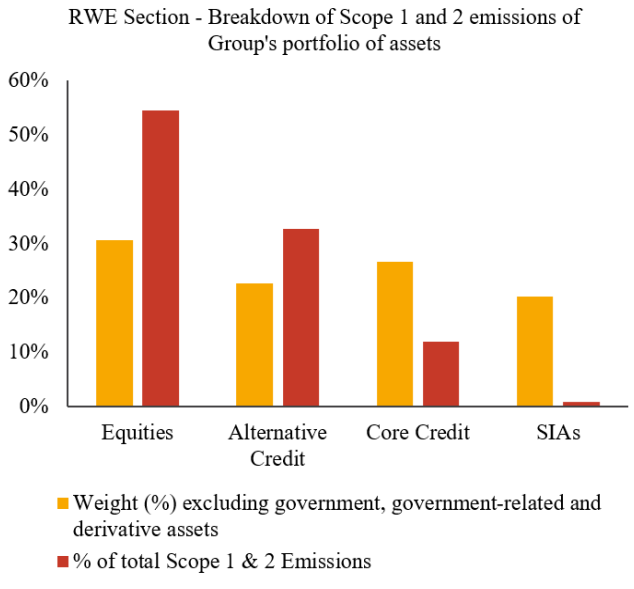
Metrics results

Innogy Section	Asset allocation		GHG emissions data						Alignment with SBTis		Climate Opportunities*
	Weight		Absolute emissions Scope 1 and 2 (tCO2e)		Absolute emissions Scope 3 (tCO2e)		Scope 1 and 2 Footprint (tCO2e / $M invested)		Coverage		Exposure
	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2022
Equity	5.8%	7.4%	46,648	18,473	255,757	116,543	135	67	22.1%	31.5%	7.3%
Hedge Funds	2.0%	2.1%	2,843	2,438	21,116	15,516	24	32	9.2%	12.5%	2.5%
Alternative Credit	5.3%	7.8%	16,009	29,134	101,995	101,217	50	101	9.5%	11.5%	4.1%
Core Credit	12.1%	18.4%	22,630	24,759	189,819	300,864	31	36	25.9%	36.4%	7.5%
Secure Income Assets	8.9%	12.6%	28,264	21,518	55,819	120,391	53	46	38.0%	65.3%	26.7%
Government bonds and cash	65.9%	51.8%	-	-	-	-	-	-	-	-	-
Benchmark (MSCI ACWI)	-	-	-	-	-	-	50	59	29.7%	35.8%	8.3%

RWE Section	Asset allocation		GHG emissions data						Alignment with SBTis		Climate Opportunities*
	Weight		Absolute emissions Scope 1 and 2 (tCO2e)		Absolute emissions Scope 3 (tCO2e)		Scope 1 and 2 Footprint (tCO2e / $M invested)		Coverage		Exposure
	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2022
Equity	10.6%	14.1%	48,585	24,110	258,515	150,819	221	125	27.4%	29.4%	3.0%
Alternative Credit	8.7%	10.4%	9,007	14,490	57,386	50,341	50	101	9.5%	11.5%	4.1%
Core Credit	12.4%	12.2%	4,237	5,302	70,595	35,889	16	32	32.3%	23.8%	12.5%
Secure Income Assets	7.7%	9.3%	5,976	386	9,338	2,199	37	3	28.6%	68.8%	29.6%
Government bonds and cash	60.6%	53.9%	-	-	-	-	-	-	-	-	-
Benchmark (MSCI ACWI)	-	-	-	-	-	-	50	59	29.7%	35.8%	8.3%

*Note: Data for 2021 not shown due to a methodology change over the period.





Source: RWE.

Key observations

Innogy Section

- **Equity:** Emissions per unit of allocation have reduced over the year. This is mainly due to higher data coverage used in the analysis, as well as a decrease in the reported GHG emissions for a number of large underlying emitters.
- **Alternative Credit:** Emissions have increased as a result of a strategy focussing on emerging market debt, which had previously been proxied, but is now calculated using direct holdings data.
- **Secure Income Assets**: Emissions have increased relative to the allocations within the portfolio. This is as a result of an increase in the reported emission of one of the funds in which the Section invests, and a reduction in GHG emissions reported by the Section's real estate managers, reflecting a change in the underlying proxy data (published emissions for a selection of REIT funds are now used).

RWE Section

- **Equity**: Emissions per unit of allocation remain the highest contributor within the Section's portfolio. The RWE Section uses different investment managers in comparison to the Innogy Section, one of which in particular has a higher emissions figure due to investments in the energy sector.
- **Core Credit**: The emissions from this asset class have increased over the year, mainly driven by an increase in the GHG footprint for a small number of large utility companies.
- **Secure Income Assets**: The substantial decrease in emissions for this asset class reflects the change in proxy methodology used in the analysis for the Section's real estate funds (published emissions for a selection of REIT funds are now used).

In addition, the Group's LDI manager, has provided the following GHG emissions data for each Section's government bond assets:

		Innogy Section	**RWE Section**	**Innogy Section**	**RWE Section**
Absolute Emissions (market value gilts / market value gilts in issuance CO2e)	*Funded Gilts Only*	160,191	14,768	83,248	7,809
	Gilts on repo and TRS	33,166	39,300	66,436	37,869
	Combined Gilt Exposure	**193,357**	**54,068**	**149,684**	**45,677**
GHG Footprint (tCO2e/market gilts in issuance)		164.7		175.3	

Limitations, assumptions and methodology

Service providers

The emissions metrics analysis undertaken by the Group Trustees produces an output for all of the metrics reported in this section of the TCFD report. The analysis is based upon MSCI's data, which is undertaken on a company-by-company basis using MSCI's Company Specific Intensity Model which will primarily use direct emissions data, but also estimates (using industry averages) where required. MSCI is a market leader in terms of their ESG research and reporting quality, which will be used to feed into the Group's climate metrics reporting over time.

Data availability

Whilst the Group Trustees have aimed to carry out the analysis as far as they are able, the availability of data is dependent on external factors which are largely outside the Group Trustees' control, such as certain companies not disclosing their GHG emissions. The charts below show how the portfolio has been modelled, be it through the analysis of direct company holdings data, where it was available, or otherwise, through the use of proxies. The charts only show this breakdown in respect of the Group's assets excluding government, government-related and derivative assets.

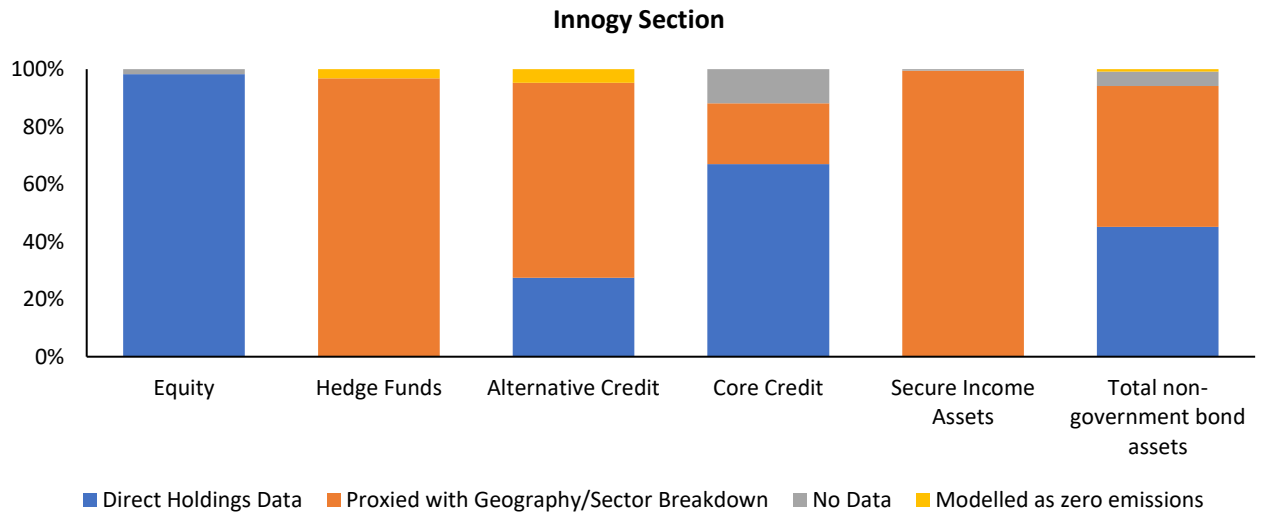
Where data was not available on the underlying holdings, the Group Trustees have followed the 'pro-rata approach' which involves scaling up the portfolio data that exists, rather than assuming such positions have zero emissions. The Group Trustees believe this is a more accurate and prudent approach to take.

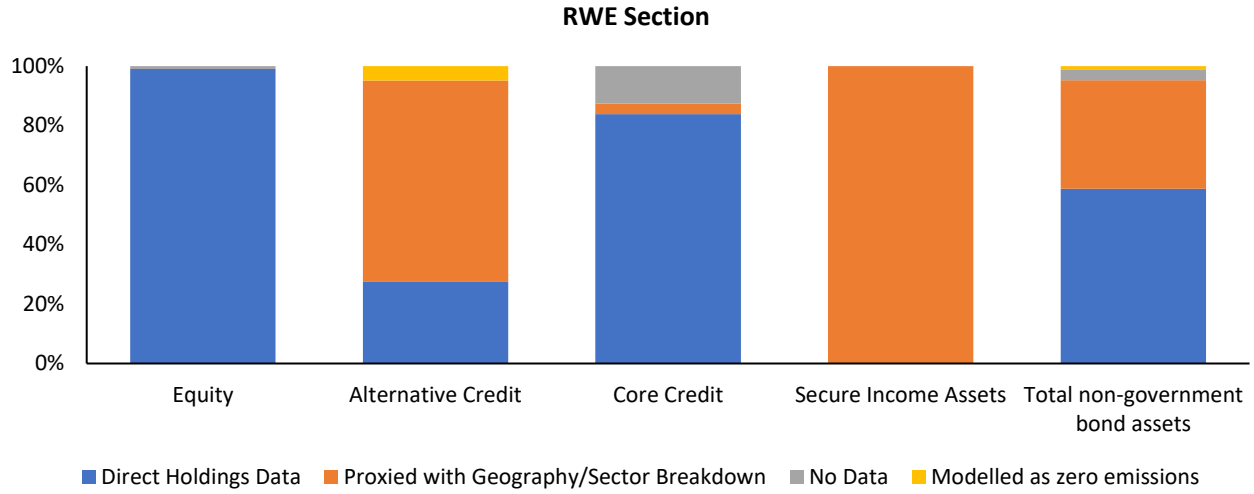
A large proportion of the Group's portfolios are invested in non-public companies and strategies, as such, direct GHG emissions data is not available in respect of these. As reflected in the data quality chart below, approximately 43% of the data has been calculated using a proxy based on the underlying sector and geographical classification of the Group's private investments. The Group Trustees have engaged with a number of the Group's investment managers, particularly the managers of the Group's property investments, in order to set out their expectations around improving their data quality, and in turn, reducing the proportion of data calculated using proxies for this analysis.

