The Mineworkers' Pension Scheme TCFD Report

For scheme year ending September 2023

Mineworkers' Pension Scheme

Contents

Introduction

The Financial Stability Board created the Task Force on Climate-related Financial Disclosures ("TCFD") in 2015. TCFD is an industry-led group that helps companies, and their investors understand their financial exposure to climate risk. In 2017, it published recommendations designed to help companies, asset managers and asset owners disclose how they are managing climate risks and opportunities in a clear and consistent way. As required by UK government legislation, the Mineworkers' Pension Scheme ("the Scheme") published its first report in 2023 and is now publishing its second report. This will be available to explain to members and other interested parties how the Scheme is addressing the risks and opportunities associated with climate change.

About the Scheme

The Scheme is one of the largest occupational pension schemes in the UK, providing benefits for just under 120,000 pensioners and deferred members as at the end of September 2023. The Scheme was established on 1 January 1952. The coal industry was privatised in December 1994 and because of this, contributing members of the Scheme became deferred members. The Coal Industry Act 1994 established the parameters under which the Scheme operates, with the Government in place as the Guarantor. Trustees of The Mineworkers' Pension Scheme Limited ("the Trustee") has ultimate responsibility for decision-making on investment matters. Coal Pension Trustees Investment Limited ("CPTI") is responsible for providing investment advice and investment management services to the Trustee. As of 30 September 2023, total Scheme assets were valued at £10.58bn.

The Scheme's approach to Climate and TCFD Summary

The Trustee's fiduciary duty is to act in the best interests of members, with the primary objective of maximising total pensions for all members over the full life of the Scheme. Recognising climate change as a significant source of risk and opportunity, the Trustee acknowledges its impact on asset pricing and the ability to meet the Scheme's liabilities, making climate-related issues legitimate concerns for pension fund trustees.

In 2021, the Trustee ratified climate change/the climate transition as a strategic theme for investment. The global climate transition, supported by substantial investments from governments and corporates, is driving multiple different market dynamics and is expected to continue throughout this decade and beyond. Despite mixed performance so far, CPTI anticipates the climate transition theme benefiting the Scheme's assets.

The Trustee's second TCFD report restates the Scheme's governance and risk framework for tackling climate change risks and opportunities. It also addresses areas needing improvement, highlighting ongoing challenges with data coverage, methodologies, and other areas where progress is still required. Much work is being done to improve and understand the data, models and assumptions, however, much remains to be done and so many of the estimates in this report are subject to considerable uncertainty. This applies particularly to climate scenario analysis which the Trustee has decided not to rerun until either model improvements are made or the regulatory deadline, whichever is earlier.

The Trustee also acknowledges the significant uncertainty around all data and models used in producing this report and therefore the challenges this presents to decision-making. The Trustee has set an ambitious target for carbon emissions data coverage across the portfolio and continues to push to achieve this.

Key Portfolio Changes

The Scheme, since incorporating Climate Change as a theme, has made progress in reducing exposure to high climate-risk areas and increasing investments with positive expected financial returns. Portfolio changes include a transition overlay to passive equities, exiting a semi-passive mandate in China, committing to a UK Venture Capital Hydrogen Fund (HyCap), and investing in climate opportunities with Ninety One, commodities with Wellington, and global listed infrastructure with BlackRock. The estimated investment in climate opportunities has increased over the year. While emissions and intensity numbers may fluctuate due to asset allocation changes, exposure to climate opportunities and Paris-aligned investments is expected to increase.

Climate Metrics

As required by regulation the Trustee has committed to report on the following metrics, which are reported across all of the Scheme's assets as far as is possible:

- **Total carbon emissions** – measures the absolute tonnes of carbon dioxide emissions for which an investor is responsible. Total emissions are what must be reduced in order to limit the carbon dioxide in the atmosphere and the degree of planetary warming. In line with the updated regulations, the Scheme has reported on Scope 3 (supply chain emissions) as well as Scope 1 and 2 (direct and purchased emissions).

- **Carbon intensity** – an efficiency metric based on absolute emissions relative to the enterprise value including cash (EVIC).

- **Data coverage** – the proportion of the Scheme where reported (not proxied) Scope 1 and 2 carbon emissions data are available.

- **Paris Alignment** - As now required under TCFD regulation, the Scheme has reported on the extent to which its assets are Paris Aligned in this TCFD report.

In line with the statutory guidance, the Trustee has also agreed a target focused on the first metric as follows:

- Increase the proportion of the Scheme on which reported (not proxied) Scope 1 and 2 carbon emissions data can be reported to 90% by the end of 2024.

Since measurement of the Scheme's emissions began at the end of September 2021, the proportion of assets where data is available has increased from 57% to 93% at the end of September 2023. However much of the data is still from proxies rather than directly reported by companies and assets. Actual reported data has increased by 16%, from 41% to 57%. These numbers will continue to vary in the near term as data and methodologies continue to evolve across the whole industry. The Trustee will seek to take steps to ensure data quality improves over the next two years and will seek continued assurance it is following best practice in data collection and aggregation.

The Scheme has observed a decline in both absolute emissions and emissions intensity from September 2021 to September 2023, with a roughly 50% reduction in estimated emissions intensity. This decrease results from strategic asset class changes, investments in climate opportunities, and risk reduction efforts. There is no specific emissions reduction target, and the Trustee acknowledges the likelihood of emissions fluctuating if considering future allocations to high-emission assets. For example, investing in emerging market credit is likely to increase emissions intensity. However, over the longer term CPTI expects companies which are less carbon efficient to be penalised by markets and regulation.

The Scheme has introduced reporting Scope 3 emissions for public market holdings and initiated monitoring Paris Alignment to gauge the portfolio's

alignment with the 1.5-degree Celsius goal of the Paris Agreement. Despite limited Paris Aligned assets currently, the Scheme expects improvement over time, aligned with broader market improvements.

The addition of Scope 3 emissions significantly increases the total emissions picture, potentially overlapping with Scopes 1 and 2. Scope 3 intensity, based on MSCI estimations, is considerably lower than the FTSE All World Index for public equity and below the Bloomberg Global Aggregates Corporate Index for investment grade credit.

Whilst not a formally selected metric CPTI has continued to track investment in climate opportunities. This has increased over the year from 6% to 7% of growth assets, partially due to the introduction of the commodities portfolio and partially due to an increased exposure to such assets within the public equity portfolio. This compares with 12% of the FTSE AW index. Climate opportunities are expected to increase in the next report due to portfolio changes such as the addition of Listed Infrastructure.

Conclusion

The Scheme has continued to improve management of climate risks and increase its exposure to climate opportunities, some of which are expected to contribute to improving outcomes for members. That said there is significant further work to be completed, not least owing to the ongoing development of solutions, regulation, data and understanding in this area. The Trustee is committed to a multi-year process of reducing unrewarded risk and adding to climate opportunities to improve outcomes for members. Whilst significant work has already been undertaken and improvements have been made in the recent past, the Trustee acknowledges there is still much more work to be done.

Section 1 – Governance

Since the Scheme's first TCFD report there have been no significant changes to the governance framework set out, however CPTI has continued to focus on Trustee knowledge and understanding and has run sessions during the reporting period on Paris Alignment and Scope 3 emissions.

The detailed governance section is set out later in the report.

Section 2 – Strategy, risks, opportunities, time frames

This section highlights how the Trustee, on an ongoing basis, identifies climate-related risks and opportunities which it considers will have an effect over the short, medium, and long term on the Scheme's investment strategy and funding strategy. It also demonstrates how the Trustee considers where climate change, and actions to address climate change, might contribute positively to anticipated returns or to reduced risk. This section also sets out progress over the past Scheme year.

Appropriate Time Periods over which the Scheme assesses Strategy:

Short term: Everything up to 3 years in the future. This would cover the Scheme's next actuarial valuation (undertaken every 3 years) and is in line with the Scheme's economic scenario modelling, which is used to assess risk and asset allocation.

Over the short term the most material impact to the Scheme's assets associated with climate is likely to be Transition Risk and Opportunity. The Scheme has made a number of investments in climate opportunities to take advantage of market moves likely to occur over this time period. The Scheme has also focused on reducing exposure to less efficient companies who produce more waste than their peers.

Even over the short term the Scheme has already experienced the impact of some physical risks to the Real Asset portfolio, for example (i) flood risk and retrofitting requirements in the property portfolio; and (ii) greater stranding risk and investment requirement in the UK infrastructure holdings.

Medium term: Defined as the period between 3 and 10 years. The end of this period is aligned with long term expected return forecasting which is done over 10 years. Over 50% of the Scheme's future payments (in real terms) are expected to be made over the next 10 years. During this period Transition Risk and Opportunity, Physical Risk and potentially Stranded Asset risk in some of the least efficient fossil fuels are all relevant.

Long term: Defined as anything beyond 10 years up until 35 years (2058) when only 1% of the Scheme's future payments (in real terms) are expected to remain. All risks and opportunities are relevant over this period, however the Scheme's risk taking capacity is likely to be greater in the medium term than the long term.

Climate Related Risks and Opportunities - Investments

Responsibility

The Trustee is responsible for setting the climate strategy and managing and monitoring climate risk as with all other areas of risk and strategy. Like other areas of investment, the Trustee delegates the implementation of the strategy and the management and monitoring of risk to CPTI who use external investment managers, data providers and advisors to assist.

High Level Strategy

In 2021 the Trustee formally recognised climate change as a key investment theme over the next decade, emphasising the need to assess and strategically position assets to manage risks and leverage opportunities, in line with the Trustee's fiduciary duty. CPTI, on behalf of the Trustee, is seeking the best investment opportunities related to climate transition as well as seeking to limit the Scheme's exposure to climate risk that is not adequately compensated. In addition, CPTI recognises the need to consider how climate risks and opportunities should be incorporated into the Scheme's expected returns framework, asset allocation and funding strategy.

This latter piece of work is ongoing and relies on advancing scenario analysis. It is crucial to recognise that the wider industry lacks a definitive answer on how and to what extent climate change, under different warming scenarios, physical risk and the transition will impact the global economy in terms of GDP

and inflation. For instance, the work that has been done to date on this has, so far, indicated the likelihood of both inflationary and deflationary forces from climate, with the impact on overall inflation remaining unclear.

Moving forward, the next step for CPTI will be engagement with the investment managers to gain a more granular understanding of the geographical locations of the value chains of the companies/assets in the Scheme's portfolio. This work will enable CPTI to better pinpoint where the Scheme is most exposed to the physical risks associated with climate change, which will lead to more informed decision making.

During the most recent Scheme year the key developments around climate risk and opportunities are as follows:

- Greater understanding and decision making around significantly increased capex required in property and infrastructure for climate transition.
- Identification of elevated risk in water, gas and energy-from-waste utilities owing to climate transition.
- New investment in climate-aligned commodities.
- Opportunity identified and approved to invest in listed renewables-focused infrastructure.

Developments within specific asset class are summarised on pages 14-16.

Risks and Opportunities

The Trustee continues to work to build an understanding of the possible impacts of climate across all areas of the portfolio. Each of the following areas of risk and opportunity are expected to be material to the Scheme:

- Physical Risk
- Transition Risk including Stranded Asset Risk
- Climate Opportunities and Solutions.

The Scheme's approach to each area is discussed below.

Physical Risk to the Scheme's Assets:

Climate change/physical damage will directly impact the Scheme's holdings in physical assets such as buildings and infrastructure as well as equity and bond holdings in companies who own assets or have work forces, supply chains or client bases impacted by physical risk/changing weather patterns. All of the following could impact the value and cashflows of the Scheme's assets:

- Insurance premiums and availability will change materially with more regions moving outside of insurance provision and premiums rising. We already observe this in some areas of infrastructure in the UK and it is widely reported in the US and emerging markets.

- Financing new construction of property and infrastructure already increasingly considers physical risk with financing not available or at much higher cost for higher risk geographies.

- Cost of rebuild – countries will need to bear an increased and more regular cost of disaster recovery, prevention and rebuild which will impact growth levels and other areas of spending.

- Cost of adaptation – from greater need for heating and cooling in different areas to relocation of parts of the population or agriculture, this again represents a cost to companies and governments as well as an opportunity for innovative solutions.

- Agriculture will face significant challenges to productivity from the impacts of changing humidity, weather patterns and pests as well as increased incidence and severity of storms. In addition, the location of

agricultural activities will need to change due to drought and flooding. This is an area of both risk and opportunity with agricultural technology and genetics seeking to find innovative solutions to some of these problems.

- Immigration – climate change is a key driver of immigration, and this is expected to increase with bigger temperature rises. In a 4-degree global warming scenario Professor Myers' (a leading British environmentalist) estimate of 200 million climate migrants by 2050 has become the consensus – cited in respected publications from the IPCC to the Stern Review on the Economics of Climate Change.

In terms of opportunities presented by changing weather patterns, the Scheme has allocated capital to a commodities strategy including agricultural commodities which are likely to be affected by physical risk and therefore the price of the commodities would likely rise due to supply issues. The Scheme also has exposure, for example, to a company seeking to improve the efficiency of building cooling within the Ninety One Climate Opportunities strategy.

Understanding Scheme Exposure to Physical Risk

The Trustee is in the initial stages of understanding the Scheme's exposure with data and modelling in this area fraught with issues. To understand the Scheme's asset exposure to physical risk CPTI, on behalf of the Trustee, plans to:

1) Assess directly for individual physical assets – property and infrastructure primarily.
2) Assess risk to physical assets held by the companies the Scheme owns and lend to.
3) Seek to understand secondary impacts around broad long term economic assumptions and scenarios across different regions, sectors and in aggregate.