In addition, around 1% of the data was assumed to contribute zero emissions, this relates to the proportion of the Group's assets invested in sovereign investments, which have therefore been excluded from the analysis, in the same manner as the Group's government, government-related and derivative assets. This category also includes short-term cash holdings.

The Group Trustees continue to exert influence where possible to improve the availability of data as outlined later in the statement.

Portfolio representation





Source: RWE.

The targets set, and metrics disclosed, by the Group Trustees currently exclude emissions attributable to the Group's government, government-related and derivative assets. These assets include UK and US government bonds, supranational bonds, derivatives, and Network Rail bonds. The Group Trustees are working with the manager of these currently excluded assets, with the aim of including climate metric data for these assets in future TCFD reporting. The key reasons for the exclusion of these assets within the Group Trustees' reporting are:

- Across the industry, there is a high level of uncertainty around the calculations of emissions from pension scheme holdings in government, government-related and derivative assets.
- The level of financial risk arising from these emissions is perceived to be minimal in comparison to the financed assets within the Group's portfolio.
- The synthetic exposures to interest rates and inflation held within these assets is managed under the discretion of the Group's investment manager of these assets, although the Group bears the financial exposure to the underlying assets.
- Ultimately the Group Trustees do not have the control of these assets in the same way that they do with the other funds invested within the remainder of the portfolio.
- There are two entities to consider when calculating the emissions data for these assets: the UK public sector, and the UK as a whole. Whilst the government has regulatory authority over the UK, by financing the UK public sector through the purchases of government bonds, the Group is not financing all of the emissions of the UK (for example, emissions arising from private sector companies that aren't held elsewhere in the portfolio). As such, using UK figures results in the double counting of emissions. Furthermore, when considering Scope 1, 2 and 3 emissions, this may even lead to triple counting of the emissions, as the public sector is not vertically integrated, and buys power or energy from private sector companies.

While some data has been sourced so far, it doesn't cover all assets within this part of the portfolio and therefore, this has been excluded (noting that the 'pro-rata' approach is too simplistic to be applied to these assets, particularly given they make up such a large proportion of the portfolio). The Group Trustees do, however, monitor that the manager of these currently excluded assets appropriately considers climate change in their actions, whether that be selecting bank counterparties for derivatives, or engaging with industry discussions and consultations on climate-related matters.

Targets

Ultimately, the Group Trustees monitor multiple metrics, and their changes over time, but consider that an overarching GHG footprint reduction target is an appropriate way to monitor and manage the Group's climate-related risks and opportunities. For the Group Trustees to effectively manage this reduction over time, two climate-related targets have been set, and performance will be monitored against these. Due to data availability for the analysis, and timing to coincide with the Group Year End (31 March each year) for reporting purposes, the Group Trustees selected 31 December 2020 as the baseline for setting target dates and monitoring the Group's progress against them. In addition, the Group Trustees made the decision to base the targets on Scope 1 and 2 emissions at this time, due to limitations in the availability of data of Scope 3 emissions and the potential for double counting of emissions when using Scope 3. The Group Trustees will continue to review this position over time.

Medium Term Target

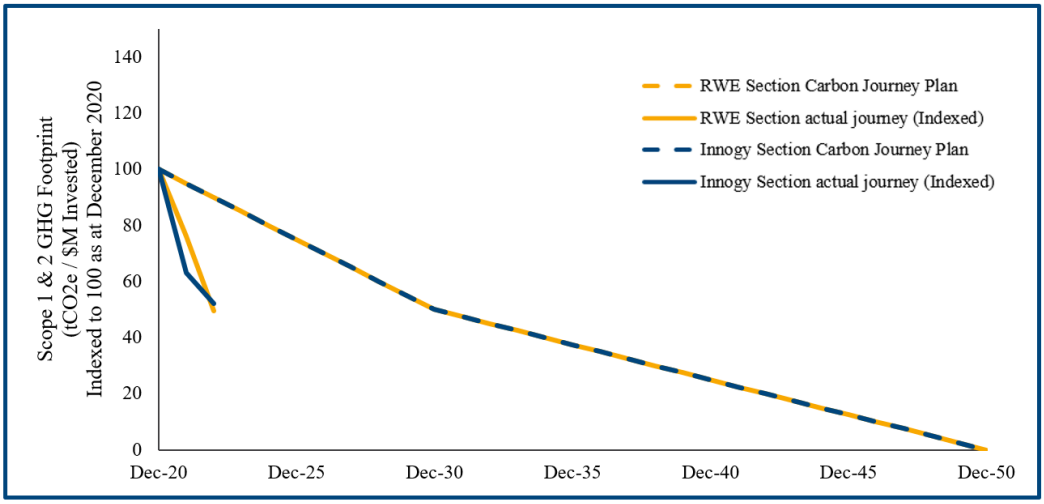
50% reduction in GHG footprint of the Group's portfolio of assets (excluding government, government-related and derivative assets) by 31 March 2030 (Scope 1 & 2 emissions)

Long Term Target

Net-zero GHG footprint of the Group's portfolio of assets (excluding government, government-related and derivative assets) by 2050 or sooner (Scope 1 & 2 emissions)

The Group Trustees have monitored the value of their target metric annually since the baseline date (31 December 2020) in order to track progress. Overall, both Sections have experienced a decrease in the GHG footprint of the portfolio of assets (excluding government, government-related and derivate assets), covering Scope 1 and 2 emissions, relative to 31 December 2020.

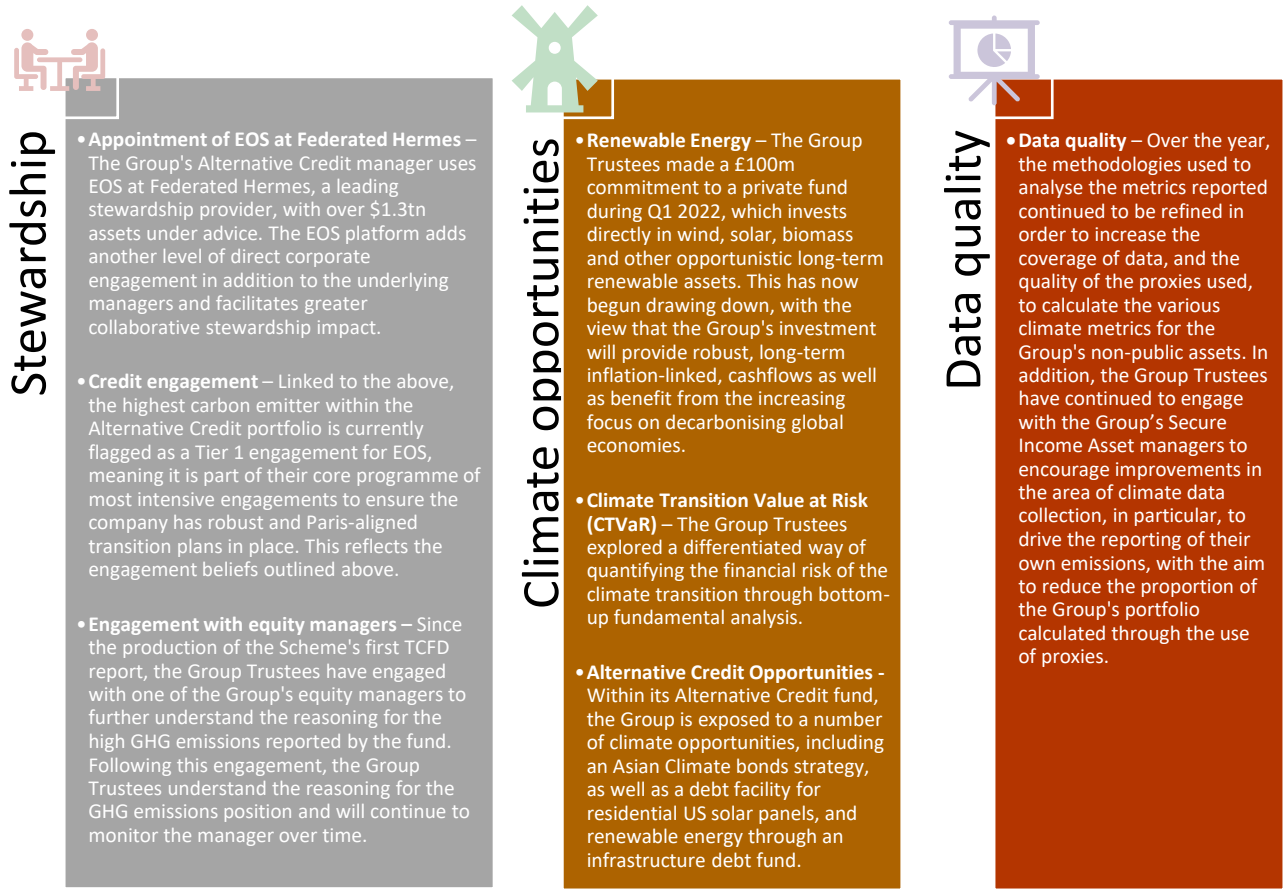
Both Sections' GHG footprints have decreased over the year to 31 December 2022. Over time, the Group Trustees expect that the trend of their GHG footprint will continue downwards, towards their net-zero target. The Group Trustees do, however, also recognise that there may be short term deviations in some years. This could be due to changes in underlying holdings and ongoing developments within the industry (such as data availability and methodology changes).



Source: RWE.

Achieving targets

While the metrics reported are useful in adding to the broader RI decision-making framework, the Group Trustees focus on undertaking actions to improve the climate metrics reported and achieve the stated GHG emissions reduction target over the longer term. The Group Trustees have a belief that stewardship (i.e., engagement with the underlying assets, and voting,) is a primary tool to improve climate-related outcomes for the assets held, rather than simply disinvesting (and losing the right to engage and vote in cases of equity ownership). Over time, this is expected to have a positive impact on the metrics considered. The key actions taken over the year are as follows:



Methodology used to measure performance against the targets

In order to compare the GHG footprint metric across years, the impact of changes in market value needs to be considered on the value of the metric reported (otherwise an increase in the price of a company will result in a lower GHG footprint without necessarily reflecting a fall in emissions). To counteract these impacts, the GHG footprint metric has been rebased using the market value of each Section's portfolio as at the baseline date (31 December 2020) in order to remove the effect of change in market value on the emissions per $M invested.

In addition, the Group Trustees changed the methodology for attributing emissions between equity and debt holders to use EVIC, instead of market value. To make the results more comparable between years, the Group Trustees have recalculated the metric as at 31 December 2021 to also use EVIC. However due to data availability it has not been possible to calculate the 31 December 2020 metric using EVIC, and therefore an approximation has been made based on the change in value of the metric using the market cap approach between 31 December 2020 and 31 December 2021.

Schneider

Net assets[36] as at 31 March 2023: £18m.