To date, progress in this area has been limited. Outside of real assets information on the location of assets is limited. Even within real assets reliable data and models are few and far between. CPTI will continue to seek greater information on this during the next Scheme year.

MPS Approach to Transition and Stranded Asset Risk

Transition risk refers to how assets will perform under a transition to a net zero scenario. This can be an orderly and gradual scenario, or a more disorganised scenario when regulation comes in suddenly over a shorter period with greater market impact. Transition risk also incorporates shifting consumer preferences towards environmentally friendly products and services.

Stranded asset risk refers to an asset which is assumed to have current worth turning out to have much lower or no worth. An asset's worth is based on its assumed future cashflows and therefore if these are lower, or last for less time the asset is worth less. An asset can be stranded for regulatory reasons (i.e. not allowed to profit from the asset), or economic reasons (no longer profitable).

Overall, despite politically fraught coverage around some areas of climate transition the level of investment into electrification is huge, with the International Renewable Energy Agency (IRENA) stating investment into the area reached USD 1.3 trillion in 2022. This number continues to significantly increase year on year with increased policy support for electricity production, estimates from IRENA and the IEA suggest that this will climb to around USD 4 trillion annually by 2030.

The Scheme, like the vast majority of large asset pools and the market as a whole, has significant exposure to transition and stranded asset risk.

Determining when assets are likely to become stranded and the right time to exit these in favour of other investments to maximise the financial benefits requires careful consideration. Fiduciary duty to members is the Trustee's first responsibility. As such, the first focus in this area is on assets with near term risks to pricing or profitability, or assets that CPTI expects to become difficult to sell over the medium term. This is likely to evolve as the transition progresses. In the first instance CPTI has focused on reducing the Scheme's exposure to the most inefficient assets – in particular, the Scheme has made changes in passive and quantitative equity and there are ongoing changes in both property and infrastructure.

Within the Scheme's portfolio the approach to transition risk and stranded assets is to focus on investing in Climate Opportunities and to reduce the risk of investing in inefficient companies or assets which do not have affordable transition plans. CPTI seeks to understand this risk through careful engagement with managers, particularly on assets or companies that are clear laggards within their sectors on emissions intensity or in designing net zero costings. The Scheme has not adopted any exclusions in this area nor a net zero target.

Climate opportunities

The Trustee recognises substantial investment opportunities arising from the climate transition, new technology, and changing consumer preferences across various asset classes. To capitalise on these opportunities, the Scheme has initiated investments in public equity and commodities while beginning to align capital expenditure and sales in Real Estate and Infrastructure around expected market recognition of risks in these areas. While the exposure to climate opportunities has seen limited change in the last Scheme year, the Scheme plans to increase exposure in 2024/2025. The Scheme identified two new opportunities, with an investment in listed infrastructure funded after the Scheme year end. However, the Scheme's maturity, substantial exposure to legacy private assets, and the need to reduce illiquidity may limit its ability to add more climate opportunities over time.

The following two case studies provide examples of the Scheme's investments in climate opportunities:

Case Study: Sustainable Commodities

During 2022 The Scheme agreed a proposal to add Commodities as a new asset class. The investment thesis was based on both an expected high inflation environment and greater regionalisation, but also, critically, the impact of climate transition and climate change on commodity prices. This mandate is focused on those commodities needed for the climate transition as well as those whose prices will likely rise with greater physical risk. The mandate excludes less aligned commodities – coal, oil and livestock.

Wellington was appointed to manage the sustainable commodities portfolio and is extremely focused on both ensuring it captures the returns available from commodities aligned with the climate transition and fulfilling its role as a steward of assets. Two current engagement examples are engaging with the key exchanges on (a) the structure of voluntary carbon credit markets; and (b) better clarity on the source of metals underlying futures contracts.

Appendix 2 provides further examples, across asset classes.

Case study: HyCap company investments - Wrightbus and Ryze Hydrogen

HyCap is a dedicated energy transition Private Equity opportunity which the Scheme committed to in 2021. HyCap is a UK-based growth equity manager investing and developing emerging businesses across the growing UK and international green hydrogen ecosystem. The fund invests across the full green hydrogen supply chain, allocating 40% of the fund to Upstream (green hydrogen and green hydrogen derivative production), 40% Midstream (distribution / goods and services), and 20% to End Users (today this is in zero emission mobility).

The fund has invested into 7 companies to date across the value chain, which includes investments in four different developers of production facilities (Yamna, Gen2, Liquid Wind and Hygen), with operations spanning multiple geographies (UK, Europe and Middle East and North Africa), derivatives (green hydrogen, E-methanol and green ammonia) and projects at different stages of development. In the Midstream, investments in Ryze Hydrogen, a green hydrogen distribution and infrastructure company as well as Motive Fuels, the UKs largest network of green hydrogen refuelling stations have been made. Finally, the funds first and largest investment was made into zero emission bus manufacturer Wrightbus.

The production assets in the Nordics and UK have taken final investment decisions or progressing to final investment decisions during 2024 and in MENA they have strong bids in Oman for large scale Green Ammonia projects. The Midstream businesses are moving more Hydrogen, day-to-day, than anyone else in the UK and have also expanded into Germany. Wrightbus this year will manufacture over 1,100 zero emission busses making it one of the fastest growing zero emission manufacturers in the world.

Some recent good news on Wrightbus, who have recently won a large order to make 28 hydrogen buses for the prominent German transport company, Saarbahn GmbH (link to article). The company's zero emissions busses on the road have surged from 200 a year ago to a projected 1,100 in the coming year, establishing Wrightbus as the UK leader.

How the Scheme Implements its Climate Strategy

The Scheme looks to capture climate risk and opportunity at all levels of investment. From overall asset allocation to manager assessment, hiring and firing, mandate design, manager agreements and reporting requirements.

1) Strategy changes

In terms of high-level strategic changes to funding strategy, asset allocation and planning, the Trustee is still in the initial stages of considering how climate change will impact expected returns across asset classes, regions, sectors and in aggregate. That said the Scheme has made a commitment to a new asset class, commodities, of which the climate transition is expected to be a significant driver of growth in many of the underlying exposures. The Scheme also made a new commitment to invest in listed infrastructure which focuses on renewable energy and electrification as a key theme. CPTI plan to do more work to incorporate climate change into the Scheme's expected returns and economic scenarios in 2024.

2) Manager assessment

For all new appointments, CPTI assesses external fund manager understanding of and positioning around climate change, looking for assurance that risk is appropriately considered and priced, and opportunities are not being missed. This is documented as part of each investment decision and in ongoing monitoring.

For existing managers, where changes can be made, CPTI has formally reviewed them and in some cases implemented mandate changes. In the extreme, a manager relationship could be discontinued if risks and opportunities are not sufficient considered and integrated. One example is the Scheme's historic investment in a semi-active China equity fund where CPTI became uncomfortable with the exposure to environmental laggards and very high carbon intensity companies. Within real assets CPTI is seeking to ensure the Scheme's capital expenditure aligns with the climate transition and the

Scheme's exposure to high emissions intensity infrastructure assets is reduced – again this has contributed to manager changes. Where CPTI has concerns around a manager's investment approach or stewardship in this area it will place the manager on a formal watchlist, which is presented to the Trustee on a quarterly basis, and is subject to increased scrutiny until a decision on how to proceed is made.

For legacy private equity and debt exposures where CPTI cannot easily make changes the priority is to understand the Scheme's exposure to risk and engage with the managers. This is currently a work in progress and is discussed in more detail under the section on data providers.

3) Mandate design

In the design of mandates with external managers, where appropriate CPTI is seeking to explicitly set out the expectations around TCFD reporting in order to improve data coverage. CPTI is also adding reporting requirements around some of the worst environmental offenders and those which have breached the UN Global Compact's 10 Principles as well as laggards in any of the E, S or G categories. This enables CPTI to focus its engagement with managers.

Key mandate changes have included a focus on climate transition risk with investment grade credit and passive equities. In real estate, decisions are being made to bring the portfolio in line with upcoming regulation around building energy efficiency requirements and ensure capex and sales focuses on climate risk and opportunity. More detail on these examples is provided in the Appendix 2.

4) IMAs

Where appropriate, CPTI is updating all the Scheme's IMAs to ensure compliance with non-climate related exclusion policies and the requirement to cooperate with TCFD reporting requirements.

5) Reporting requirements

CPTI is looking to ensure all of the managers report on their exposure to climate risk and opportunities as well as their engagement and voting in this area.

Stewardship

The Trustee views stewardship as a key tool for enhancing value through reducing risk and focusing on opportunities. Climate change has been formally identified as a key focus of the Scheme's stewardship efforts.

The Scheme's role as a steward applies across all assets and geographies in which the Scheme invests. As the Scheme delegates the management of individual assets to its investment managers, the Scheme's key levers of control and influence in stewardship are (a) the appointment of aligned managers and stewardship providers; and (b) ongoing engagement, oversight and challenge of those managers and providers.

The following case study provides an example of where engagement has been a key tool in the Scheme's ongoing stewardship efforts, performed by an aligned manager. Ninety One is the Scheme's public equity manager focussed on companies believed to contribute to positive environmental change through sustainable decarbonisation. Appendix 2 provides further examples, across asset classes.

Case study: Ninety One – Orsted

Rationale: Orsted, a global leader in offshore wind farms, faced challenges in the US market, leading to a negative market reaction and a loss of confidence in its management. Despite this, Ninety One chose not to exit the position due to the stock's significant discount to asset value, opting instead for an engagement strategy to restore confidence and value.

Ninety One's Actions:

- Communication with Chair: Established an open line of communication with the Chair.
- Meetings and Letters: Conducted in-depth meetings with CEO and CFO, had two meetings with the Chair, and sent a letter to the Orsted Board with key recommendations.
- On-site Meeting: Held an on-site meeting in Copenhagen with Orsted's CEO and interim CFO.
- External Consultation: Collaborated with industry experts and met with Orsted's competitors for additional insights.

Key Concerns Raised:

- Project Governance and Risk Management: Emphasized the need to strengthen the management team and implement safeguards for development capex.
- Funding Gap: Urged clarification on funding sources for new projects.
- Dividend Protection: Questioned the relevance of protecting dividends in the current environment, emphasizing investor preference for capital protection and dilution risk removal.

Outcome and Next Steps: Orsted implemented initial management changes aligned with Ninety Ones proposals, leading to a positive market response. The Board and management are actively addressing investor concerns, as evidenced by their focus on key issues in the Q4 results. Renewed confidence in a large-scale project and the ability to "self-fund" addressed some concerns, particularly in relation to project governance and risk management and estimated funding gap and the need to clarify sources of funds for new projects.

Investment Position and Future Engagement: Ninety One increased its position in Orsted during engagements, witnessing a share price recovery. Ongoing engagement aims to build further confidence in the management team and the funding roadmap to realize value for clients.

Escalation and Exclusions

A key part of engagement is the Scheme's approach to escalation. CPTI must determine if the investment managers and third party providers' engagement is effective and, if it is not, CPTI must determine whether investing in a particular manager, sector, company or asset still makes sense. For particular areas with elevated levels of risk of financial loss the Trustee may consider exclusions. Thus far the Trustee has a formal engage and/or exclude policy for investments that violate the UN Global Compact principles and a formal Controversial Weapons exclusions policy. As discussed elsewhere in this report there have already been examples of reviewing mandates and managers and the Scheme has additionally changed voting and engagement responsibilities between fund managers and stewardship services provider, EOS within public equities according to views on the provider's stewardship capabilities.

Monitoring and Engagement on Exclusions, Laggards and Controversies

In line with the Scheme's Stewardship Policy which states that the Scheme will focus stewardship and address material factors relating to Environmental, Social or Governance issues.

CPTI has access to data from two data providers, MSCI and Sustainalytics, which facilitates the process of monitoring these factors. Within private markets CPTI is in the process of implementing eFront which will allow screening for controversies in these areas.

The Trustee monitors the Scheme's exposure to ESG laggards, controversies and UNGC Watchlist companies on a quarterly basis. Where the data providers highlight a holding, CPTI will contact the manager responsible for the position and engage with them on their rationale for holding and understanding of the risk and the data provider's view. This rationale will be documented, and CPTI will continue to engage on a regular basis whilst the position is held. This engagement will also feed into CPTI's overall view of the manager's approach.

Case Study: Wellington – Americold

As an example, CPTI contacted Wellington about Americold, an Environmental Laggard in the Scheme's Global Opportunistic value mandate due to its high carbon intensity and lack of commitment to carbon neutrality. Wellington expressed concerns with the company about potential long-term issues as investor focus on environmental matters grows.

Wellington stressed the importance of science-based carbon reduction targets for Americold, given its carbon intensity is nearly double the global REIT (Real Estate Investment Trust) industry average. Despite Americold's challenges in setting targets due to acquisitions, Wellington provided examples such as T-Mobile to illustrate feasibility.

Despite Americold's interest in science-based targets for Net Zero, Wellington exited the position in 2023 due to diverging fundamentals and lower earnings growth expectations. Despite earlier engagements, Americold had not made progress in setting targets which was a contributing factor in Wellington's decision to reallocate resources to areas with better growth prospects.

Voting

The Scheme seeks wherever practicable to vote on every resolution at all meetings of companies in its portfolios. Voting is regarded as an important part of the Scheme's stewardship activities and as a means of achieving positive change.