Chosen metrics

The Trustee will disclose the following on an annual basis:

- One absolute emissions-based metric: Total Carbon Emissions
- Two intensity emissions-based metrics:
  - Weighted Average Carbon Intensity (WACI)
  - Carbon Footprint
- One portfolio alignment metric: Implied Temperature Rise
- Additional measures: three engagement metrics specified below and proxy voting data

Metrics results

Fund Name	Market Value (£m)	Allocation (%)	Data Coverage (% Market Value)	Total Carbon Emissions (tCO_2e)	WACI (tCO_2e/£m sales)	Carbon Footprint (tCO_2e/£m invested)
Global Select Equity Fund	0.9	5%	97%	113	95	133
Factor Allocation Global Equity Fund	0.9	5%	99%	107	97	124
Global Managed Volatility Fund	1.4	7%	99%	220	72	160
Dynamic Asset Allocation Fund	0.7	4%	91%	90	43	129
Emerging Markets Equity Fund	0.5	3%	98%	96	102	185
Emerging Markets Debt Fund (HDG)	0.7	4%	10%	1,049	16	1,488
High Yield Fixed Income Fund (HDG)	0.7	4%	74%	250	115	353
Global Opportunistic Fixed Income Fund (HDG)	0.5	3%	77%	97	35	181
Liquid Alternative Fund (HDG)	0.9	5%	Unavailable			
UK Credit Fixed Interest Fund	0.6	4%	76%	52	15	80
UK Long Duration Credit Fund	1.2	6%	84%	130	23	112

Source: MSCI ESG Fund Ratings (publicly available data sourced from https://www.msci.com/our-solutions/esg-investing/esg-fund-ratings) as at 31 March 2023.

Fund Name	Data Coverage (% Market Value)	Implied Temperature Rise (°C)
Global Select Equity Fund	97%	2.1
Factor Allocation Global Equity Fund	99%	2.0
Global Managed Volatility Fund	99%	2.0
Dynamic Asset Allocation Fund	91%	2.1
Emerging Markets Equity Fund	98%	2.5
Emerging Markets Debt Fund (HDG)	6%	6.1
High Yield Fixed Income Fund (HDG)	36%	2.9
Global Opportunistic Fixed Income Fund (HDG)	41%	2.3
Liquid Alternative Fund (HDG)	Unavailable	
UK Credit Fixed Interest Fund	44%	1.9
UK Long Duration Credit Fund	40%	1.9

Source: MSCI ESG Fund Ratings (publicly available data sourced from https://www.msci.com/our-solutions/esg-investing/esg-fund-ratings) as at 31 March 2023.

[36] Source: Scheme Trustee Report and Accounts for the year-ending 31 March 2023.

The table below sets out the shareholder engagement data for the Group.

Fund Name	Companies Engaged on CRRO	Climate Action 100+ Companies Engaged	Companies achieving milestones on CRRO
Global Select Equity Fund	45	12	20
Factor Allocation Global Equity Fund	77	16	23
Global Managed Volatility Fund	39	9	18
Dynamic Asset Allocation Fund	184	34	53
Emerging Markets Equity Fund	27	2	3
Emerging Markets Debt Fund (HDG)	0	0	0
High Yield Fixed Income Fund (HDG)	10	1	1
Global Opportunistic Fixed Income Fund (HDG)	33	5	18
Liquid Alternative Fund (HDG)	1	1	1
UK Credit Fixed Interest Fund	3	0	1
UK Long Duration Credit Fund	1	0	1

Source: Data reflects all of SEI's climate change engagement activity for Q1 2023 for the funds above.

The table below sets out the proxy voting data relating to environmental issues for the Group.

Shareholder Proposals on Environmental Issues							
Fund Name	**Number of votable items**	**Voted For**	**Voted Against**	**Voted Abstain**	**Votes with management**	**Votes against management**	**Other**
Global Select Equity Fund	60	18	36	0	38	16	0
Factor Allocation Global Equity Fund	58	16	34	0	37	12	1
Global Managed Volatility Fund	42	13	23	0	24	12	0
Dynamic Asset Allocation Fund	129	30	89	1	90	26	4
Emerging Markets Equity Fund	Nil						

Source: Data reflects all of SEI's UCITS Proxy Voting activity for Q1 2023 for the funds above.

Limitations, assumptions and methodology

Carbon emissions data

Data coverage is the key metric for examining data quality at present. Coverage for each of the funds is expressed as the percentage of the fund's total market value for which there is appropriate data, meaning that the coverage figures take into account the relative size of the underlying security positions.

The Trustee is mindful of the lack of coverage in certain areas of the market, in particular, fixed income and government bonds. Carbon data is unavailable for the Liquid Alternative Fund (HDG) as its underlying holdings are largely derivative instruments. Similarly, data is unavailable for the Group's LDI holdings, as such metrics are not readily produced for this area of the market (physical/leveraged UK government bond funds). Where data coverage is limited (<80%), the Group Trustee advises caution when interpreting the results. The Trustee expects that over the coming years, data quality will likely improve.

The data coverage as at 31 March 2023 for the funds held by the Group (excluding LDI) is set out below.

Fund Name	**Data Coverage (% Market Value)**
Global Select Equity Fund	97%
Factor Allocation Global Equity Fund	99%
Global Managed Volatility Fund	99%
Dynamic Asset Allocation Fund	91%
Emerging Markets Equity Fund	98%
Emerging Markets Debt Fund (HDG)	10%
High Yield Fixed Income Fund (HDG)	74%
Global Opportunistic Fixed Income Fund (HDG)	77%
Liquid Alternative Fund (HDG)	Unavailable
UK Credit Fixed Interest Fund	76%
UK Long Duration Credit Fund	84%

Source: MSCI ESG Fund Ratings (publicly available data sourced from https://www.msci.com/our-solutions/esg-investing/esg-fund-ratings*) as at 31 March 2023.*

SSE Southern

Net assets[37] as at 31 March 2023: £1,808m.

Chosen metrics

The Group Trustee receives carbon footprinting analysis and wider ESG reporting from Hymans Robertson on an annual basis. The monitoring carried out covers a variety of climate-related metrics based on the underlying stocks held within the Group's mandates. The Group Trustee believes it is important to consider a variety of metrics on a holistic basis, covering both forward and backward-looking metrics.

Carbon equivalent risk metrics will expect to form an important part of the Group's investment decision-making process to measure, manage and disclose climate risk. The selected metrics will also aid the Group Trustee in identifying opportunities for further engagement with investment managers and underlying investee companies.

This report focusses on the mandatory metrics which all pension schemes are asked to monitor and report against for TCFD purposes. The Group Trustee appreciates that no single metric is perfect and therefore monitors a suite of metrics. This approach enables the Group Trustee to take a more holistic view of the risks facing the Group's investment strategy.

The Group Trustee has chosen the following metrics:

- Absolute Emissions Metric: Total Greenhouse Gas (GHG) emissions
- Emissions Intensity Based Metric: Carbon footprint and Weighted Average Carbon Intensity (WACI)
- Additional climate change metric (non-emissions based): Data quality
- Portfolio alignment metric: Binary target measurements

Although the Group Trustee aims to gather scope 3 data for the Group's investments where available, this is currently not well reported on, and so the Group Trustee has split out the scope 3 data in this year's report where available in order to be more clear as to where data gaps lie/due to lack of information received by managers/due to lack of reported data.

The Group Trustee acknowledges that there are limitations in the data available from investee companies on emissions of greenhouse gases, particularly for scope 3 emissions as noted above. Where these limitations in data exist, the data may be estimated or not yet reported/missing. The Group Trustee will seek to obtain information, where it is currently missing, for future assessments. In the meantime, the results of the above metrics have been understood to be reflective of the portfolio, but the limitations of data availability is noted when using the metrics for decision-making purposes.

[37] Source: Scheme Trustee Report and Accounts for the year-ending 31 March 2023.

Metrics results

The table below sets out a summary of the greenhouse gas emissions data provided by the Group Trustee's investment managers and the measurement of each metric using this data. Due to the nature of some mandates and the difficulty in collecting emissions data on a more frequent basis, the data provided is not all at the same date. Data has been sourced from a combination of the investment managers and the Group Trustee's investment advisor, utilising data from a third party source for listed assets.

Asset Class	Manager	Long-term importance	Date of measurement	Total carbon emissions – Scope 1+2 (tCO_2)	Carbon footprint – Scope 1+2 (tCO_2/£m invested)	WACI – scope 1+2 (tCO_2/$m sales)
Global Equities (Passive)	SSGA	Low	31/12/22	8,051	262	218
Global Equities (Active)	Baillie Gifford	Low	31/12/22	2,101	78	140
Property[i]	CBRE	Low	31/12/21	692	0.02	0.003
Corporate Bonds (B&M)	LGIM	High	31/12/22	22,579	72	156
Corporate Bonds (Passive)	SSGA	Low	31/12/22	7,678	64	81
Asset Backed Securities (ABS)	Insight	High	N/A	11,399[ii]	N/A	N/A
Secured Finance	Insight	High	N/A	102[ii]	N/A	N/A
Illiquid Debt	Partners	Very low	N/A	N/A	N/A	N/A
Liability Driven Investment (LDI)[ii]	LGIM	High	31/03/23	86,546	59	132

Notes: Figures rounded to nearest whole number. Total carbon emissions is calculated as carbon footprint multiplied by size of the Group's holding in £m [i] Property analysis as at 31 December 2021 as 2022 data was not available at the time of writing. The carbon footprint and WACI of the property portfolio has been calculated as tCO2/m2 of floor space. [ii] Data coverage is very limited across the mandates [iii] In our experience, LDI data is available but comes heavily caveated and with numerous disclaimers/limitations. Given the strategic importance of LDI to UK private sector DB schemes we expect LDI managers will face significant pressure from the industry to improve their disclosure but is currently unable to be aggregated with other carbon data. Total carbon emissions for LDI mandate includes leveraged positions and carbon footprint is measured in tCO¬¬2/ $m invested.

The methodology for scope 3 emissions is currently less well defined than for scope 1 and 2 emissions; therefore, this has been kept separate from the table above. Additionally, in part due to the complexities of measuring scope 3 emissions in a consistent way, data for scope 3 emissions is a lot harder to gather from the fund managers and underlying investee companies. As a result, and as may be expected, the Group's assets have poorer coverage of scope 3 data than for scope 1 and 2. The scope 3 emissions, where available, have been set out in the table below.