CPTI also monitors the Scheme's voting on key themes, including Climate related management and shareholder resolutions which we expect to be considered by managers and third-party engagement providers during voting. As voting is outsourced, CPTI has appointed an external advisor to enable better understanding of the voting conducted by the Scheme's managers and third-party engagement provider and also to provide a basis for CPTI engagement. The analysis so far has been encouraging and indicates that the third- party provider, EOS, displays independence of thought in this area. The analysis has also been helpful in highlighting some questions and areas where CPTI can provide challenge on voting policies with some of the other managers, which has led to meaningful engagement.

CPTI also contacts prominent managers following reports and analysis by organisations such as ShareAction in order to challenge managers on voting which addresses urgent environmental issues.

An example of where the Scheme has voted against management on a climate resolution is included below.

Case study: EOS - TotalEnergies

During 2023, EOS, the Scheme's stewardship overlay provider, recommended a vote against management in relation to approving TotalEnergies' Sustainability & Climate Progress Report. Reasons for the vote against management included: (1) Strategy still reliant on maintaining and growing fossil fuels; (2) Misalignment of emission reduction targets to 1.5°C pathways; (3) Weaknesses in Scope 3 accounting methodologies; and (4) Capital expenditure policies for further fossil fuel investment not clearly aligned to 1.5°C.

On balance, EOS believed that, despite some progress in reducing emissions and some improvements in the ambition of the company's strategy, the lack of ambition in Scope 3 targets was an overriding concern.

Consequently, EOS considered the company's targets to remain materially misaligned to 1.5°C scenarios and therefore recommend a vote **against** management.

Summary of Progress Across Asset Classes in integrating Climate Risk and Opportunity

The following table sets out progress in each asset class to date as well as intended next steps.

Summary of progress across all asset classes

Asset Class	Physical Risk		Transition/Stranded Asset Risk		Climate Opportunities	
	Progress in Scheme Year End Sep' 2023	**Next Steps**	**Progress in Scheme Year End Sep' 2023**	**Next Steps**	**Progress in Scheme Year End Sep' 2023**	**Next Steps**
Public Equities	Limited progress around obtaining further data or analysis. Scenario analysis of high warming scenario completed - albeit results are believed to be extreme underestimates of this risk.	Source appropriate risk metrics and tools for assessment. Manager engagement on risk heat mapping for company assets and supply chain.	Appropriate risk metrics identified and tracked. Engagement and/or exclude process implemented around UNGC violators and laggards. Passive equity includes transition risk overlay.	Continue to monitor and evolve risk metrics. Ongoing monitoring of managers and engagement around risks and opportunities.	Manager appointed for new listed infrastructure mandate (assigned article 8).	Continue to monitor and increase exposure to climate opportunities. Continue to review metrics in this space. Fund the listed infrastructure mandate and begin tracking.
Private Equities	Scenario analysis of high warming scenario completed based on proxies. Build out analytics in this area. Engage with managers on assessment of risk in this area.	Ongoing engagement with managers on assessment of risk in this area.	Initial analysis of risk metrics completed using proxy data. Engaging with managers around approach and assessment of risks and provision of direct data. In the process of onboarding with data provider.	Look to assess risk data once implementation of the new analytics provider is complete. Continue to engage with managers around approach to this area and better provision of data.	Limited new commitments for Scheme given maturity and total illiquidity. Investment made to HyCap (UK hydrogen ecosystem).	Explore metrics available to assign climate opportunities exposure within private markets portfolio.
Commodities	Commodity pricing expected to be impacted by climate change, this is directly part of the investment thesis within the agricultural complex.	Continue to develop data in this area.	Commodity pricing expected to be impacted by climate transition - this was key part of thesis for investment.	Continue to develop data in this area.	Commodity pricing expected to be impacted by climate transition - this was key part of thesis for investment.	Continue to develop data in this area.

Asset Class	Physical Risk		Transition/Stranded Asset Risk		Climate Opportunities	
	Progress in Scheme Year End Sep' 2023	**Next Steps**	**Progress in Scheme Year End Sep' 2023**	**Next Steps**	**Progress in Scheme Year End Sep' 2023**	**Next Steps**
Government Bonds	Actively seeking market consensus for data approach in this area. Engaging with managers on approach in this area.	Continue to clarify approach on data and assessing risk more broadly. Consider ASCOR overlay.	Begun reporting Carbon Intensity Data in government bonds. Considering implications of new allocation to Emerging Market Sovereign Debt.	Continue to monitor risk data and engage with managers. Continued thinking on approach to transition risk and financing in emerging market debt.	N/A	Continue work on approach to transition risk and financing in emerging market debt.
Investment Grade Credit	Continued discussions with managers on beginning to collect data and complete modelling in this area - remains in early stages. Scenario analysis of high warming scenario completed - albeit results are believed to be extreme underestimates of this risk.	Source appropriate risk metrics and tool for assessment. Manager engagement on supply chain mapping.	Review of providers in this asset class included rigorous review of approach in this area and appropriate changes to managers and mandates made. New mandates in this area include commitment to reduce emissions versus the benchmark by 50% in corporates.	Continue to monitor and evolve risk metrics. Ongoing monitoring of and engagement with managers. Continue to develop best in class approach within securitised credit.	Mandates in this area may take advantage of green bonds or other opportunities where appropriate.	Continued thinking on approach to transition risk and financing in emerging market debt.
Property	Used external data provider for formal analysis of physical risk at regional level albeit view this data as of limited use. Manager collaborating with peers and providers on more useful scenario analysis in this area.	Work with manager on assessment and mitigation/capex/new investment spending in this area.	Data on emissions and intensity received and reviewed. Net zero building assessments ongoing. Capex and sales plans incorporating the above being developed.	Formalise plan on sales and spending to align portfolio with risks and opportunities and regulation in this area.	As discussed in transition risk.	Investigate opportunities around Net Zero buildings .

Asset Class	Physical Risk		Transition/Stranded Asset Risk		Climate Opportunities	
	Progress in Scheme Year End Sep' 2023	**Next Steps**	**Progress in Scheme Year End Sep' 2023**	**Next Steps**	**Progress in Scheme Year End Sep' 2023**	**Next Steps**
Private Debt	Scenario analysis of high warming scenario completed based on proxy data. Data provider identified.	Build out analytics in this area. Engage with managers on assessment of risk in this area.	Completed full review of managers approach in this area. Continued work on receiving greater proportion of reported data and understanding at risk areas.	Look to assess risk data once implementation of the new analytics provider is complete. Continue to engage with managers around approach to this area and better provision of data.	In rundown for legacy assets.	Continue to review opportunities around transition lending.
Special Situations Debt	Scenario analysis of high warming scenario completed based on proxies. Tool for assessing risk identified and contract in progress.	Build out analytics in this area. Engage with managers on assessment of risk in this area.	Initial analysis of risk metrics completed using proxy data. More managers providing direct data or planning to. In the process of contracting with data provider.	Look to assess risk data once implementation of the new analytics provider is complete. Continue to engage with managers around approach to this area and better provision of data.	No investments thus far.	Review investment opportunities investments in this space.
Shipping	In the process of exiting this asset class, partly due to future stranded asset risk.					

Climate Related Risks and Opportunities – Funding

Funding strategy

The Trustee's primary funding objective is to maximise total pensions for all members over the full life of the Scheme. In order to meet the funding objective, the Scheme's assets need to generate a return well in excess of that available on "risk-free" assets such as UK Government Bonds. As such, to generate the returns needed, the Scheme invests in a high proportion of return seeking assets.

Ultimately, if the Scheme's funding strategy is unsuccessful (i.e. there are insufficient assets available to meet members benefit payments), funding will be provided by the UK Government who is the Scheme's Guarantor.

Climate related risks and opportunities

Given the Scheme invests in return seeking assets, the biggest climate related risk and opportunities to the funding strategy are those that impact such investments. These risks and opportunities have been covered in detail above.

Climate change could also impact the level of benefit payments that the Scheme makes to members, either as result of changes in mortality levels or due to changes to future levels of inflation. Here, the maturity of the Scheme is likely to be a key factor, as the average age of members (weighted by pension amount) is around 72 and around 50% of the Scheme's future payments (in real terms) are expected to be made over the next 10 years.

So, for climate change to have a meaningful impact on the future benefit payments from the Scheme it is likely that these impacts will need to happen in the next 10 years.

It is unlikely that climate change is going to have a material impact on the life expectancy of the Scheme's members (and therefore the associated pension payments to members), particularly given the vast majority of members live in the UK where the physical risks of climate change are less extreme relative to other parts of the world. And whilst, for example, climate change could increase the number of heat-related deaths in the summer, this may well be offset by a reduction in cold-related deaths in the winter.

A more meaningful area of impact on future benefit payments could be the impact climate change has on inflation, as around 70% of members benefits increase each year in line with inflation.

Covenant risk

Whilst the Scheme does not have a sponsoring employer, should the Scheme's funding strategy fail, funding will be provided by the UK Government under the terms of the Government guarantee. As such climate change is not expected to affect the ability of the Scheme's sponsor to support the Scheme.

Overall Progress on Strategy

The Trustee continues to work to integrate climate risk and opportunity throughout the funding strategy. Whilst some areas, for example physical risk and climate scenarios, remain in initial stages, regular reporting and discussion on transition risk and opportunities has been rolled out across the majority of Scheme assets for over a year now. Qualitative understanding and interrogation of climate risks and opportunities is a key part of manager selection and monitoring, and climate change is a core focus of the Scheme's stewardship efforts. Over the next year, CPTI will focus on finding more decision useful forms of climate scenario analysis and work on embedding these into the Scheme's strategic making, while also continuing to identify risk and opportunities that it believes merit changes to positioning.

Section 3 – Risk management and monitoring

The Trustee's goal is to identify, monitor and manage climate risks and opportunity across the whole portfolio, public and private. Whilst this remains a work in progress for the Scheme and wider industry, the Trustee now has a substantial level of information included in regular reporting around risks and opportunities in this area.

Risk Appetite

While climate risk has not altered the Trustee's overall risk appetite, it has led to some changes to the Scheme's portfolio, approach and providers. The Trustee expects to make further changes in order to meet the Scheme's objectives in an environment where climate transition and physical risks will change the risk/return dynamics across investments.

Incorporating Climate Risk and Opportunities into overall Investment Strategy

CPTI, on behalf of the Trustee, is in the initial stages of considering how climate change will affect the Scheme's expected returns across asset classes, regions and sectors and likely economic scenarios. That said, detailed work has been conducted around the most likely near-term affected areas. CPTI expects to continue incorporating climate change across all areas of strategy through 2024 and 2025. Upside risks identified in global infrastructure and commodities have led to CPTI advising greater investment in these areas.

How the Trustee assesses the Risks and Opportunities

Climate risk assessment is relatively new and continues to evolve. CPTI expects the tools and data available to continue to expand and improve. CPTI, on behalf of the Trustee, relies on both quantitative and qualitative approaches to assess climate risk.

Qualitative assessment involves understanding how different scenarios can play out at the asset class, sector and regional level and having detailed discussions with managers and other research providers on evolving expectations in this area. CPTI receives qualitative assessments of company risks from the Scheme's ESG data provider MSCI and stewardship provider EOS. Discussion of both company and broad market/asset class risks and opportunities are also part of regular ongoing conversations with the Scheme's managers, advisors and broader network including ESG and stewardship collaborative groups. Given limited data coverage and quality, particularly in certain areas of the portfolio, taking a qualitative approach as well as quantitative is critical.

In preparing quarterly reporting for the Investment sub-Committee (ISC), CPT and CPTI collate reports using data directly extracted from tools available in-house in conjunction with data sourced from third party managers. The reports are designed, reviewed and overseen by the Head of Responsible Investment and signed off by the CIO before being presented to the Trustee.

The following quantitative data is reported to ISC quarterly (with Scope 3 and Paris Alignment being new additions to reporting):

- ESG laggards
- Controversy exposure
- Carbon emissions and intensity across the portfolio (Scope 1, 2 and 3)
- Degree of Paris Alignment
- Level of investment in climate opportunities

At present full coverage of the portfolio is not available but CPTI continues to work to build this up through new data providers and engagement with managers. In the absence of reported data, the most sensible available proxies will be used. As discussed above there is currently limited data and understanding around physical risk and CPTI and the broader market continue to seek better information and models here.

Another key tool for understanding climate risk and opportunity is scenario analysis – both quantitative and qualitative. Whilst the Scheme has not undertaken new analysis this year, considering how climate change will affect various investments and overall economies is a key consideration in decision making. For example, analysis around opportunities has led to investments in commodities and listed infrastructure in 2023. Climate risk analysis also continues to be a major factor in the analysis and positioning of the Scheme's investments in UK property and infrastructure.

Monitoring of Risk Metrics

The ISC reviews climate risks and TCFD metrics on a quarterly basis. The Trustee Board formally reviews climate risks (including metrics and targets) at least once a year ahead of the publication of the Scheme's TCFD report.

The TCFD recommends that trustees should increase the frequency of monitoring if risk levels approach pre-determined risk appetites. The Trustee has not yet determined tolerances in this area given data and methodologies are still being constructed but will continue to develop its approach here as discussed in greater detail below. In general, the Trustee has a significant risk appetite to take risks it expects to be rewarded.