Asset Class	Manager	Long-term importance	Date of measurement	Total carbon emissions – Scope 3 (tCO_2)	Carbon footprint – Scope 3 (tCO_2/$m invested)	WACI – scope 3 (tCO_2/$m sales)
Global Equities (Passive)	SSGA	Low	31/12/22	47,633	1,549.6	1,279.1
Global Equities (Active)	Baillie Gifford	Low	31/12/22	8,192	303.7	675.0
Property[i]	CBRE	Low	31/12/21	6,831	0.01	0.01
Corporate Bonds (B&M)	LGIM	High	31/12/22	109,233	348.8	492.1
Corporate Bonds (Passive)	SSGA	Low	31/12/22	118,308	986.1	706.2
Asset Backed Securities (ABS)[ii]	Insight	High	N/A	N/A	N/A	N/A
Secured Finance[ii]	Insight	High	N/A	N/A	N/A	N/A
Illiquid Debt[ii]	Partners	Very low	N/A	N/A	N/A	N/A
Liability Driven Investment (LDI)[ii]	LGIM	High	N/A	N/A	N/A	N/A

Notes: Figures rounded to nearest whole number. Carbon footprint is measured in $m invested for scope 3 emissions as £m is not available from the third party data supplier for scope 3 emissions. Total carbon emissions is calculated as carbon footprint multiplied by size of the Group's holding in £m [i] Property analysis as at 31 December 2021 as 2022 data was not available at the time of writing. The carbon footprint and WACI of the property portfolio has been calculated as tCO2/m2 of floor space. [ii] Scope 3 data was not available at the time of writing. The Group Trustee will continue to engage with the relevant managers to drive improvements in data coverage and quality going forward, with a view to including more meaningful figures in future reports.

The other metrics chosen by the Group Trustee for the Group's assets were also measured over the period, as shown in the table below.

Asset Class	Manager	Date of measurement	% of underlying assets that have specific net zero targets	% of portfolio at year end for which engagement / voting on climate risk has been substantial	% of board meetings per year where climate risk is a substantial agenda item	% of portfolio at year end for which climate-related metrics of acceptable quality were obtained
Global Equities (Passive)	SSGA	31/03/23	c.65%	c.16%	c.19% (year to 31 December 2022)	c.85%
Global Equities (Active)	Baillie Gifford	31/03/23	c.24%	c.24% engagement / c.7% voting	N/A	c.80%
Property	CBRE	N/A	100%	N/A	N/A	N/A
Corporate Bonds (B&M)	LGIM	31/03/23	c.28%	c.32%	N/A	c.66%
Corporate Bonds (Passive)	SSGA	31/03/23	c.53%	N/A	N/A	c.95%
Asset Backed Securities (ABS)	Insight	N/A	N/A	N/A	N/A	N/A
Secured Finance	Insight	N/A	N/A	N/A	N/A	N/A
Illiquid Debt	Partners	N/A	N/A	N/A	N/A	N/A
Liability Driven Investment (LDI)	LGIM	N/A	N/A	N/A	N/A	N/A

Notes: Data from Investment Managers.

Currently, a proportion of the Group's holdings are unable to be measured across the different metrics. This is in part due to the nature of some investments and the difficulties in measuring climate metrics across these types of investments. Some of the Group's investment managers also do not currently monitor these metrics, particularly the non-emissions based metrics, and so are unable to provide data at this point in time. As part of ongoing dialogue with managers, the Group Trustee will strive to improve the managers' provision of non-emissions data over time, to ensure it receives a fuller picture of the Group's position.

In attempts to address this, the Group Trustee has discussed this with Insight at the Q1 2023 Investment Meeting as well as set data quality targets for the Group's mandates with Insight of which the manager is aware. Data availability and quality will remain a topic for discussion when meeting with the manager.

Metrics Data – Group level

The carbon data included within this section only considers the SSGA RAFI, Baillie Gifford, LGIM B&M and SSGA corporate bond mandates. As at 31 December 2022, these mandates accounted for c28% of the Group's assets. Data for the Group's other mandates were either unable to be measured or unable to be aggregated with other mandates.

The Group has a Weighted Average Carbon Intensity ('WACI') as at 31 December 2022 of 141 tCO2/$m Sales. This is a reduction of c45% versus the position as at 31 December 2021 but remains higher relative to an equivalent figure of 89 for the corresponding composite Group benchmark.

The Group's equity holdings contribute 61% to the total WACI despite representing only 11% of assets considered in the analysis. The SSGA RAFI mandate is the largest contributor with the SSGA corporate bond mandate the best performer when considering its contribution to total WACI relative to its size.

The Group's Baillie Gifford mandate (based on 31 December 2022) has consistently been less carbon intensive than an equivalent investment in the corresponding benchmark over the past five years with the opposite true for the SSGA RAFI holding.

The Group Trustee has worked with Hymans Robertson and one of the Group's appointed managers to evolve the existing LGIM Buy & Maintain corporate bond mandate to incorporate explicit ESG related investment guidelines, to both reduce the Group's exposure to climate risk and align the portfolio to the UN Sustainable Development Goals (SDGs). This resulted in a significant decrease in the WACI of c58% compared to 31 December 2021 data for the mandate.

Despite taking steps to reduce the Group's carbon risk metrics, the results indicate that the Group underperforms the aggregate benchmark. As such, the Group Trustee will look for further ways to improve these results and the Group expects to update its carbon risk metrics data on an annual basis.

In future reports, the Group Trustee will monitor the metrics on an at least annual basis and identify whether performance has improved or deteriorated over time. Where performance has deteriorated, the Group Trustee will engage further to understand the reasoning and undertake any appropriate remedial actions. The metrics will also be used to monitor the Group's performance in line with climate-related targets.

The Group Trustee acknowledge that at this point, limited data is available on industry wide comparisons and the Group Trustee has relied heavily on the benchmark set for each fund and the market knowledge of its advisors in understanding how well the funds are performing and whether further improvements could be made at this stage.

Targets

Given the nature of the assets and availability of data, the Group Trustee consider targets on a mandate-by-mandate basis in order to appropriately reflect the action that can be taken and the key priorities for that mandate. For example, for some mandates the current priority is to improve data in the first instance to enable the Group Trustee to set more meaningful targets, whereas for other mandates, agreeing a path towards carbon emissions reduction and net zero for all holdings is the key priority.

Emissions reduction targets

The Group Trustee will report on the performance of the following targets as far as the Group Trustee is able to do so in line with TCFD requirements. The Group Trustee aims to achieve:

- 50% reduction in Scope 1 and 2 WACI emissions by 2030, using the average WACI from the Group's carbon reports for 2020 and 2021 as the base line;
- 15% reduction in Scope 1 and 2 WACI emissions by 2025 relative to the baseline.

From the Group's 2022 climate report, there has been a reduction in Scope 1 and 2 WACI emissions by c40% compared to the baseline position as described above (2022: 141 versus 233 baseline). This was largely driven by the change to incorporate explicit ESG related investment guidelines into the existing LGIM B&M corporate bond mandate. This has resulted in the 2025 emissions reduction target already being surpassed. The Group Trustee continue to explore options for incorporating climate aligned mandates where possible and are in the process of onboarding an ESG tilted global passive equity mandate. The Group Trustee will review the targets each year to ensure they remain appropriate.

Data Quality Target

Given the current low levels of data available from some of the Group's investment managers and the Group Trustee's focus on engagement with managers to improve this data, the Group Trustee has set a data quality target for some of the Group's mandates where data availability is most limited.

To date, the Group Trustee has agreed the following targets for the Group's investment mandates:

- LGIM Buy & maintain to achieve a data quality score of 3 within the next 2 years (up from 2 at present day).
- CBRE UK property mandate to achieve a data quality score of 3 within the next 5 years (up from 2 at present day).
- For the two mandates currently scoring 1 for data quality that are of long-term strategic importance to the Group (Insight High Grade ABS, Insight Secured Finance I), both mandates to achieve a score of at least 2 within the next 5 years. It should be noted that data coverage and transparency across these asset classes is very limited and any wider industry changes (e.g. development of methods for ABS metrics estimation) would help in achieving this goal.

The Group Trustee notes that efforts in improving data quality will be significantly limited by third parties' ability and willingness to provide data. As such, the Group Trustee will use regular engagement with the managers as the main action to improve availability and quality of the climate data. The Group Trustee agreed to use the scoring system outlined below for monitoring and assessing the managers' progress and setting data quality targets. Please note that all percentages refer to portfolio coverage, i.e., the % of portfolio where given type of data is available.

Score	Emissions data requirements	Current mandate score*
4 – Excellent	At least 90% of actual data available OR >95% overall coverage including at least 75% actual data	SSGA RAFI, Baillie Gifford
3 – Good	At least 65% actual data available OR >75% overall coverage including at least 50% actual data	SSGA corporate bonds
2 – Adequate	At least 45% of actual data available OR >75% overall coverage using estimates	CBRE Property, LGIM Buy & Maintain corporate bonds, LGIM LDI
1 – Poor	Less than 45% of actual data available OR <75% overall coverage using estimates	Insight High Grade, Secured Finance I, Partners Group Private Debt

*Source: Investment Managers and the Group's carbon footprinting report (MSCI). Coverage only considers emissions data. Accurate as at November 2022.

Net zero ambition

In addition to the targets above, the Group Trustee aims to achieve a net zero position for all Group assets by 2050. Whilst this is not currently a formal target, the Group Trustee will use this aim to guide decisions and targets to be set within the Group's individual mandates.

The Group Trustee is comfortable that this is in line with its fiduciary responsibility to the Group and its members. The Group Trustee's key aim is to make a real-world impact on global emissions, which will be achieved through engagement with the Group's investment managers in relation to their policies and processes, as well as the reallocation of capital where appropriate. The Group Trustee will continue to work with the Group's managers to gather the relevant data to allow well informed targets to be put in place which are appropriate for each asset class. The Group Trustee expects different parts of the portfolio to follow different trajectories as it works towards this aim. This commitment is based on the expectation that governments and policy makers will deliver on their commitments to achieve the 1.5°C temperature goal of the Paris Agreement.

Targets Summary

The Group Trustee will undertake an annual review of the targets, including interim targets, to ensure that they remain appropriate and challenging, given the ever changing, economic, environmental and technological environment. These reviews will look for opportunities to introduce Net Zero targets where this is considered reasonable.

As the above targets were set during the 2022/2023 scheme year, the Group Trustee are not yet able to report performance against all targets. Progress against these targets and any other targets set for the Group's other mandates will be included in future reports.

The ability for diversified investors (such as pension funds) to set meaningful climate targets is inhibited by the limited availability of credible methodologies and data currently available. Like most investors, the Group is supportive of the development of target-setting methodologies, and of the increasing completeness of carbon datasets. The Group wishes to set meaningful and challenging climate targets for its investment portfolio and work is underway to assess options within the limitations of currently available data.

UK Power Networks

Net assets[38] as at 31 March 2023: £3,159m.

The following information should be read in conjunction with the Group's disclaimers included in Appendix D.

Chosen metrics

Since 2022, BlackRock has provided TCFD and climate change metrics to the Group annually. These include:

- Total portfolio carbon emissions (Total GHG + Intensity).
- The portfolio carbon footprint.
- Scope 1 and 2 emissions by asset class, including information on data coverage (completeness) and data quality. Since 2023, BlackRock has also provided data on Scope 3 emissions.
- Binary target metric.

In 2022, the Group Trustee focused on developing its understanding of these data. In 2023, BlackRock will start to provide analysis of trends in these data, which will allow the Group Trustee to track progress, both on portfolio related emissions and on the implications of climate change for investment performance.

One of the Group Trustee's conclusions from the data and analysis that have been provided by BlackRock to date, is that there are limited data available for important areas of the market, e.g. private markets. These data limitations constrain the board's ability to set performance or other expectations in these asset classes.

Metrics results

Portfolio Emissions - Aggregated Data – UKPN

Metric	Total Portfolio – Scope 1 & 2	Total Portfolio – Scope 3
Total GHG emissions (MtCO2e)	0.0120	0.10024
Total GHG Intensity (t/$m GDP nominal)	103.21	0.00
Carbon footprint (tCO2e/£M)	41.78	380.64

Source: MSCI, third party managers Equitix, Schroders, PGIM, Payden, Neuberger Berman, JPM, American Century, Insight Data as of 31 December 2022.
*We have determined the overall data coverage of the total portfolio as the weighted average of the data coverage across asset classes. For asset classes where the data is not yet available and / or best practice is still being developed, we have assumed that data coverage is nil.
For scope 3 emissions, the emissions data is based on estimated data only.

The weighted average data coverage across the investment portfolio has been estimated* to be 9.5% for scope 1 and 2 emissions combined. The weighted average data coverage across the portfolio has been estimated to be 8.7% for scope 3 emissions. Please note that the data related to GHG Emissions and the Carbon Footprint do not consider the coverage from the Group's exposure to LDI and emission from sovereigns. This is reported through the GHG intensity metric.

The Trustee acknowledges that as coverage improves over coming years (in line with the wider industry), it is likely that the Group's absolute measure of emissions (total GHG emissions) may rise before it falls. This may be as the result of steps taken to improve the ESG characteristics of the investment portfolio.

[38] Source: Scheme Trustee Report and Accounts for the year-ending 31 March 2023.

UKPN-Emissions by Asset Class: Scope 1 and 2

	Alternatives	Cash	Global Equity	Government Bonds	Corporate Bonds	LDI	Total
Market Value (£)	£606,934,435.40	£28,276,833.39	£209,949,303.65	£128,695,824.02	£65,494,411.08	£1,995,163,856.00	£3,034,514,663.54
% of total section assets	20.0%	0.9%	7.0%	4.2%	2.2%	65.7%	100.0%
Total GHG Emissions (MtCO2e)	0.00010	0.00002	0.00877	0.00000	0.00311	0.00000	0.01200
Carbon Footprint (tCO2e/£M)	5.22	0.66	42.51	NA	82.75	NA	41.78
Data Quality Reported	3.3%	79.2%	66.5%	NA	48.2%	NA	7.1%
Data Quality Estimated	0.0%	3.4%	14.9%	NA	9.1%	NA	1.3%
Data Quality [1]	3.3%	82.7%	97.5%	NA	57.3%	NA	9.5%
GHG Intensity (t/ $M GDP nominal)	NA	NA	NA	505.38	NA	124.80	103.21
Binary Target Metric [2]	0.0%	99.4%	30.8%	NA	15.2%	NA	3.4%

1. % of Market Value where reported and estimated Carbon Emissions and Carbon Footprint data is available. Total excludes coverage from sovereigns; emissions from sovereigns reported via GHG Intensity Metric.
2. % of Market Value where issuer has SBTI approved target.
Source: MSCI, third party managers Equitix, Schroders, PGIM, Payden, Neuberger Berman, JPM, American Century, Insight. Data as of 31 December 2022.
LDI data has been estimated based on the latest available statistics on national emissions and national debt, in-line with the DWP's statutory guidance.

UKPN- Emissions by Asset Class: Scope 3

	Alternatives	Cash	Global Equity	Government Bonds	Corporate Bonds	LDI	Total
Market Value (£)	£606,934,435.40	£28,276,833.39	£209,949,303.65	£105,044,650.53	£89,145,584.57	£1,995,163,856.00	£3,034,514,663.54
% of total section assets	20.0%	0.9%	7.0%	3.4%	2.9%	65.7%	100.0%
Total GHG Emissions (MtCO2e)	0.00000	0.00172	0.07663	0.00000	0.02189	0.00000	0.10024
Carbon Footprint (tCO2e/£M)	0.00	84.11	387.36	NA	486.13	NA	380.64
Data Quality Reported	0.0%	0.0%	0.0%	NA	0.0%	NA	0.0%
Data Quality Estimated	0.0%	72.5%	93.5%	NA	50.5%	NA	8.7%
Data Quality [1]	0.0%	72.5%	93.5%	NA	50.5%	NA	8.7%
GHG Intensity (t/ $M GDP nominal)	NA	NA	NA	0.00	NA	0.00	0.00
Binary Target Metric [2]	0.0%	0.0%	0.0%	NA	0.0%	NA	0.0%

1. Data quality is based on estimated scope 3 carbon emissions data.
2. % of Market Value where issuer has SBTI approved target.
Source: MSCI, third party managers, Schroders, PGIM, American Century, Data as of 31 December 2022.

LDI data has been estimated based on the latest available statistics on national emissions and national debt, in-line with the DWP's statutory guidance.

Limitations, assumptions and methodology

Methodologies

Metric Type	BlackRock Calculation Methodology
Absolute emissions metric: Total GHG Emissions	Total GHG emissions are calculated using MSCI sourced Enterprise Value Including Cash (EVIC) and Scope 1 and 2 emissions. This is an absolute emissions figure that is normalized using Market Value from BlackRock on the portfolio level. Equation outlined below: $\sum_{n}^{i}\left(\frac{Market\ Value_i}{EV\ Including\ Cash\ (\$m)_i} \times (Carbon\ Emissions\ Scope\ 1+2)_i\right)$
Emissions **intensity** metric: Carbon Footprint	Carbon footprint is an emissions intensity measure utilizing MSCI sourced EVIC and Scope 1 and 2 emissions. BlackRock market value and Net Asset Value figures are integrated to normalize to the portfolio level. Equation outlined below: $\frac{\sum_{n}^{i}(Carbon\ Emissions\ Scope\ 1+2\ Intensity\ (EVIC_i) \times (Market\ Value_i))}{NAV}$
Emissions **intensity** metric: Weighted Average Carbon Intensity	Weighted Average Carbon Intensity is an emissions intensity metric utilizing MSCI sources sales and Scope 1 and 2 emissions values. BlackRock market value and Net Asset Value figures are integrated to normalize to the portfolio level. Equation outlined below: $\frac{\sum_{n}^{i}(Carbon\ Emissions\ Scope\ 1+2\ Intensity\ (Sales_i) \times (Market\ Value_i))}{NAV}$
Data Quality	MSCI Coverage as measured by Scope 1 and 2 emissions broken down by "Reported", "Estimated" or "Not Reported" (represented as null values for Scope 1 and 2 emissions). Estimated values represent MSCI indication that the scope 1 and 2 emission data is estimated rather than officially reported.
Portfolio Alignment Metric: Binary Target Metric	The percentage market value of a portfolio where issuers have an approved SBTi target and investment is through a corporate bond or equity investment. Derivatives and other complex investment products are not captured
Emission **intensity** metric: **Sovereign** GHG Intensity (t/USD million GDP nominal)	This figure represents GHG intensity of an economy (in tons per USD million GDP nominal). The higher the value the more carbon intensive the economy is. Six greenhouse gases, considered under Kyoto Protocol, are considered for this data point. These gases are carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. GDP is in nominal terms. Utilizes MSCI data.
Emissions **intensity** metric: GHG Emission per Capita (**Sovereigns**)	Tons CO2e per capita. Six greenhouse gases, considered under Kyoto Protocol, are considered for this data point. These gases are carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Utilizes MSCI data.
Total GHG Emissions Scope 3 Only	This figure represents the company's most recently estimated Scope 3 total emissions normalized by the most recently available enterprise value including cash (EVIC) in million USD. This ratio facilitates portfolio analysis by allocating emissions across equity and debt. (t/million USD)
Carbon Footprint Scope 3 Only	This figure represents the company's most recently estimated Scope 3 total emissions normalized by the most recently available enterprise value including cash (EVIC) in million USD. This ratio facilitates portfolio analysis by allocating emissions across equity and debt. (t/million USD)

Targets

The Group Trustee has set a target to increase the data quality scores for scope 1, 2 and 3 emissions for the overall portfolio to improve to at least 50% over the medium term (3-5 years).

Uniper

Net assets[39] as at 31 March 2023: £363m.

Chosen metrics

With regards to quantitative metrics, the Group Trustee will set out where possible on an annual basis:

- Percentage of portfolio with data coverage
- Absolute total emissions in tCO2e
- Weighted Average Carbon Intensity (WACI)
- Carbon footprint (per £m invested)
- Portfolio temperature alignment
- Climate VaR under different scenarios

The Group Trustee will keep these metrics under review and may add to, or amend, these metrics over time as data and best practice evolves.

Metrics results

The table below sets out the results of the Group Trustee's agreed metrics for the Group's assets.

Defined Benefit Portfolio	Metric	Data source	31 March 2022	31 March 2023
Portfolio coverage*	% of total portfolio covered by analysis weighted by value	ISS ESG	42.0	16.5
Absolute Emissions	Total Portfolio, tCO2e	ISS ESG	7,649.9	1,803.7
Weighted Average Carbon Intensity	Total Portfolio, tCO2e	ISS ESG	149.2	106.2
Carbon Footprint	Total Portfolio, emissions per £m invested	ISS ESG	46.0	42.2
Portfolio implied temperature rise	Degrees Celsius	MSCI ESG	-	1.9
Climate VaR (1.5% scenario)	Climate Value at Risk	MSCI ESG	-	-13.5
Climate VaR (2% scenario)		MSCI ESG	-	-10.9
Climate VaR (3% scenario)		MSCI ESG	-	-8.7

* This analysis includes liquid listed equities and corporate bond assets where the data was available – the coverage was 82% of these assets. The figure has dropped significantly over the year due to the investment strategy having changed dramatically. This was due to 1) the target return of the portfolio being reduced by switching assets out of listed equities and corporate bonds in to UK gilts, cash and LDI assets. 2) An increase in the liquidity of the portfolio due to the Q4 2022 Gilts Crisis which resulted in listed equities and corporate bonds being sold in favour of UK gilts and cash in order to hold more liquid assets. UK gilts, cash and LDI assets are not currently covered, but this is an area the industry is exploring and this accounts for 44% of the scheme's assets as at 31 March 2023. Furthermore, less liquid and real assets, which formed 34% of the Group assets as at 31 March 2023 are not covered.

[39] Source: Scheme Trustee Report and Accounts for the year-ending 31 March 2023.

Limitations, assumptions and methodology

This analysis includes all liquid listed equities and corporate bond assets where the data was available. The Group Trustee notes that data availability is likely to improve, and public disclosure should increase the speed at which the data becomes available. The portfolio and asset class coverage is expected to be expanded in subsequent annual reports, as the data improves – particularly in respect of the treatment of gilts and LDI assets, as well as less liquid and real assets.