To the extent possible, climate risk metrics are monitored for every asset class in the portfolio, however some areas remain a work in progress. More broadly the Trustee acknowledges that all areas of its assets and the broader economy are exposed to some level of climate risk and opportunity and that these risks are systemic and cannot be fully divested or diversified away.

Physical Risk: limited data or acceptable scenario modelling is available here. More work is to be done in the coming years.

Transition Risk:

- Carbon emissions: absolute and change over time; scopes 1 and 2 with Scope 3 added in 2023.
- Carbon emissions intensity: absolute and change over time.
- Climate Stress Testing – conducted in 2021 and will update when better models are available or when required by regulation.
- Paris Alignment added in 2023.

Stranded Asset Risk: The above transition risk metrics also relate to stranded asset risk. As the price of carbon increases, the risk of stranded assets increases with the most carbon intense assets at greatest risk. As part of this, the most carbon intensive sources of power are monitored: coal reserves and oil sands. Others will be added through time as the energy market develops.

ESG Scores: Scores absolute and versus the benchmark, along with exposures to laggard companies.

Controversies: Exposure to UNGC violators, watchlist and broader controversies including coal reserves and oil sands as mentioned above.

Some of the process and controls surrounding the investment section of the risk register remain in development and will be a subset of the broader risk reporting ISC already receives on a quarterly basis. There has been no change in the Scheme's prioritisation of relevant risks for the TCFD report and no tolerances have been proposed. CPTI continues to incorporate and evaluate climate risks and opportunities into the investment process and reports back to ISC on all major developments. Understanding and assessing climate risk and opportunity remains an area of development for both the Scheme and the broader market. The Trustee will continue to evolve its approach accordingly to ensure risks or opportunities are not missed.

That said more broadly the qualitative understanding of climate risk and opportunities has led to both sales and new investments as discussed elsewhere in this report.

Data Providers, Advisors, and Tools

In addition to data provided directly from managers, CPTI uses MSCI for ESG and climate risk assessment in public markets, supplementing this with additional data from EOS and Bloomberg. In private markets, Blackrock eFront is collecting some reported private company level ESG data annually. This is expected to have more of an impact from 2025 when TCFD-aligned disclosures become mandatory. Lastly, CPTI engaged with a number of consultants and its key external fund managers in this area, for training purposes. CPTI, on behalf of the Trustee, has significantly increased the Scheme's available data in this area since 2021 and continues to work to further build this out.

Section 4 – Scenario Analysis

The Trustee has reviewed the available options and concluded that it would not conduct new scenario analysis in the 2023 Scheme accounting year since the results would not be significantly different and the available models remain flawed, particularly in relation to modelling physical risk. The Trustee agreed to instead wait for the availability of new or improved scenarios or modelling capabilities, or events that might reasonably be thought to impact key assumptions underlying scenarios. The decision to conduct new scenario analysis will be revisited again during 2024 and, as required by regulation, new scenario analysis will be undertaken by 2025 at the latest.

As the Scheme has not conducted new scenario analysis in this Scheme year, the previous year's analysis has been moved to the Appendix 3 of this report.

Section 5 - Metrics and Targets

Overview

In compliance with TCFD regulations, the Trustee agreed three climate metrics and a target in 2021. Two of these metrics, total carbon emissions and carbon intensity, align with statutory guidance. The third metric, data quality, was also agreed in 2021 alongside an ambitious target of 90% reported emissions by the end of 2024. Recognising the current low levels of data, especially in private assets, the Trustee views its target as ambitious though has kept it in place for this second TCFD report. A fourth metric on Paris Alignment was added to meet regulatory requirements for this report.

CPTI, on behalf of the Trustee, is engaging with the Scheme's investment managers to improve data availability across the Scheme's assets. Enhanced data on emissions and trends will enable the Trustee to measure the impact of portfolio changes and engagement success. Subsequent pages detail Scheme data under the mentioned metrics.

Carbon Emissions Data Quality/Coverage by Asset Class

Data Quality: The accuracy, completeness, and reliability of information pertaining to carbon emissions, used to effectively assess the Scheme's financed carbon emissions.

There has been an amendment to the methodology used when calculating data quality. For this second TCFD report, some asset classes have been excluded from the metrics and targets data due to there being no way to calculate or indeed assign emissions to commodities futures, hedge funds and cash. This is in line with DWP guidance. The reported data coverage total excludes these assets. For the Scheme this is mainly derivative based assets such as Brevan Howard and commodities which in total represent 5% of total Scheme valuation as at end September 2023. For a detailed explanation of the methodology used to calculate data quality, see the methodologies section.

Figure 1

The following table shows the data quality currently available by asset class and at the total Scheme level as of 30 September 2023:

Asset Class	% coverage (including proxy and reported data)	% coverage (reported data only)	% of total Scheme NAV (excluding cash)
Public equity	98%	81%	39%
Private equity	100%	5%	17%
Private debt	8%	0%	6%
Government bonds*	100%	100%	6%
Investment grade credit	95%	77%	5%
Special situations debt	100%	3%	8%
Infrastructure	88%	80%	7%
Property	99%	69%	11%
Shipping	100%	100%	0%
Hedge funds and other	0%	0%	0%
Total (reflecting asset allocation)	**93%**	**57%**	**100%**

Source: MSCI and managers; * Absolute emissions data is not yet available for government bonds as there is not yet an agreed methodology of apportioning this data to investors. Therefore, coverage for government bonds relates to carbon intensity metrics only.

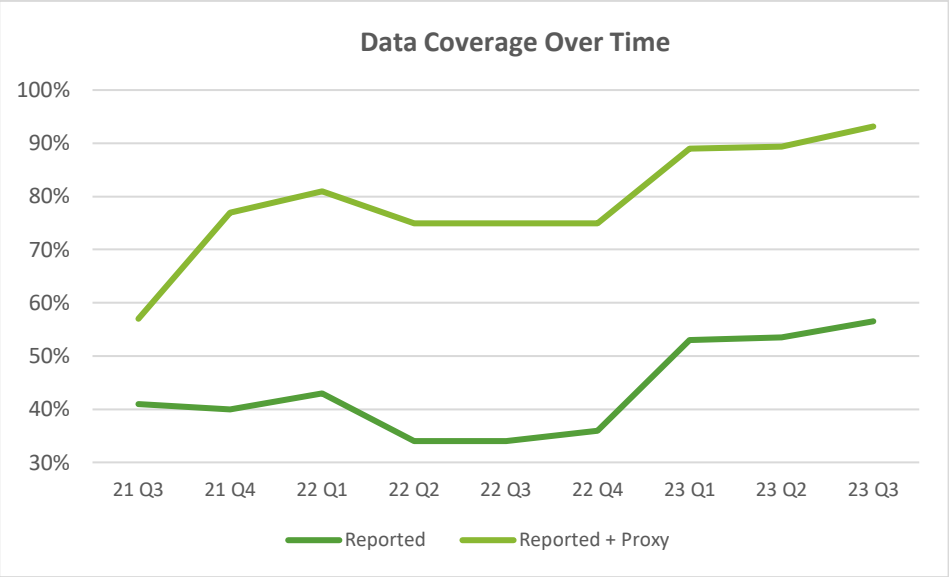
From 30 September 2021, when measurement of the Scheme's emissions began, to 30 September 2023, data coverage has increased by 36% including both proxy and reported data, and by 16% for coverage including reported data only. Figure 2 below shows the trend in data quality through time.

There has been improvement in nearly every asset class in the year with the largest impacts arising from new data in government bonds and property. In order to hit the target, significant improvement needs to be seen in private

equity, private debt and special situations debt data coverage (or a decrease in allocations to these areas). Both of these things are expected to occur. In particular, data coverage is expected to increase in the next annual data outreach cycle conducted by the recently onboarded data provider - eFront.

Whilst the lack of data is a concern, CPTI couples this with a qualitative understanding of the portfolio assets and the approach taken to climate risk and opportunity by each asset manager. As such, whilst it is key the Trustee sees data improve, this data quality metric alone does not imply that changes are required to the investment strategy.

Figure 2



The Scheme continues to target having 90% reported data by the end of 2024.

Total Scheme Scope 1 and 2 Carbon Emissions and Intensity

Carbon Emissions: refers to the absolute greenhouse gas emissions associated with the portfolio, expressed in tons of CO2. Total emissions are what must be reduced in order to limit the carbon dioxide in the atmosphere and the degree of planetary warming.

Carbon Intensity: is the portfolio's exposure to carbon-intensive companies, expressed in tons of CO2 per the enterprise value of the company/asset including cash (EVIC). It allows a comparison between companies and assets of varied sizes.

Scope 1 & 2: Scope 1 and 2 emissions are those directly produced by the companies/assets through burning fossil fuels or indirectly through purchased energy.

Scope 1 and 2 total carbon emissions are reported at each asset class level where possible and aggregated at the Scheme level. The Scheme is focused on collecting reported data for Scope 1 and 2 emissions but will use proxied data to fill in any gaps.

The metrics and methodology in each asset class have been chosen in-line with industry consensus, more information can be found in the methodologies section.

Figure 3

The following table shows the Scope 1 and 2 carbon emissions and intensity by asset class and at the total Scheme level as of 30 September 2023:

Asset Class	Scheme emissions (thousands of tonnes of CO2)	Benchmark emissions (thousands of tonnes of CO2)	Scheme Intensity (EVIC)	Benchmark Intensity (EVIC)
Public equity	172	289	46	74
Private equity	94	209	52	117
Private debt	1	5	28	117
Government bonds	TBC	TBC	11	TBC
Investment grade credit	18	34	47	78
Special situations debt	65	98	78	117
Infrastructure	77	TBC	108	TBC
Property	6	TBC	5	TBC
Shipping	15	TBC	1,003	TBC
Total*	**447**	**647**	**50**	**73**

Data in this report is based upon the best methodologies available at this point in time and may be subject to change as methodology and interpretation continues to evolve in this area.

Carbon intensity is calculated based on emissions by £m invested for all asset classes except government bonds which is based on emissions by capita. The total Scheme level intensity excludes government bonds.

Carbon data is as of Sep 23 for public equity and investment grade credit, Dec 22 for shipping, Mar 23 for infrastructure, and Dec 22 for property, private debt, private equity and special situations debt.

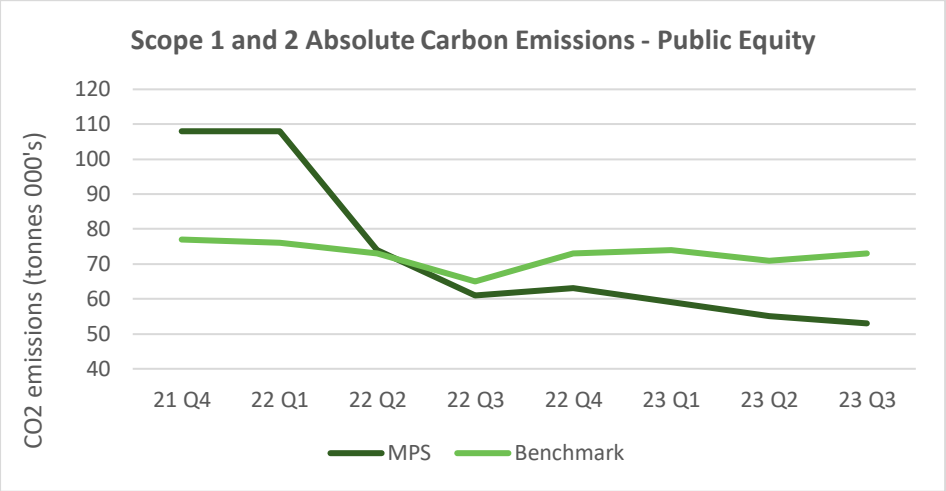
*The benchmark total is the Scope 1 and scope 2 emissions of the FTSE All World Index for the asset value we have data for.

As indicated in the above table, the Scheme' absolute emissions and emissions intensity are both lower than the relative benchmarks for each asset class as of the 30 September 2023 across all asset classes where data is available. This reflects the overlay of the climate theme across asset classes.

Whilst the Scheme has no set targets, carbon emissions and intensity have continued to fall despite the substantial increase in data coverage. This has largely been driven by a reduction in the carbon intensity of public markets as noted below and changes in allocation towards assets with lower emissions. The Trustee does not expect this fall to continue in a straight line and may make allocations to assets with higher emissions or intensity subject to being comfortable that these assets will be transitioned through time.

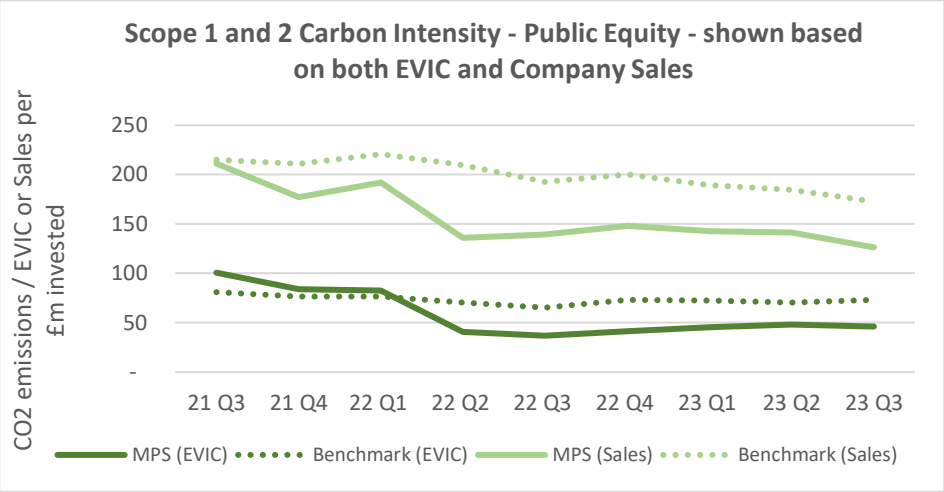
Figures 4 and 5 show the total carbon emissions and carbon emissions intensity for the Scheme's public equity at the end of each quarter from Q3 2021 when the metrics were agreed, and tracking began. Carbon intensity is shown by the chosen metric of emissions (EVIC) and also relative to sales as an additional measure relevant to these assets. In each case, changes through time are shown as well as the comparison with the relevant asset class benchmark.