Targets

The Group Trustee has an ambition to set meaningful targets that are in line with the Group's investment and climate objectives, including to align its portfolio with achieving the goals of the Paris Agreement. The Group Trustee is taking a considered approach to setting climate-related targets. Comparing the quantitative metrics of this report provides a basis on which targets and objectives may be set. The Group Trustee will review sustainability and stewardship with its fiduciary manager, including engagement and voting activities, as a part of its effort to set and monitor meaningful climate-related targets across the portfolio.

United Utilities PLC

Net assets[40] as at 31 March 2023: £382m.

Chosen metrics

The following climate-related metrics for the Group's investments have been considered by the Trustee:

- Absolute greenhouse gas emissions
- Carbon footprint
- Weighted Average Carbon Intensity
- Portfolio temperature alignment
- Climate value at risk
- Data quality

This assisted the Trustee, via the Investment Sub-Committee, with identifying and monitoring climate-related risks. The analysis also provided a means for engagement with the investment managers, for example to discuss any gaps in the data.

Metrics results

LGIM

	LGIM Buy & Maintain Credit		LGIM LDI	
Metric	Scheme portfolio	B'mark*	Scheme portfolio	B'mark**
1. Absolute GHG Emissions	29 K tonnes	Not available	28K tonnes	In the case of LDI, where data has been provided in respect of the Group's gilt holdings, there is no index "benchmark" and as such the figures are shown in absolute terms.
2. Carbon Footprint	87 tonnes per $1m Enterprise Value Including Cash	92 tonnes per $1m Enterprise Value Including Cash	87 tonnes per $1m Enterprise Value Including Cash	
3. Carbon Intensity	286 tonnes per $1m revenue	193 tonnes per $1m revenue	168 tonnes per $1m revenue	
4. Portfolio temperature alignment (implied warming)	2.8°C	3.4°C	Not yet available	
5. Climate value at risk (VaR)	Not available and not currently in scope for future reporting by L&G.		Not yet available	
Data quality: % of portfolio covered and scopes included	Approx. 65% across the metrics where available,	Approx. 88% across the metrics where available,	Metrics cover gilts, swaps, and cash	
	Scopes 1 & 2 only		Scope 1 & 2 only	

*LGIM benchmark comparator: Barclays Global Aggregate Bond Index (1% issuer capped).

Insight (Insight Secured Finance) cannot provide reporting as the data is not available for the underlying assets.

[40] Source: Scheme Trustee Report and Accounts for the year-ending 31 March 2023.

Limitations, assumptions and methodology

Data Availability

The main gap in the Group's data related to the investments in Secured Finance. While these were investments of the Group during the year, the Secured Finance portfolio has since been fully redeemed. In particular, there are structural features of these investments that make information sourcing challenging:

- Every single underlying loan needs to be analysed, including "direct" emissions, raw material sourcing, and waste.
- There can be many stakeholders in the lifecycle of a secured finance asset, as the underlying asset pools may change over time.
- Technical challenges persist in obtaining data across the assets, in particular energy certificates within residential mortgage pools.
- Finance originators that have gone through several historical mergers and acquisitions have underlying asset information spread across legacy systems.

Further, some Secured Finance issuers, despite engagement from the investment manager, have proved less willing to bridge data gaps. To address these issues the investment manager has established a proprietary questionnaire to assess climate risks and other ESG factors. Of those issued in the last available reporting year, c75% elicited responses from public secured finance issuers, and 100% for private secured finance.

There were also some gaps in the metrics in relation to the Liability Driven Investment (LDI) portfolio, as standards are still developing in this area. The LDI portfolio invests in UK Government bonds and the latest annual data for emissions produced in the UK (i.e., production emissions) is published by the Government with a lag. Emissions associated with imports (energy and non-energy) are also typically excluded and figures cannot sensibly be aggregated with emissions data for non-gilt assets due to risk of double counting as UK emissions include both *corporate and household* emissions.

Data was provided for the mandates that comprise 90% of the Group's strategic asset allocation. Adjusting for the data coverage eligible for reporting within these mandates, it is estimated that approximately 70% of the overall portfolio was covered[41].

The missing data relates to Secured Finance investments (10%) and some holdings within the corporate bond portfolio.

PAM assumptions and methodology

The main portfolio alignment metric considered by the Trustee during the year was Implied Temperature Rise (ITR). This is a forward-looking assessment of how aligned the Group's portfolios are relative to the Paris Agreement's 1.5°C target.

It is calculated based on the activities and decarbonisation targets of portfolio companies / issuers, relative to what global decarbonisation needs to be to achieve 1.5°C.

Metrics considered have been sourced from the investment managers. ITR metrics were not available for Secured Finance or LDI.

[41] As at June 2022.

Targets

In 2022, the Trustee committed to aim for the Group's listed investments (where adequate data is available) to have net zero carbon emissions by no later than 2050.

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, the Group's investment managers and the insurer (for the bulk annuity policy purchased post the Group year-end) are committed to net zero by 2050 and have signed up to this initiative. Therefore, the assets invested are expected to reach net zero and the Trustee can objectively follow up against this objective with its investment managers and the insurer.

To monitor progress towards this long-term target, the Trustee will also work towards an interim target of having, by 2030, at least 50% of relevant assets aligned to a net zero by 2050 target – that is, credible plans in place to reach the 2050 target. The baseline date is 31 March 2023 and progress will be assessed on this basis.

Steps the Group Trustees are taking to achieve the target.

Implementing exclusions within certain mandates.

Discussing and agreeing the roadmap to next zero with each investment manager (during the year covered by this statement, this took place at the November 2022 investment manager meeting day) and with the insurer.

Monitoring the relevant metrics at least annually.

When considering new investments or risk management approaches, such as insurance policies, the Trustee has commissioned advice on the alignment of potential providers' approaches to net zero with the Trustee's target.

Western Power Distribution

Net assets[42] as at 31 March 2023: £1,943m.

Chosen metrics

We calculate and disclose the following metrics:

- Total GHG emissions: our total GHG emissions for financed corporate credit and equity GHG Scope 1 and 2 is 69,064.
- Carbon footprint: our emissions intensity for GHG Scope 1 and 2 is 130.
- Data availability: this is 87.1%.
- Alignment metric: our alignment metric is: 15.6%.

There is good coverage of GHG emissions data in public listed equity markets. In public credit markets, there is sustainability-related data for some issuers, but not all, particularly emerging markets. There remain both data and methodology challenges for asset classes, such as Property and Hedge Funds. We will work with Cardano and the asset managers to engage companies, policy makers and data providers to improve data quality and coverage.

With the support of our advisers, we reviewed the range of alignment metrics, assessing their strengths and weaknesses, including implied temperature metrics and this binary alignment metric. We have chosen the binary alignment metric, which we believe is more decision-useful, and less reliant on the range of assumptions involved in temperature metrics.

We also disclose estimated Scope 3 emissions and portfolio alignment metrics. Portfolio alignment measures the extent to which the portfolio is aligned with well below 2 degrees of warming.
These additional disclosures do not constitute our regulatory disclosures, because we are not satisfied that the data is reliable, and the data does include estimates where it is not reported. That said, we see benefits in pension schemes such as ours being transparent in our disclosures to support the further development of data quality and coverage.

Metrics results

Emissions associated with our direct financed exposure:

Asset class	**% finance of portfolio exposure**	**% MSCI coverage of GHG emissions data for Scope 1 + 2**	**Absolute financed emissions tCO2e / EVIC**			**Carbon footprint: Emissions intensity tCO2e / EVIC per £m invested**		
			Scope 1+2	Scope 3 upstream	Scope 3 downstream	Scope 1+2	Scope 3 upstream	Scope 3 downstream
Public equity	13.5%	99.8%	16,337	30,322	156,014	63	116	598
Public credit	10.5%	66.7%	63,727	108,546	153,967	314	534	757
Total (net) GHG Emissions	24.0%	85.3%	80,064	138,868	309,982	172	299	668

Source: MSCI, Managers (Credit: Beach Point and GoldenTree Equity: Egerton, LGIM). Data represents emissions as at 31/12/2022 with allocations as at 31/03/2023.

[42] Source: Scheme Trustee Report and Accounts for the year-ending 31 March 2023.

In the table below we have updated the above analysis to allow for the approximate carbon sequestration benefit of the Forestry portfolio. The data is shown for illustration purposes.

Asset class	% finance of portfolio exposure	% coverage of GHG emissions data for Scope 1 + 2	Absolute financed emissions tCO2e / EVIC	Carbon footprint: Emissions intensity tCO2e / EVIC per £m invested
			Scope 1+2 only	Scope 1+2 only
Forestry	3.4%	100%	-11,000	-42
Total (net) Equity, Credit and Forestry GHG Emissions	**27.4%**	**87.1%**	**69,064**	**130**

Source: MSCI, Managers (Credit: Beach Point and GoldenTree, Equity: Egerton, LGIM, Forestry: Bidwells). Data represents emissions as at 31/12/2022 with allocations as at 31/03/2023.

The Paris alignment metric helps us understand the extent to which a portfolio is aligned with the goals of the Paris climate agreement, to limit warming well below 2 degrees and towards 1.5 degrees.

We disclose the extent to which portfolio companies have made commitments to net zero GHG emissions, and whether the commitments have been independently reviewed by the science-based targets initiative.

This metric is most useful in helping us understand our own commitment to net zero GHG emissions, and therefore, consistent with guidance published by IIGCC, we have disclosed our physical exposure, not including our derivatives exposure.

Metric 3: SBT alignment % of portfolio aligned with the Paris agreement*
15.6%

Interpreting the results:

The absolute emissions tell us the emissions associated with our investments. While an important metric for us – and the regulator – it is difficult to use this metric for comparison purposes, because it is dependent on the size of the Group at the point we conduct the analysis.

This is why we disclose an emissions intensity metric, which is the total GHG emissions per £1m invested. This is useful, because, while subject to market fluctuations, it allows us to compare our emissions year-on-year and help us check we are moving in the direction of achieving our targets. For example, both the absolute emissions and emissions intensity should trend to 0 if we're to meet our Net Zero target.

Note that, while we expect our emissions intensity to trend to zero, different regions will have different pathways. For example, some emerging markets may see emissions rise, before they fall. When we make investment decisions we take into account the emissions, the climate change-related risks and opportunities, the asset manager's stewardship activities and the sectoral and regional characteristics of the portfolio.

Due to the lack of established methodologies and/or data quality issues, not all the investments have been included in the analysis. This includes the Group's investments with Bridgewater, Lynx and Ruffer.

In order to advance GHG emissions disclosures and methodologies and improve the range of assets included within TCFD analysis for pension funds, such as the Group, Cardano is participating in a range of sustainable investment working groups.

We report sovereign bonds carbon footprint separately from this measure for several reasons:

- There is no comparable measure for sovereign bonds to financed EVIC (because countries' debt levels are not comparable)
- Total Sovereign country greenhouse gas emissions involve substantial double counting of emissions with corporate greenhouse gas emissions, and
- We believe adding sovereign numbers to corporate numbers can substantially obscure the dynamics of monitoring the changes to the corporate Portfolio Carbon footprint over time. Our preferred approach to Sovereign Carbon Footprint is to consider weighted average GHG emissions per Capita which we record and report separately below.