Figure 4



Source: MSCI

Figure 5



Source: MSCI

Both absolute carbon emissions and carbon intensity within the public equity portfolio have fallen since tracking of these measures commenced. The trends shown in Figures 4 and 5 above illustrate the changes made to the portfolios in respect of emissions intensity since September 2021. This improvement predominantly relates to the transition of the passive mandate in Q4 2021 and the termination of AQR in Q2 2022.

In recent months, the intensity number has increased slightly, however it remains materially below the index emissions. The Scheme's emissions intensity is expected to vary up and down through time with asset class shifts, regional and sector views. For example, investing in emerging market credit is likely to increase the Scheme's emissions intensity. However, over the longer term we expect less carbon efficient companies to be penalised by markets and regulation.

Whilst the Scheme has not set a target around absolute emissions or intensity CPTI believes a fall in intensity reflects appropriate inclusion of climate risk in the approach into the management of the Scheme's equity assets.

Scope 3 Carbon Emissions

Scope 3: refers to indirect greenhouse gas emissions both upstream and downstream of an organisation's main operations.

Upstream: refers to indirect greenhouse gas emissions that occur prior to the company's operations, including those from the production and manufacture of purchased goods and services.

Downstream: refers to indirect greenhouse gas emissions that occur after the company's operations, including those from the distribution, use, and end-of-life stages of sold goods and services.

Data on Scope 3 emissions has been added for this second TCFD report as required by regulation. Currently, the Scheme is able to obtain estimated emissions on public assets only.

These emissions, constituting 92% of equity benchmarks' total emissions, encompass indirect impacts throughout a product's life cycle. Focusing solely on Scope 1 and 2 emissions may neglect supply chain issues and promote the use of opaque and lengthy supply chains by both companies and countries. Understanding Scope 3 emissions, including the full life cycle of a product, is crucial for risk management, robust corporate governance, and future planning.

Challenges: Addressing Scope 3 emissions poses challenges related to limited data access and varying methodologies across suppliers, leading to potential inaccuracies. Aggregating data faces difficulties, with upstream emissions for one company becoming downstream for another, causing double or triple counting in total portfolio emissions.

Double or triple counting is a deliberate feature of Scope 3, used to create shared responsibility – the double counting also leads to fast downward curves when emissions are cut.

Data reporting in Scope 3 is currently extremely limited. Even where data is reported methodologies vary hugely. As such, unlike with Scope 1 and 2, best practice is to use estimated, not reported data, to allow like for like comparisons.

Therefore, the approach adopted for this round of TCFD reporting on Scope 3 is to use estimates provided by MSCI. MSCI use the publicly available Greenhouse Gas Protocol (GHGP) framework for Scope 3 emissions accounting for their modelling. Estimates are used partially due to the issues covered above.

The Scheme's approach to measuring Scope 3 emissions covers only public markets as this is the current extent of MSCI's coverage of Scope 3. Fundamentally, the lack of data and coverage in other asset classes currently remains too low for inclusion into the Scheme's report.

The following two tables show the Scope 1, 2 and 3 carbon emissions and intensity by asset class and at the total Scheme level as of 30 September 2023:

Figure 6

	Public equity (£4bn)	Investment grade credit (£0.5bn)
Scope 1 & 2	172	18
Scope 3	1,470	187
Scope 1,2 & 3 Scheme emissions (thousands of tonnes of CO2)	**1,642**	**205**
Scope 1,2 & 3 Benchmark emissions (thousands of tonnes of CO2)	2,244	248

Figure 7

	Public equity (£4bn)	Investment grade credit (£0.5bn)
Scope 1 & 2	46	47
Scope 3	398	496
Scope 1,2 & 3 Scheme intensity (EVIC)	**445**	**543**
Scope 1,2 & 3 Benchmark intensity (EVIC)	570	570

Overall whilst Scope 3 emissions are high, the Scheme's emissions when including these remain below benchmark emissions. As tracking Scope 3 emissions has just begun, a trend cannot yet be shown.

Paris Alignment

In line with regulation the Trustee has added a metric to report portfolio alignment in this second TCFD report, as required.

Definition and Scheme Relevance

The Paris Agreement is a legally binding international treaty on climate change. It was adopted by 196 Parties at COP21 in Paris, France, on 12 December 2015 with the goal of limiting global temperature increases to below 1.5 degrees Celsius above pre-industrial levels. Since then, an ever greater number of countries, cities and companies have set targets or made commitments to cut emissions to align with The Paris Agreement.

Whilst the Scheme has not committed to a net zero target, the Paris Agreement remains relevant in understanding the portfolios climate transition risk. As regulation and investment patterns rapidly shift around the climate transition it is critical for investors to understand the cost and path for each

company or asset to reposition for net zero in the same way they consider other major investment scenarios.

The Trustee notes that, as with Net Zero, the Scheme is not required to set a Paris Alignment commitment although the Scheme is now required to report on the extent to which its assets are Paris Aligned or not.

The Scheme's Approach

The Trustee has chosen to calculate the extent to which its assets are Paris Aligned by using a binary target measurement. The approach taken by CPTI looks at the company/asset level within each portfolio from data provided by either MSCI or directly from the managers. For some asset classes, this is relatively straight-forward while for others it is either more complicated or in some cases not possible. More information can be found in the methodologies section.

Figure 8 below shows the current look-through level of Paris Alignment across the total portfolio as at the end of September 2023. The portfolio is currently 20% Paris Aligned. Those asset classes where Paris Alignment is not an applicable metric, such as government bonds, are marked with an asterisk in Figure 8 and these asset classes currently make up 10% of the portfolio. If we strip out these asset classes, the total alignment figure rises to 22%.

Paris Alignment is applicable to other asset classes, such as private equity, but at the time of writing there was not yet any data, these asset classes are shown as "No data available yet" alignment. Stripping these asset classes out, the total alignment figure rises to 33%.

Whilst the level of Paris Alignment appears concerning compared to the benchmark level, much of this stems from the lack of data in private assets. Looking at public assets alone the level of Paris Alignment is much closer to the benchmark level, though still lags. Within public assets our lower Paris Alignment partially stems from the Scheme's overweight exposure to emerging markets relative to the FTSE AW, particularly China. The lower Paris Alignment level also reflects the portfolio's underweight exposure to Apple and Microsoft which have SBTi approved targets and whose combined weight contributes over 8% to the benchmark's Paris Aligned exposure, versus contributing less than 2% to the Scheme's exposure. We expect to be able to report both better alignment and higher levels of data in the Scheme's next report. Through time we also expect to see the level of Paris Alignment across the portfolio increase as the managers continue to incorporate transition risk and opportunities, and as individual assets and companies make progress in clarifying their transition plans and timing.

Figure 8

Asset class	% of asset class that is Paris Aligned
Investment grade credit	45%
Property	36%
Public equity	34%
Infrastructure	13%
Private equity	No data available yet
Private debt	No data available yet
Special situations debt	No data available yet
Commodities*	--
Government bonds*	--
Other*	--
Total portfolio alignment	**20%**
Total portfolio alignment (ex. Non applicable assets)	**22%**
Total portfolio alignment (ex. Non applicable assets & no data available assets)	**33%**
FTSE All World alignment (SBTi targets)	**38%**

Source: Investment Managers/SBTi; * asset classes for which Paris Alignment is not an applicable metric.

Climate Opportunities

Though not an official metric or target, the Trustee is focused on capturing investment opportunities within the Climate Transition theme and expects these to improve returns. CPTI reports to the Trustee the level of investment in climate opportunities on a quarterly basis.

The table below shows the percentage of the portfolio that is invested in companies or exposed to climate opportunities (as defined by MSCI for public markets and direct manager input in private markets).

Figure 9

Percentage of Growth assets invested in Climate Opportunities (shown only for the asset classes invested in Climate Opportunities)

Asset class	September 2023	September 2022
Commodities	100%	-
Infrastructure	20%	19%
Public equity	14%	11%
Private equity	1%	0%
Private debt	1%	1%
Total of growth assets	**7%**	**6%**
Benchmark (FTSE AW)	12%	10%

During the year, the Scheme saw a 1% increase in exposure to climate opportunities due to a new allocation to sustainable commodities which are fully classified as climate opportunities. Further increases were seen in the public equity portfolio following increased exposure to the Low Carbon Transition Readiness passive equity portfolio, as well as the sale of the China active equity mandate which had little to no exposure to climate opportunities.

Overall, new investment in climate opportunities was limited during this Scheme year, however two new opportunities were identified, and since the end of the Scheme year an investment in listed infrastructure has now been funded. Overall, like many pension schemes, as the Scheme matures, its ability to invest in more climate opportunities may reduce. Large exposure to legacy private assets and the Scheme's requirement to reduce illiquidity also limit the ability to add to climate opportunities.

Examples of some of the Scheme's climate transition opportunities are provided in the case studies within Appendix 2.

Section 6 – Conclusion

This second statutory TCFD Report demonstrates the seriousness and commitment with which the MPS Trustee is addressing the financial risks and opportunities posed by climate change. The Trustee believes that addressing climate risk and opportunity within the Scheme's assets will be beneficial in meeting its fiduciary duty to members over the full remaining lifetime of the Scheme.

The Trustee has already taken significant steps to address climate risk and opportunity within the Scheme's assets as well as to increase the Trustee's knowledge and oversight of this area. However there remains much more work to be done to transition the portfolio to best address climate risks and opportunities. This work will take several years. The Scheme cannot move faster than the market as this could be to the detriment of members. The Trustee also acknowledges the high level of uncertainty around the data and modelling included in this report, which presents challenges to decision-making. Whilst this report has identified many areas of work in progress for the Trustee, and the industry, it is committed to continuing to develop its approach in this area, and to both challenge and partner with asset managers.

The Trustee is actively working to transition the portfolio at an appropriate pace, reducing exposure to unrewarded risks and adding to climate opportunities where this is seen to be likely to contribute to the financial return required to meet future benefit obligations. This is an ongoing process that will take several years.

The Trustee continues to make progress towards its target of significantly improving data quality on carbon emissions across the whole portfolio. The 90% target is ambitious and is unlikely to be achieved by the end of 2024, however the Trustee continues to believe this is the right target to enable it to understand its exposure to transition risk as well as the path towards reducing exposure to this risk.

The Trustee notes that carbon emissions and intensity continued to fall over the year, albeit the Scheme has set no targets here and notes that such falls may not continue in a straight line as the Trustee may make commitments to asset classes with high starting levels of emissions as long as it is comfortable that these assets will be transitioned through time.

In this second TCFD report the Trustee has reported Scope 3 carbon emissions and Paris Alignment for this first time. The level of Paris Alignment across the Scheme's asset is currently reported as low with increases expected over time, both as assets are transitioned, new investments in opportunities are made, and the level of data improves. The Trustee would expect to see Scope 3 carbon emissions fall through time as companies are pushed to take greater ownership of the impacts of their supply chains.

Governance in detail

As set out in the first TCFD report, The Trustee has an established governance framework for considering all investment opportunities and risks. The Trustee governance of climate, outlined below, was formalised in 2021 in the context of this and as an extension of existing governance arrangements. This section is largely unchanged since the Scheme's first TCFD report.

Committee of Management ("COM")

COM consists of all ten members of the Trustee board. COM retains responsibility for all key areas of policy which includes the overarching Responsible Investment ("RI") Policy. Climate has been an important theme within the RI policy and the most recent review of the policy in 2021 resulted in a dedicated section on climate (link). The key roles retained by COM are as follows:

- Managing the risk of climate on Funding Strategy.
- Approve and regularly review the RI policy, which includes a specific climate policy.
- Provide clear guidance to the Investment Sub-Committee within the Terms of Reference for overseeing implementation of COMs policy regarding climate.
- Establish climate metrics to monitor and report publicly as part of TCFD requirements. In 2021, COM agreed the following key metrics to report on:
  - Absolute carbon emissions across the portfolio.
  - Carbon emissions intensity across the portfolio.
  - Percentage of the portfolio on which acceptable (reported not proxied) carbon emissions data is available.
  - In 2023, as required by the TCFD regulation, COM also agreed to report on Scope 3 emissions and the degree of Paris Alignment across the Scheme's assets.
- Establish a climate target and report progress towards this target as part of TCFD requirements. In 2021, COM agreed the following target:
  - Increase the proportion of the Scheme on which acceptable (reported not proxied) carbon emissions data (Scope 1 and 2) is available to 90% by the end of 2024.
- Review progress against the climate data target, and whether the target remains relevant or needs replacing.
- Publish an annual TCFD Report within 7 months of the end of each Scheme year on a publicly available website, accessible free of charge.
- Ensure knowledge and understanding of climate issues across the Trustee and its advisors are sufficient to address the issues presented.