Sovereign bond carbon footprint

	Average GHG in tons of carbon dioxide equivalent per person	Funded gilts only (long only)	Net exposure Combined gilt exposure (physical + derivative government bonds, long only)*
UK	6	45%	96%

*Source: LDI manager. Data represents exposure and fund holding data as at 31/03/2023. *Interest rate swaps, inflation swaps, futures, cash and money market fund holdings have all been excluded. Short gilt positions have also been excluded.*

Limitations, assumptions and methodology

We recognise the importance of managing CCRO – but also the challenges involved in 'doing it well'. We continue to develop and evolve our policies to reflect climate change-related challenges. This reflects the evolution of our thinking on sustainability and the changes underway in the financial services sector, and society more broadly.

When measuring at portfolio level, where we aggregate the emissions of investee companies, our approach is to disclose Scopes 1 and 2 emissions (to avoid double counting). We also report separately on government bond exposures due to aggregation challenges with government bonds, and differing methodologies.

We recognise that there remain gaps in data availability, in particular, regarding Scope 3 emissions. Scope 3 emissions help us better understand a company's sensitivity to climate change-related risks and opportunities, and its ability to transition. It can therefore help to understand relative performance of different companies within industries.

While we believe companies should disclose their Scope 3 emissions, we note that there are a number of data challenges which will take time to resolve.

Data provider

Cardano employ the services of MSCI to provide them with data and metrics. Measuring the success of sustainability initiatives requires new types of data analysis. A third-party data provider allows us to improve our portfolio analysis and provide valuable insight into ESG factors that can have a significant impact on investment outcomes.

Cardano's primary data source is MSCI ESG and Climate Scenario analytics, which they use to assess the sustainability our investments and is included in their regular reporting.

MSCI use reported, publicly available data, where available. Where it is not available, MSCI provides a proprietary estimation model, that uses reported data from similar industries, sectors and geographies to estimate a company's emissions. We believe that this, in turn, encourages companies to disclose, rather than be subject to estimations.

The quality of disclosure is improving, through voluntary and mandatory reporting initiatives. Examples include, the recent International Sustainability Standards Board climate-related disclosure standard, which has been endorsed by regulators, including in the UK and EU.

Targets

The Group Trustees have set the following principal target with respect to the Group:

- To align our investments to support the goal of net zero greenhouse gas emissions by 2050, in line with global efforts to limit warming to 1.5°C.

Specifically, we commit to:

- Work in partnership with other asset owners on decarbonisation goals, consistent with an ambition to reach net zero emissions by 2050 or sooner.
- An interim target for 2030, consistent with a fair share of the 50% global reduction in greenhouse gases, identified as a requirement in the IPCC special report on global warming of 1.5°C12.
- Review the progress against our target every year, and to review the target itself at least every three years, to ensure it remains consistent with the latest scientific thinking and is appropriately incentivising the necessary economic transition

The portfolio Carbon Footprint will be measured against these targets and relative to the appropriate market portfolio representative of the strategic asset allocation of the portfolio.

Our objective is to achieve, where possible, decarbonisation through the transformation of underlying businesses and government activities rather than divestment (because it is in our members' interests to decarbonise the economy-as-a-whole, and by remaining invested we retain our influence on the companies that must transition).

With regards to corporate assets alignment with the Paris Climate Agreement, the target over time is to consistently increase the proportion of the corporate portfolio that is Net Zero, Aligned to Net Zero or Aligning to Net Zero until 100% of the portfolio is aligned.

We will resist pressure to modify portfolios to meet headline portfolio level decarbonisation targets at the expense of incentivising the necessary real-world transition. Our goal is net zero greenhouse gas emissions globally – and we seek to maximise our influence to achieve this.

For these reasons, portfolio decarbonisation targets will continue to be reviewed at least every three years to ensure they remain appropriate.

Notes to support Net Zero Pathway analysis

The Group's Carbon Footprint projection and ultimate target uses an emissions intensity metric, which is the total GHG emissions per £1m invested. This is useful, because, while subject to market fluctuations, it allows us to compare our emissions year-on-year and help us check we are moving in the direction of achieving our targets.

Both the absolute emissions and emissions intensity should trend to zero net greenhouse gas emissions (not adding greenhouse gases to the atmosphere) if we're to meet our Net Zero target by 2050.

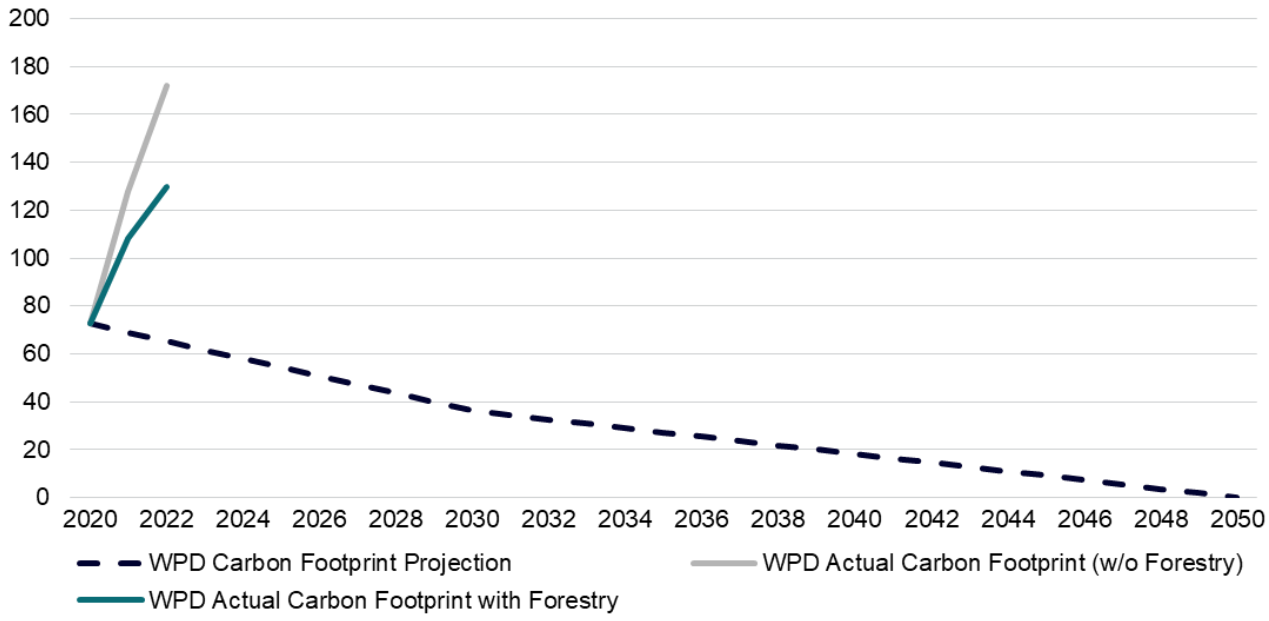
Fully assessing progress of the portfolio towards Net Zero will still take some time. Data is limited in some asset classes so we will continue to first focus on where we have the greatest insight and can have most influence. These data limitations have led us to use 2020 as a base year for our analysis rather than our preferred position as at 2019.

The table below summarises the parameters set for the interim target and shows the progress of the Group against the target using the 31 December 2022 metrics reported above.

Parameter	Value	Rationale
Assets within scope	Listed equities and corporate bond assets (scope 1 and 2 emissions) within funds used in the default arrangements	Data is limited in some asset classes so this analysis is in line with our continued focus on where we have the greatest insight and can have most influence.
Baseline date	31 December 2020	Due to the availability of data at the time of this TCFD report the baseline is taken from 2020 for this pathway analysis. This will also allow for more robust future assessments of year on year progress.
31 December 2020 (baseline) level	**72.5** tonnes CO_2e per £m invested	The baseline level has been calculated as per the following: ▪ **Developed Market Equity:** Proxied by MSCI World as at 31 December 2020. ▪ **Credit:** Emissions intensity data as at 31 December 2020.
31 March 2023 (current) level*	**130.0** tonnes CO_2e per £m invested	The current level has been calculated as an average of the underlying fund carbon footprint figures, weighted by asset value as at 31 March 2023. We note that the methodology could change in the future as the industry evolves. If this is the case, these figures would be restated.

* Data represents emissions as at 31/12/2022 with allocations as at 31/03/2023.

Net zero GHG pathway analysis:



Source: Western Power Distribution

Interpreting the chart:

1. The WPD Carbon Footprint Projection comprises three key data points: Our estimated emissions as of 2020 (base year used for this analysis), our 50% emissions reduction target by 2030, and our 100% emissions reduction target by 2050.
2. The WPD Actual Carbon Footprint (w/o Forestry) focuses on Scope 1 and 2 emissions, without allowing for the offsetting carbon emissions that are gained from holding Forestry.

3. The WPD Actual Carbon Footprint with Forestry focuses on Scope 1 and 2 emissions, allowing for the offsetting carbon emissions that are gained from holding Forestry.

We note that since 2020 the emissions intensity has increased. This is as a result of:

- The baseline target date of 2020 being during the Covid 19 pandemic, which due to lockdowns, saw fluctuations in energy use.
- The credit proportion of the portfolio that's currently analysed under TCFD has increased substantially since 2020 (15.4% vs 44.0%)
- Credit positions held in the portfolio are considerably more carbon intensive than the equity holdings so despite a lower allocation across equity and credit, the carbon footprint of the portfolio has increased.
  - This is expected and an industry wide pattern as schemes de-risk their investment strategies subsequently moving away from equity and into credit.
- The allocation to Forestry has increased since 2020, so the Carbon offsetting has also increased with this.

Steps we are taking to achieve the target

Steps being taken by Cardano:

- Provide the Group Trustees with information, metrics and analytics on net zero greenhouse emissions by 2050 to enable the Group to invest in accordance with our net zero commitment and account for climate change-related risks and opportunities.
- Engage with those key to the investment system including data and service providers to ensure that products and services available to the Group Trustees are consistent with the aim of achieving global Net Zero emissions by 2050 or sooner.
- Ensure any relevant direct and indirect policy engagement is undertaken in support of achieving global net zero greenhouse gas emissions by 2050 or sooner.

Steps being taken by the Group Trustees:

- Take account of and report on progress against Scope 1 and 2 emissions and, to the extent possible, material portfolio Scope 3 emissions.
- Prioritise the achievement of real economy emissions reductions within the sectors and companies in which we invest.
- Ensuring investment proposals explicitly consider the impact of CCRO.
- Use the reporting provided by Cardano to help us assess progress towards our targets.
- Whilst we expect our portfolio to trend towards our 50% emissions reduction target by 2030, we'll take the decisions necessary to align the portfolio consistent with our goal of net zero emissions by 2050.