Investment Sub-Committee ("ISC")

ISC consists of four of the ten-member Trustee board and has two independent (non-voting) investment advisers. COM delegates to ISC the ongoing oversight of investment risks and opportunities, including those relating to climate. ISC is responsible for:

- Implementation of investment strategy.
- Monitoring the agreed climate metrics to be reported publicly as part of the TCFD reporting, as well as any additional metrics that ISC believe are appropriate.
- Reviewing progress against the established climate target as set out above and acting as necessary to ensure the Scheme remains on track.
- Reviewing whether the agreed climate metrics should be changed through time and making any proposals to COM.
- Reviewing the climate scenario analysis and agreeing any investment changes required as a result.

- Setting and reviewing any additional metrics relating to climate and broader ESG risks as part of ongoing investment activity; and
- Overseeing CPTI's implementation of climate risk management and opportunity capture.

Climate and broader ESG metrics are now reported in each quarterly ISC meeting pack. COM formally reviews the climate data and metrics following the end of each Scheme year.

Coal Pension Trustees Investment Limited ("CPTI")

CPTI is responsible for providing investment advice and investment management services to the Trustee. As set out in its Investment Management Agreement, CPTI is responsible for the implementation of the Scheme's RI policy, including in relation to climate and advising the Trustee on ongoing management issues. This includes:

- Ensuring climate risks and opportunities are assessed and addressed across all areas of the portfolio.
- Ensuring that the Scheme's providers are aligned in their management and reporting of climate risk and opportunity and stewardship of the Scheme's assets.
- Ensuring investment thinking is evolved to stay on top of a fast-changing opportunity set.
- Advising the Trustee on governance, risk and opportunities, metrics and targets.
- Ensuring the TCFD mandated scenario analysis is conducted; and
- Providing all required reporting and market information.

Risk management

The ISC receives quarterly information on carbon emissions data, the level of investment in climate opportunities and investment in potentially risky areas such as ESG laggards and controversies. This is discussed as part of the regular meeting agenda. The Scheme (and the market more broadly) is yet to build out an approach to systematically analyse physical risk data. Beyond these regular quantitative updates, CPTI assesses climate risks and opportunities as part of all regular review meetings with managers and any new manager due diligence. It is also a focus of all stewardship discussions. CPTI or the Trustee may also identify areas of risk and opportunities through external meetings, training and their own networks and studies. All of this is then fed back into the ongoing qualitative and quantitative evaluation of risks and opportunities.

Whilst there is no one risk indicator or target around climate change the Trustee believes through the combination of the below as well as ongoing developments a good picture of potential risk and opportunity is being built:

- Monitoring carbon emissions and intensity data on an absolute basis and versus the benchmark.
- Monitoring investment in climate opportunities.
- Monitoring exposure to laggards and controversies and engaging on these.

The Risk and Assurance Sub Committee ("RASC"), which consists of four of the ten-member Trustee board, is responsible for overseeing overall compliance with policies and risk tolerances. As above there are no formal risk limits or tolerances set for climate change. Aside from any issues raised by the sub-committees, COM will formally review climate risk annually before publishing the Scheme's TCFD report.

Knowledge, understanding and training

The Trustee is required by the regulation to have the necessary expertise in relation to climate-related risks and opportunities and to ensure adequate knowledge from those appointed to advise it. The Trustee and its advisors look to regularly enhance their knowledge in this area as detailed below. Through COM and sub-committee meetings, the Trustee will challenge CPTI to ensure it takes adequate steps to identify, assess and manage any climate-related risks and opportunities on behalf of the Scheme. The Trustee has discussed

climate change related issues at a number of ISC and COM meetings across the year.

Trustee training is undertaken at Trustee meetings, sub-committee meetings and through other external training as appropriate and is monitored through a training register by Coal Pension Trustees. Coal Pension Trustees Services Limited is the in-house executive function for the two closed Coal Industry pension schemes, the Mineworkers Pension Scheme (MPS) and the British Coal Staff Superannuation Scheme (BCSSS). CPT is the parent company of CPTI. During the last eighteen months the Trustee has had training/information sessions on climate change risks and opportunities, stewardship in this area, metrics and targets and specific investments affected. They also received externally provided legal training on TCFD regulation and their respective Trustee duties. The training register enables CPT to keep a watching brief of those subjects the Trustee Directors are voluntarily pursuing, with a view to providing supplementary training on matters of particular interest and to identify any gaps in the Trustee Directors knowledge and arrange for this to be addressed.

Further training was undertaken during 2023 on Paris Alignment and Scope 3 carbon emissions in line with the additional requirements for the Scheme's second TCFD report. This was provided by subject matter experts within CPTI.

The Trustee also has two independent investment advisors who attend all ISC meetings and provide expert investment opinions and challenge on behalf of the Trustee.

All CPTI Senior Managers and certified staff are required to fulfil training and competency requirements and are internally certified under SMCR. CPTI employees are given access to ongoing training including on climate-related risks and opportunities each year.

Methodologies

The following section goes into detail on the methodologies used to calculate the metrics relating the Scheme's TCFD report, as well as identifying the data resources used by CPTI. Any changes to methodologies or resources over the reporting year have been covered earlier in the report.

Data quality

CPTI assesses reported data coverage using information from data providers in public markets (public equity and public credit). In Real assets reported data is available on the majority of assets, received from the managers and based predominantly on actual energy use. In private equity and private debt limited reported information is available, some of which is provided by managers based on underlying company information and the remaining portion of data is approximated via proxies based on company sector and geography. The data collected is aggregated at the asset class level and portfolio level in the table above for the Trustee.

As of 30 September 2023, 57% of the Scheme's data comes from reported company or asset data. As such the actual carbon emissions of the Scheme could differ significantly from what is reported here using best estimates and proxies as well as noting the level of unreported data. That said, the most robust methodologies are being used for estimates and the Scheme has clear sight of the areas of the portfolio that are more or less carbon intensive. As some areas of the portfolio are not currently covered, the total emissions number in this report is expected to be an underestimate. Increasing data coverage and accuracy is a key focus for the Trustee. Where proxy data is used, this is based on the actual sector and regions of the assets where available and thus is expected to be an indicative (if not accurate) estimate of actual data.

Some asset classes have been excluded from the metrics and targets data due to there being no way to calculate or indeed assign emissions to commodities futures, hedge funds and cash. This is in line with DWP guidance. The reported data coverage total above excludes these assets and the equivalent figure for September 2022 has been recalculated for comparison. For the Scheme this is mainly derivative based assets such as Brevan Howard and commodities which in total represent 5% of total Scheme valuation as at end September 2023.

In the case of commodities, where investments are made through liquid futures instead of direct physical commodity purchases, determining emissions is challenging due to the absence of a specific emissions-generating entity linked to the futures. Additionally, the complex nature of measuring emissions from commodities like cotton, influenced by factors such as type, usage, and harvesting methods, coupled with a lack of sufficient data, supports the decision to exclude this asset class from total portfolio-level emissions reporting.

Similarly, hedge funds pose a challenge as there is no clear emissions-generating entity associated with instruments like rate and currency futures. Brevan Howard (the hedge fund manager) notes the absence of an industry standard for calculating emissions in the instruments they trade, reinforcing the practical impossibility of assigning emissions to this asset class.

Carbon Emissions and Intensity

While there is little ambiguity when it comes to calculating carbon emissions, there are a number of different methods for calculating carbon intensity. The Trustee have chosen to calculate intensity based on absolute emissions relative to the enterprise value of the company/asset including cash (EVIC). This metric has been chosen as it is in-line with industry consensus although there is a greater degree of variability in metrics used here versus absolute emissions and the metric used may change in future. Additional metrics are monitored where appropriate to particular assets, for example looking at intensity/sales in public equities and intensity per square meter in real estate or per unit of energy produced in certain infrastructure assets. Scope 3

emissions have been added during the last 12 months where possible – currently this is just proxy data and just for public assets.

Methodologies used for calculating carbon emissions and intensity figures differ across asset classes. These are outlined below:

Public Equity and Investment Grade

For public equity and investment grade credit Scope 1 and 2 carbon data is sourced from MSCI and is based primarily on company reported emissions with proxy data used to supplement any gaps. Carbon emissions are apportioned to the investor based on investors share of the EVIC of a company.

Property

Scope 1 and 2 property emissions are received from the managers on an annual basis and are based on landlord energy use only. Since the numbers reported in the prior year's TCFD report, the Scheme's emissions intensity remained at 23 and the absolute emissions fell slightly in line with a slight fall in the allocation.

Infrastructure

Infrastructure emissions are received from the managers on an annual basis based on reported energy use at the asset level. Since the numbers reported in the prior year's TCFD report, the Scheme's emissions intensity reduced from 122 to 113. The absolute emissions number increased due to a greater level of data coverage.

Private equity and private credit

The majority of the data currently shown is proxied data provided by Cambridge annually, based on MSCI public market equivalent emissions data applied by sector allocation of the underlying assets where available. For fund of funds (where transparency is not available) Cambridge apply an MSCI World Index proxy. We expect to use a more detailed underlying investment level measure provided by BlackRock eFront in future reports. Separately, BlackRock eFront completed the first annual data collection of ESG data from investment managers on the Scheme's behalf early in 2023, resulting in 5% reported data of private equity and 3% of special situation debt in this report. We expect this to increase in the next annual cycle.

Government bonds

Government bond emissions intensity is the emissions of a country shown per capita (source: World Bank). We do not report absolute emissions as there is currently no agreed methodology of apportioning emissions to investors.

Shipping

For shipping, data is based on asset energy consumption as provided by the manager.

Paris alignment

The approach taken to assessing Paris Alignment for each asset class is outlined below:

Public equities and investment grade credit

CPTI has assessed Paris Alignment in public markets based on a single metric: where or not a company has a carbon emissions reduction target approved by the Science Based Targets initiative (SBTi). Targets are considered science-based if they are in line with what the latest climate science deems necessary to meet the goals of the Paris Agreement. We note that using this metric alone results in a conservative final number, as a company may be aligned but not yet have had its target approved by SBTi.

Based off SBTi approved targets, the public equity portfolio is currently 34% Paris Aligned while the investment grade credit portfolio is currently 45% Paris Aligned, which compares with the FTSE All World Index alignment of 38%. It is expected that these numbers will improve overtime, both at the portfolio level and the index level. The public equity portfolio figure is also expected to rise to at least match the index over time, currently the total alignment is partially affected by exposure to emerging market equities where there has generally been a slower drive towards Net Zero to date, but where significant changes are likely to occur in the coming years. It is also worth noting that a few exceptionally large technology companies are currently skewing the index figure and that the Scheme's public equity portfolio is underweight these names relative to the index – if we were to look at an equally weighted index, the index would be 17% Paris Aligned.

Infrastructure

The portfolios infrastructure holdings exhibit varying degrees of alignment. One manager has identified their holdings as 100% Paris Aligned, reflecting investments tailored to support a low-carbon economy. Conversely, another manager has not yet conducted a formal assessment against Science-Based Targets (SBTs) for climate impact, resulting in their holdings being categorised as "Not Aligned" for the current reporting period. The Scheme is in the process of exiting some of this latter portfolio.

Real estate

Initial analysis using the Carbon Risk Real Estate Monitor (CRREM) methodology found that 42.5% of assets currently have a carbon intensity (GHG/m2/yr) below the science-based target pathway. The CRREM analysis uses 12 months of energy consumption data, which implies that it is reliant on high quality data coverage but reflects the actual emissions generated by the building. As such for some assets where data coverage is poor (e.g., tenant controlled assets), benchmarked data has been used. A key objective is therefore to enhance data quality, which may significantly change this "% Paris Aligned" over time. As part of the property manager's Net Zero Strategy in development for the portfolio, interventions will be identified and implemented to reduce assets' carbon intensity and move towards Paris Alignment for all assets over time, and improve the overall decarbonisation pathway of the portfolio. It is worth noting that the CRREM analysis was not run for assets that are being sold, and in those instances they have been assumed to already be stranded such that the percentage disclosed here still covers the whole portfolio but is a more conservative estimate.

Other asset classes

The Scheme's Private Debt, Private Equity and Special Situations Debt allocations include a large number of commitments made several years ago. These assets are in gradual run-off, and we expect much of these investments to be paid out to the Scheme over the next several years. Given this we are focusing our Paris Alignment assessment on the remainder of the Scheme's assets.

For some asset classes in which the Scheme is invested such as government bonds, securitised credit hedge funds, there is no current market accepted methodology for assessing Paris Alignment and thus these portfolios have

been classified as N/A and will be excluded from the overall calculation – noting what percentage of the total portfolio falls under this category.

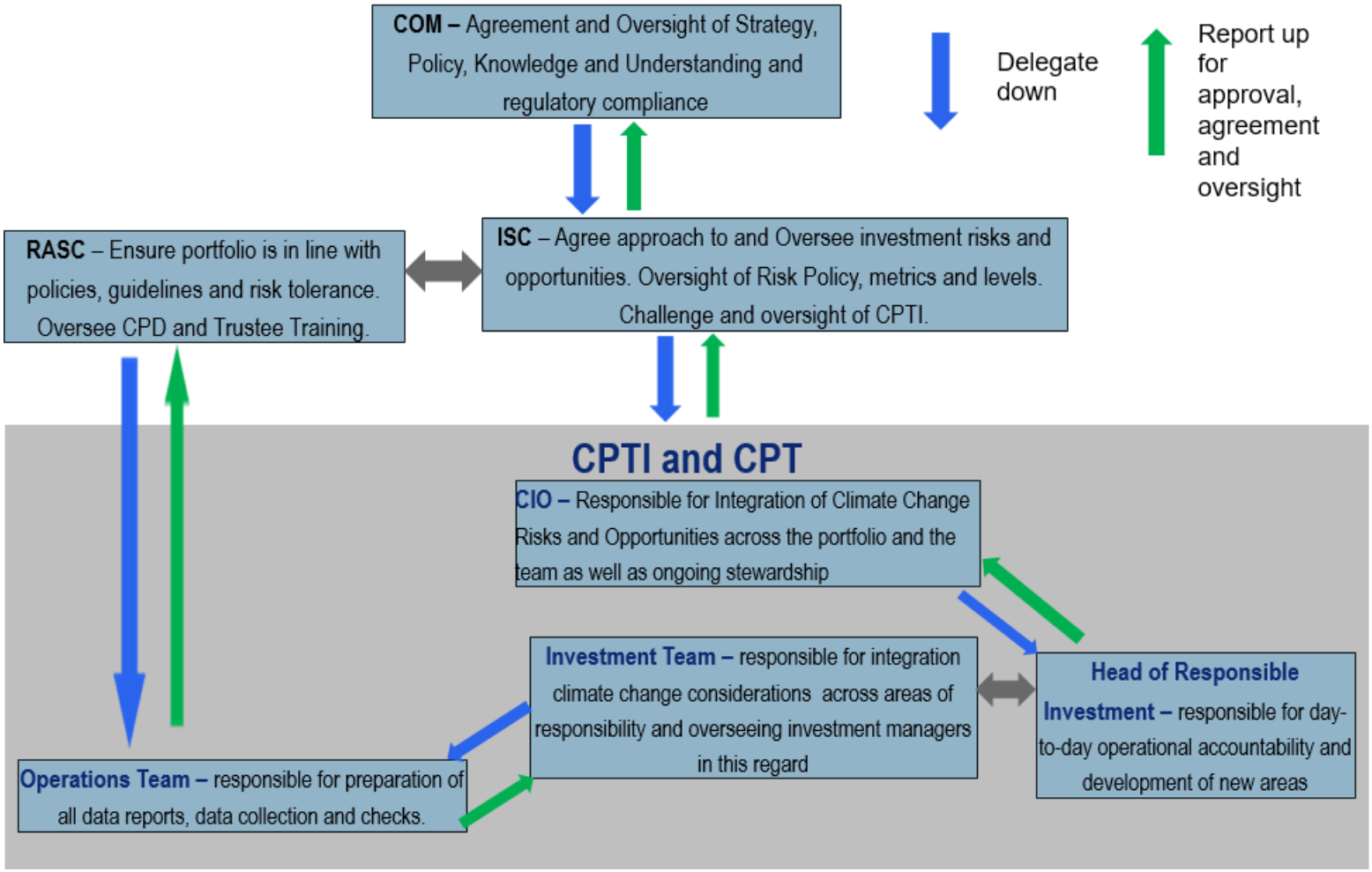
Climate opportunities

For public investments climate opportunities investment percentage is captured through MSCI data looking at the following two data sets:

- Low-Carbon Transition Solutions-Oriented Firms – companies that have the potential to benefit through the growth of low-carbon products and services due to their existing patents and technology.
- Environmental Impact Solutions – companies where at least 25% of their revenues are derived from the following themes: energy efficiency, alternative energy, green building, pollution prevention, sustainable water usage or sustainable agriculture.

For private assets, CPTI plans to manually label those investments that fall in this category until a more robust way can be implemented through a third-party data provider with sufficient accuracy. Currently for private assets, the only relevant investments are the Greencoat Solar, EDF Renewables and HyCap investments and a portion of the Newmarket Private Debt fund.

Appendix 1 – Climate Oversight Governance Structure



Appendix 2 – Case Studies on Climate Integration

Type 1 – Improvements made to the Portfolio following Work on Climate

Case Study 1: Improvement to Passive Equity

In 2021 the Scheme undertook a review of the Scheme's passive equities in light of concerns highlighted by ESG data. Whilst the Scheme's active equity managers were effectively addressing climate risk, the passive equity portfolio was exposed to a high proportion of environmental laggards, as well as controversies, and very high emitters. Clearly when bought in a passive manner these risks are not considered. Following a full review of ways to address climate risk in passive portfolios, CPTI, on behalf of the Scheme, decided that off the shelf products were not sufficiently forward looking. Instead of seeking to invest in companies making changes many climate solutions in this area just skewed the sector mix of investments to focus heavily on the lower emitting technology sector. CPTI was looking for the Scheme to retain balanced exposures across sectors, both to ensure diversification and access to opportunities, as well as noting all sectors need to transition. Investing only in current lower emissions sectors does nothing to address issues or capture the evolving opportunity set. Following a comprehensive search, CPTI, on behalf of the Scheme, appointed BlackRock to implement a climate aware passive equity solution. The LCTR (Low Carbon Transition Readiness) strategy seeks to overweight companies that are deemed more aligned with a transition to a low carbon economy and to underweight those deemed less prepared. This evaluation is done within each sector of the market so that each company is compared to its peers in that sector. At the same time CPTI, on behalf of the Trustee, appointed EOS to engage and vote for the Scheme on the whole of these portfolios.

The LCTR strategy measures companies along five dimensions of transition readiness:

1. Energy Production	Involvement in the extraction, refinery, generation and ownership of carbon emitting energy
2. Clean Technology	Involvement in renewable energy, energy efficiency, green building, low carbon transportation
3. Energy Management	Energy use, mix, efficiency and indirect emissions through electricity consumption
4. Water Management	Water consumption, withdrawal, efficiency, physical stress, and recycling practices
5. Waste Management	Company waste generation, recycling, and toxic emissions management

The portfolio targets include the following:

- Maintain a risk profile within stated ranges with respect to the benchmark. This includes holding bounds for individual security weights, sector weights, and country weights.
- Provide the greatest exposure possible to the companies that best capture the LCTR strategy's five dimensions consistent with the risk parameters for the portfolio.

One result of switching the Scheme's passive equity mandate has been a measurable drop in the carbon intensity of the Scheme's passive equities. On 30 June 2021 the Scheme's passive equity allocation had a carbon intensity value of 77.9 t/$m EVIC, but as of 30 September 2021, the Scheme's passive equity allocation had a carbon intensity value of 79 t/$m EVIC but 12 months later, following the LCTR inclusion, the carbon intensity value of the Scheme's passive public equities fell to 45 t/$m EVIC.

Case Study 2: Aligning Investment Grade Credit

During a portfolio restructure focused on cost, complexity and current strategy, CPTI reviewed how current managers were integrating climate risk and opportunity within investment grade credit. When CPTI selected the go forward manager and wrote the new investment guidelines, the manager was

required to explicitly address these issues given the lower liquidity, limited upside and relatively longer holding period in these portfolios versus equities. The new mandate CPTI has put in place for the Scheme, which was funded in August 2023, has targets for emission levels to be at maximum 70% of the benchmark. As of 30 September 2023, the portfolio emissions for the BlackRock investment grade credit mandate are at 60% of the benchmark.

Case Study 3: Climate and China

CPTI was previously invested with a quantitative manager in China. The portfolio operated based on quantitative drivers. In 2021 CPTI, on behalf of the Trustee, decided to terminate the position in this China A fund. Whilst this review reflected a number of factors including cost, diversification and a changing view of the appropriateness of a quant-based approach to a high-risk region, the managers approach to climate risk and opportunity was also a key factor as well as their limited stewardship in this area. As of 30th December 2021, the quantitative China portfolio had the public equity portfolios worst Carbon Intensity value of 401.3. To put this value into context, the next worst performer in regard to Carbon Intensity had a value of 205.2 t/$m EVIC. The quantitative approach taken incorporated no view or consideration of climate risk. This mandate has now been fully exited.

Case Study 4: Real-Estate – Delancey Appointment

On 1 December 2022, Delancey Real Estate Asset Management (DREAM) was appointed by CPTI, on behalf of the Trustee, as investment manager for the MPS portfolio. DREAM already had a Responsible Investment strategy in place, but through engagement with CPTI, key ESG process and performance criteria were agreed as part of the property investment management agreement for the MPS portfolio. Specific emphasis was placed on climate change risk in the form of physical and transition risk assessments for all assets, which will feed into asset-specific action plans, supported by emissions data collection, and target setting. A key commitment is around emissions data coverage, whereby DREAM is aiming to achieve 90% coverage of carbon emissions of the assets by 2025. Additionally, occupier, supplier, and community engagement were agreed as key focus areas for the management of the portfolio.

In the period since Delancey were appointed, the management team have focused on several ESG initiatives to support the Scheme objectives:

- **ESG Data Quality and Coverage:** At the back of discussions with market participants and different ESG data solution providers, DREAM contracted a third-party ESG data platform to help manage the ESG data of the portfolio. DREAMs Responsible Investment and Asset Management teams have been focused on collaborating with property managers, tenants, and sustainability consultants to improve the data collection process and data quality over time. By September 2023, DREAM had collected 79.5% of Scope 1 and Scope 2 emissions data for the portfolio. The tenant engagement workstream also yielded some results, with 16.4% of tenant electricity and 12.3% of tenant gas data being received. The teams are continuing with the tenant engagement work and exploring data automation solutions to help increase both coverage and quality in the next reporting period.

- **Physical and Transition Risk:** To ensure transparency and consistency in the approach across the portfolio, DREAM has been working on updating the physical risk assessments and conducting new transition risk assessments for all assets in the MPS portfolio. The findings from these assessments feed into the Sustainability Action Plans for the assets alongside the emissions data. As the next step in the strategy, DREAM will be conducting Net Zero Carbon audits for the most exposed and emissions intensive assets such that the most cost effective and impactful solutions can be implemented. The Carbon Risk Real Estate Monitor (CRREM) analysis conducted by DREAM found that 42.5% of the MPS portfolio currently is aligned with the Paris Agreements science-based decarbonisation pathway.

- **ESG Capabilities:** In order to keep up with the rapidly evolving ESG landscape, DREAM created an ESG skills strategy, which ensures all employees are provided quarterly training sessions on various ESG topics at minimum, with other ad hoc sessions for specific teams. Since DREAMs appointment, sessions have included deep dives on Net Zero Carbon and climate transition risk, Responsible Investment processes, as well as a dedicated online training module on climate change risks and opportunities for the built environment. The Asset Management team held a session on Biodiversity Net Gain Regulation – which members of the CPT team also attended – and sessions on Electric Vehicle Charging and Energy Efficiency Standards. DREAM also provided DEI related training sessions including Dismantling Bias, Working with Inclusion and Respect, and partnered with schools through the Academy of Real Assets to engage with young students on what working with sustainable real estate entails. In the coming year, sessions will be held on topics such as Social Value and Modern Slavery.

Type 2 – Climate Transition Opportunities

The Scheme has begun identifying attractive opportunities to invest for members which have been created by the ongoing climate transition. We have detailed several of these below.

Case Study 1: Climate Opportunities Mandate in Public Equities - Ninety One

As part of the work around the climate theme, CPTI identified a significant opportunity to invest in climate opportunities in public equities. CPTI wished to implement a mandate focusing across the full spectrum of this theme from energy transition to waste management to the future of food. Additionally, CPTI identified opportunities in both growth companies and value companies who are transitioning their model to align with the transition.

After a thorough selection process, the Scheme appointed Ninety One to run this mandate. Ninety One is an Anglo-South African asset management business, based in London and Cape Town and dual-listed on the London Stock Exchange and the Johannesburg Stock Exchange. At the start of 2022, the Scheme invested c.£181 million in the climate opportunities mandate. The mandate aims to outperform broad global markets over the long-term, whilst also delivering a quantifiable impact through both carbon savings and company engagement. The aim is to invest in companies that will deliver strong and sustainable long-term returns through exposure to decarbonisation, including renewable energy, electrification, and resource efficiency.

Three examples of the companies that we invest in through this mandate are outlined below.

i) Trane Technologies

Trane Technologies is a leader in the heating, ventilation and air conditioning (HVAC) sector, which accounts for a significant amount of energy used in buildings due to aged equipment, high global warming potential (GWP)

refrigerants and low-efficiency systems. Overall, the built environment generates nearly 40% of annual global CO2 emissions. Trane is the leader in system integration for commercial customers (i.e., it links systems such as HVAC, lighting and security in a building), helping them optimise energy efficiency. It has an aggressive decarbonisation target, the Gigaton Challenge, aiming to reduce customers carbon footprints by 1 gigaton of CO2e by 2030. This is among the largest climate commitments made by a business-to-business company. In its emerging thermal management business, Trane is well placed for the transition from oil and gas boilers to heat pumps, electric heating and district heating, and from high- to low-GWP refrigerants.