Method to measure performance against the target

In order to help us track progress against our target of net zero greenhouse gas emissions by 2050, Cardano will, at least annually, report to us:

- Our portfolios' absolute GHG emissions.
- Our portfolios' carbon footprint (emissions intensity).
- Data coverage, including use of proxies, relevant methodologies, and steps taken to address data gaps.
- Update our scenarios.

Appendices

Appendix A - Glossary

Governance	refers to the system by which an organisation is directed and controlled in the interests of shareholders and other stakeholders.[43] Governance involves a set of relationships between an organisation's management, its board, its shareholders, and other stakeholders. Governance provides the structure and processes through which the objectives of the organisation are set, progress against performance is monitored, and results are evaluated.[44]
Strategy	refers to an organisation's desired future state. An organisation's strategy establishes a foundation against which it can monitor and measure its progress in reaching that desired state. Strategy formulation generally involves establishing the purpose and scope of the organisation's activities and the nature of its businesses, taking into account the risks and opportunities it faces and the environment in which it operates.[45]
Risk management	refers to a set of processes that are carried out by an organisation's board and management to support the achievement of the organisation's objectives by addressing its risks and managing the combined potential impact of those risks.[46]
Climate-related risk	refers to the potential negative impacts of climate change on an organisation. Physical risks emanating from climate change can be event-driven (acute) such as increased severity of extreme weather events (e.g., cyclones, droughts, floods, and fires). They can also relate to longer-term shifts (chronic) in precipitation and temperature and increased variability in weather patterns (e.g., sea level rise). Climate-related risks can also be associated with the transition to a lower-carbon global economy, the most common of which relate to policy and legal actions, technology changes, market responses, and reputational considerations.[47]
Climate-related opportunity	refers to the potential positive impacts related to climate change on an organisation. Efforts to mitigate and adapt to climate change can produce opportunities for organisations, such as through resource efficiency and cost savings, the adoption and utilization of low-emission energy sources, the development of new products and services, and building resilience along the supply chain. Climate-related opportunities will vary depending on the region, market, and industry in which an organisation operates.[48]

[43] A. Cadbury, Report of the Committee on the Financial Aspects of Corporate Governance, London, 1992.
[44] OECD, G20/OECD Principles of Corporate Governance, OECD Publishing, Paris, 2015.
[45] TCFD, Recommendations of the Task Force on Climate-related Financial Disclosures, 2017
[46] Please refer to the link in reference number 10.
[47] Please refer to the link in reference number 10.
[48] Please refer to the link in reference number 10.

Greenhouse gas emissions scope levels[49]	Greenhouse gases are categorised into three types or 'scopes' by the Greenhouse Gas Protocol, the world's most used greenhouse gas accounting standard. Scope 1 refers to all direct GHG emissions. Scope 2 refers to indirect GHG emissions from consumption of purchased electricity, heat, or steam. Scope 3 refers to other indirect emissions not covered in Scope 2 that occur in the value chain of the reporting company, including both upstream and downstream emissions. Scope 3 emissions could include: the extraction and production of purchased materials and fuels, transport-related activities in vehicles not owned or controlled by the reporting entity, electricity-related activities (e.g., transmission and distribution losses), outsourced activities, and waste disposal.[50]
Carbon (or GHG) Footprint	is an intensity measure of emissions that takes the Total GHG Emissions figure and weights it to take account of the size of the investment made.
Enterprise value including cash (EVIC)	reflects a company's debt and equity value, which ensures that GHG emissions are shared across equity and debt holders, preventing the double counting of emissions and distortion of company value. This is the valuation method used in calculating the GHG footprint for the underlying companies invested, as well as the Group's overall GHG footprint.
Market Cap	reflects the equity value of a company, which does not allow for the capital committed by debt holders. This results in the double counting of GHG emissions when apportioning emissions for a portfolio which includes debt assets.
Value chain	refers to the upstream and downstream life cycle of a product, process, or service, including material sourcing, production, consumption, and disposal/recycling. Upstream activities include operations that relate to the initial stages of producing a good or service (e.g., material sourcing, material processing, supplier activities). Downstream activities include operations that relate to processing the materials into a finished product and delivering it to the end user (e.g., transportation, distribution, and consumption).[51]
Climate scenario analysis	is a process for identifying and assessing a potential range of outcomes of future events under conditions of uncertainty. In the case of climate change, for example, scenarios allow an organisation to explore and develop an understanding of how the physical and transition risks of climate change may impact its businesses, strategies, and financial performance over time.[52]
Net zero	means achieving a balance between the greenhouse gases emitted into the atmosphere, and those removed from it. This balance – or net zero – will happen when the amount of greenhouse gases add to the atmosphere is no more than the amount removed.[53]

[49] World Resources Institute and World Business Council for Sustainable Development, The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition), March 2004.
[50] PCC, Climate Change 2014 Mitigation of Climate Change, Cambridge University Press, 2014.
[51] TCFD, Recommendations of the Task Force on Climate-related Financial Disclosures, 2017
[52] Please refer to the link in reference number 16.
[53] Energy Saving Trust, What is net zero and how can we get there? - Energy Saving Trust, October 2021
19 TCFD, Measuring Portfolio Alignment: Technical Considerations, page 52
22 Association of Investment Companies, Glossary

Climate adaptation	means the process of adjustment to actual or expected climate and its effects. In human systems, adaptation seeks to moderate or avoid harm or exploit beneficial opportunities. In some natural systems, human intervention may facilitate adjustment to expected climate and its effects.[54]
Fund manager / asset manager	refers to the entity responsible for managing a given Group's investments. Some Groups have used the term "asset manager" in place of "fund manager" where they have deemed it appropriate to their circumstances.

[54] Intergovernmental Panel on Climate Change ("IPCC") Glossary, 2014

Appendix B – An explanation of climate risk categories

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

Transition risks

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

Policy and legal

Examples

Increased pricing of GHG emissions

Enhanced emissions-reporting obligations

Regulation of existing products and services

Potential financial impacts

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

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

Technology

Examples

Cost to transition to lower emissions technology

Unsuccessful investments in new technologies

Potential financial impacts

Write-offs and early retirement of existing assets

Capital investments in technology development

Costs to adopt new practices and processes

Market

Examples

Changing customer behaviour

Uncertainty in market signals

Increased cost of raw materials

Potential financial impacts

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

Abrupt and unexpected increases in energy costs.

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

Reputational

Examples

Stigmatisation of sector

Increased stakeholder concern or negative stakeholder feedback

Potential financial impacts

Reduced revenue from decreased demand for goods and services.

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

Reduced revenue from negative impacts on workforce management and planning

Physical Risks

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

Acute

Examples

Extreme heat

Extreme rainfall

Floods

Droughts

Storms (e.g., hurricanes)

Chronic

Examples

Water stress

Sea level rises

Land degradation

Variability in temperature

Variability in precipitation

Appendix C – Greenhouse gas emissions in more detail

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

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

The amount of greenhouse gases in the atmosphere has significantly increased since the Industrial Revolution. The Kyoto Protocol[55] identifies six greenhouse gases which human activity is largely responsible for emitting. Of these six gases, human-made carbon dioxide is the biggest contributor to global warming.

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

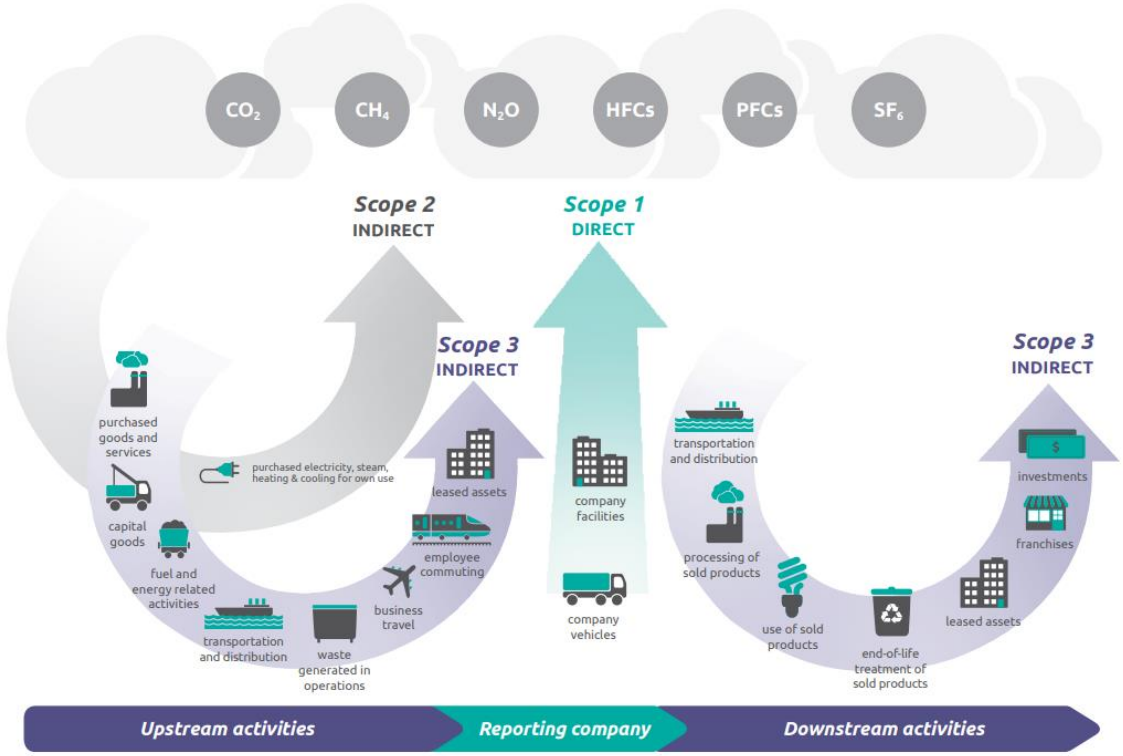
Six main greenhouse gases identified by the Kyoto Protocol

Carbon dioxide	Methane	Nitrous oxide	Hydro-fluorocarbons	Per-fluorocarbons	Sulphur hexafluoride
CO_2	CH_4	N_2O	HFCs	PFCs	SF_6

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

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

Overview of GHG Protocol scopes and emissions across the value chain



Source: Greenhouse Gas Protocol, Corporate value chain (scope 3) Accounting and Reportin

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Appendix E – Links to Published Group TCFD Reports

Groups included in report	Link to Groups' TCFD reports
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Magnox Electric	https://my-magnox-pension.com/docs/librariesprovider26/tcfd-report/magnox-tcfd-report-v3-0.pdf?sfvrsn=4430c9f5_6
Northern Powergrid	https://www.northernpowergridgroup-esps.co.uk/pdf/np3-tcfd-report-31-march-2023-f.pdf
SSE Southern	https://ssepensions.com/media/1281/sse-southern-tcfd-report-2022-23.pdf
UK Power Networks	Electricity Supply Pension Scheme (ESPS) | UK Power Networks
Uniper	https://ukpensions.uniper.energy/documents/tcfd-report