Trane's growth is underpinned by the need to address the 15% of global emissions generated by the heating and cooling of buildings. With 70-80% of revenues driven by replacement demand, Trane's primary structural-growth driver comes from replacing older, less-efficient equipment, which often uses potent greenhouse gases. Several regulatory tailwinds are benefiting Trane. These are phased over different periods, which means that regulation should be a consistent support for some years. The tailwind from the American Rescue Plan Act (which is directing funds to improving HVAC systems in schools) should last another year; the Inflation Reduction Act is expected to start having a positive impact from Q4 2023; and Trane should also benefit from the EU Green Deal (which aims to accelerate building renovation and digitisation). Finally, the Montreal Protocol (which will reduce the sale and use of high global-warming potential refrigerants) should also support demand for energy-efficient products.

ii) Sungrow

Sungrow is the world's largest manufacturer of solar inverters, a crucial part of a solar power plant. In 2022, the company shipped 77GW of solar inverters, representing a >30%+ global market share. Sungrow is also a leader in energy-storage systems, solar-power project development and wind converters, with additional product capabilities in electric-vehicle (EV) charging and hydrogen electrolysers. All of Sungrow's business segments directly contribute to global decarbonisation.

Sustainable decarbonisation requires a rapid transition towards renewables. Sungrow benefits from global solar demand growth and increasing adoption of energy-storage systems, highlighted by its 5-year per share compounded growth rate of 34%. Its annual solar inverter shipments increased to 77GW in 2022 from 17GW in 2019, representing a >30% market share globally. Energy-storage systems shipments, which were close to zero three years ago, were 7.7GWh in 2022. In the next 10 years, we forecast 14% and 26% revenue CAGR for these two businesses, respectively, and a 16% CAGR for Sungrow overall.

iii) Contemporary Amperex Technology (CATL)

Contemporary Amperex Technology (CATL) is the largest electric vehicle (EV) battery and energy storage system (ESS) battery manufacturer globally. The company has industry-leading profitability and directly contributes to the global transition to EVs and renewable energy. In 2022, CATL shipped 192GWh of EV batteries, equivalent of 3.7m EVs and plug-in hybrids. In the same year, CATL also shipped 47GWh of energy-storage system batteries, which equates to 38% of the global market.

Sustainable decarbonisation requires a rapid transformation towards EVs and renewables. EV batteries are a direct beneficiary of increasing EV adoption, while energy-storage systems help address the intermittency of renewables. By 2030, we forecast EV penetration to reach >40% from 12% in 2022, driving >3TWh of battery demand. Our forecasts suggest demand for energy storage systems will grow from 87GWh today to >1TWh, both from rising attachment rates (more renewable-power systems being installed with a battery) and strong demand for standalone energy-storage solutions. At end-2022, CATL had generated 1-year revenue growth of >140% and a 5-year CAGR of almost 70% on a per share basis. We expect >20% compounded growth in EV battery volume shipments and >30% growth in energy-storage system batteries out to 2030.

Case Study 2: Private Equity

Private equity arguably provides the Scheme with the best opportunities to invest in companies early in the growth journey which can deliver high multiple returns to the Scheme. Within the Scheme's private equity portfolio, the managers have identified a number of very attractive opportunities presented by the climate transition. These companies represent both a chance for significant financial gains but also the opportunity to solve some of the problems currently impeding the transition. Examples are outlined below:

i) Cinven: company investments – Amara

During 2023, Cinven acquired Amara NZero. Founded in the 1950s as a subsidiary of Iberdrola, a Spanish utility company, it has been an independent business since 2017. It focuses on the sustainable energy segment and is a key contributor to the transition to a low-carbon economy. It operates in Spain, Italy and Brazil and is growing in Mexico, the US and other countries, serving as a value-added supply chain partner for suppliers and clients, distributing full solar photovoltaic kits (panels, inverters, batteries and structures) to its client base. Other products include smart grids, electric vehicle charges and wind spare parts. It serves a base of more than 4,000 installers, the majority of which are SMEs supplying the residential and smaller commercial end-markets. Cinven will continue to grow the company through international expansion and buy and build opportunities.

Case Study 3: Greencoat Solar Fund II

In 2018 the scheme made a £70m commitment to Greencoat Solar Fund II. The Fund was formed to primarily acquire and manage a portfolio of ground mounted solar panels in the UK with the objective of providing stable cashflows and inflation protection over a long-term horizon. The Fund has built a portfolio of 119 assets with an installed capacity of 949MW, generating sufficient power for 262 thousand homes and has avoided generating 304k tonnes of carbon emissions in the process of doing so.

Case Study 4: Listed Infrastructure

In 2023, the Scheme agreed to invest in a new mandate focusing on listed infrastructure. The investment proposition is grounded in the belief that by investing in companies exhibiting significant capex investment and faster growth in asset bases (which should lead to subsequent higher future earnings) this should result in higher returns than the existing public equity portfolio while capitalising on the Scheme's climate change/energy transition theme. The mandate will focus on electrification, renewables and data infrastructure and is expected to generate higher income than other active equity mandates, while providing downside and inflation protection. BlackRock was appointed to manage the mandate and investment was made in October 2023.

Case Study 5: Emerging Market Debt

In 2023, the Scheme agreed to invest in a new mandate focusing on Emerging Market Debt. Approximately 6.4% of the new portfolio will be designated labelled bonds e.g. green bonds or sustainably linked bonds.

Type 3 – Climate stewardship

Stewardship of assets is a key tool to address risk and ensure opportunities are developed for the Scheme. The Trustee has a core belief in stewardship and is a signatory of the UK Stewardship Code. Climate change is a key stewardship priority for the Scheme as discussed in the body of this TCFD report.

Case study 1: Stewardship in public markets

EOS company engagements

EOS is the Scheme's Stewardship overlay provider.

i. Westpac

Rationale: EOS' engagement with Westpac, initiated in 2019, stemmed from a heightened focus on climate change and the role of banks in aligning with a 1.5°C Paris Agreement pathway. Despite Westpac's historical leadership in climate change, the absence of specific targets for reducing fossil fuel exposure raised concerns. EOS aimed to challenge and encouraged the bank to adopt more ambitious strategies, particularly in line with the Paris Agreement goals.

EOS' Actions: In 2019, they recommended support for an advisory shareholder resolution, urging Westpac to disclose its strategies for reducing fossil fuel exposure, including the elimination of thermal coal exposure in OECD countries by 2030. This recommendation was reiterated in 2021. Face-to-face meetings, including one in August 2022, were conducted to press Westpac on disclosing more robust targets.

Outcomes and Next Steps: Westpac responded positively by committing to a 1.5°C Paris Agreement-aligned pathway. In 2022, the bank joined the Net Zero Banking Alliance (NZBA), committing to set emissions reduction targets for carbon-intensive sectors within 18 months. The bank pledged to phase out lending to companies with >5% revenue from thermal coal mining by 2030. Additionally, it committed to a 23% reduction in Scope 1, 2, and 3 absolute financed emissions by 2030.

The bank's detailed paper on target establishment and actions taken was deemed satisfactory. Targets for carbon-intensive sectors were welcomed, and ongoing engagement was planned to review new targets. Corporate lending will continue if customers have credible transition plans by 2025, with transparency on assessment processes. Further engagement will focus on evidence of robust processes for assessing customer transition plans and the publication of a report based on the Taskforce on Nature-related Financial Disclosures (TNFD) framework released in September 2023.

ii. Sika

Rationale: The engagement with Sika AG began in response to the company's limited focus on climate impact, reporting, and targeting only its Scope 1 and Scope 2 emissions reductions targets in 2021. Recognising the potential significant climate impact in its supply chain and customers product use (Scope 3 emissions), EOS urged Sika to broaden its assessment and targets to include these aspects, aligning with a more comprehensive approach to climate responsibility.

EOS' Actions: They challenged Sika AG to delve into its Scope 3 emissions, particularly those related to its supply chain and the use of its products by customers. The company acknowledged the need for this assessment and confirmed the initiation of an internal analysis of its Scope 3 emissions, though the details were not publicly available at the time.

Outcomes and Next Steps: By the end of 2022, Sika AG completed a two-year initiative to systematically identify, calculate, and report its material Scope 3 greenhouse gas emissions. This revealed that 56% of emissions were linked to purchased goods and services, and 29% were related to product end-of-life and disposal. The company externally assured its 2022 Scope 1, 2, and 3 emissions figures and set emissions reduction targets for 2032 and 2050,

aligned with a 1.5°C Paris Agreement pathway. Sika committed to having these targets validated by the Science Based Targets initiative.

The engagement, marked as completed in March 2023, continues with a focus on further disclosure, particularly concerning hazardous chemicals production and supply chain due diligence. Ongoing dialogue aims to enhance transparency and responsibility in these areas.

iii. Baillie Gifford – Amazon

Baillie Gifford is the Scheme's public equities manager focussed on long-term Global growth.

Rationale: Since 2004, the engagement with Amazon has covered various issues, with recent emphasis on climate change alignment. Amazon committed to The Climate Pledge in 2019, aiming for net-zero carbon by 2040, net-zero shipments by 2030, and 100% renewable energy by 2025. However, Amazon's decision to step back from the Science Based Targets initiative (SBTi) in 2023 raised concerns.

Baillie Gifford's Actions: Despite Amazon's withdrawal from SBTi, the manager views it as a credible standard and raised concerns about the shift during engagements in September and December 2023. Additionally, discussions centred on the narrow boundary of Amazon's chosen Scope 3 emissions, representing only 1-2% of sales. The manager urged Amazon to expand the boundary to include all first-party platform sales, fostering broader engagement with suppliers.

Outcomes and Next Steps: The engagement continues, and the manager was invited to Amazon's shareholder roundtable on ESG topics in December 2023. Reassurance was gained that feedback is considered, and expectations for progress in 2024, particularly on extended supply chain standards, were expressed. Engagement also included discussions with the Public Policy Director for Global AI. Overall, Amazon's considered approach, openness to challenge, and continual improvement in disclosure were noted and appreciated.

iv. Ninety One – NextEra

Rationale: NextEra Energy, a major player in the electric power and renewable energy industry, was engaged by Ninety One on environmental, governance, and social/ethical objectives. The engagement included a joint effort with a US asset owner on Scope 3 emissions reporting and subsequent discussions on supply chain decarbonisation. Additionally, direct engagement took place due to allegations of the previous CEOs political involvement in the Florida Senate elections.

2023 Engagement Goals:

- Reporting Scope 3 emissions.
- Science-based targets.
- Independent chair.
- Diversity and inclusion.

Ninety One's Actions:

Scope 3 Emissions & Supply Chain Decarbonisation: Collaborative engagement involved an in-person meeting and a joint letter emphasising the benefits of Scope 3 reporting and targets, particularly in the supply chain. Discussions also touched on NextEra's role in the US green hydrogen opportunity. A Q4 meeting with NextEra's CEO delved into decarbonising upstream emissions, notably those from steel use.

Political Involvement/Lobbying: Separate engagement, including an in-person meeting with the CFO, focused on issues related to the former CEO's political involvement in Florida Senate elections.

Outcomes and Next Steps:

Scope 3 Emissions & Supply Chain Decarbonisation: NextEra has shown progress in CDP reporting, carbon avoidance, and its Real Sero plan targeting carbon neutrality by 2045 without offsets. While the company is considering science-based targets, Ninety One encourages quicker progress. Positive outcomes include NextEra's interest in further engagement on supply chain decarbonisation, with a focus on decarbonising the steel supply chain.

Political Involvement/Lobbying: NextEra underwent a comprehensive review, making governance improvements and personnel changes following the former CEO's political involvement. Ninety One acknowledges errors in judgment but sees positive steps, such as revamped hiring processes and a new internal committee overseeing donations.

Next Steps: Continued engagement with NextEra on supply chain decarbonisation, embedding Scope 3 emissions targets, and monitoring regulatory developments in green hydrogen for the steel sector. Recognition of NextEra's efforts to address governance issues related to political involvement.

v. Case study: Ninety One – Croda

Rationale: The engagement with Croda aimed to understand their contributions to sustainable practices, particularly in their new flavours and fragrances business acquired in 2020 and 2021.

Ninety One's Actions: They conducted onsite visits to Croda's manufacturing plants in Spain and the UK in the second and fourth quarters of 2022, respectively. These visits focused on understanding the chemical production process, research and development facilities, and the contribution of recent acquisitions to environmental sustainability. Discussions with Croda included topics such as bio-based feedstocks, research and development pipelines, and emission calculations. Additionally, Ninety One engaged with the Managing Director of Croda's crop protection business to discuss land/biodiversity targets, including the Land Positive Commitment and the company's efforts to become "nature positive."

Outcomes and Next Steps: The site visits enhanced Ninety One's understanding of Croda's commitment to decarbonisation and the challenges and opportunities in the chemical sector. Confidence was gained in Croda's ability to meet ambitious goals, including increasing bio-based feedstock and reducing upstream Scope 3 emissions. The discussions on land/biodiversity targets led to a better understanding of Croda's methodology and goals, with ongoing monitoring planned for 2023. The engagement highlighted Croda's early-stage efforts to develop a science-based target for its impact on nature. Further disclosures and follow-up discussions are expected, especially regarding emission baselines, calculations, and the company's exposure to biologically sensitive areas, which Ninety One will continue to monitor in the coming year.

vi. Investment Grade Credit manager – BP

Rationale: The engagement with BP aligns with the Oil and Gas thematic, recognising the significant role major companies play in the transition to a net-zero world. Understanding the transition strategy of each company is crucial for portfolio investment decisions.

Manager's Actions:

- The engagement was carried out by the Fixed Income ESG team.
- Q2 2021: Initiated regular engagement with BP's funding and ESG teams to exchange views on ESG strategy. BP provided updates, and the manager explained how ESG is integrated into client funds.
- Q3 2021: As BP's business model shifted, the company determined that they needed to change their funding mix. The manager offered anchor support for a longer duration multi-currency transaction in September 2021.
- Q4 2021: BP sought feedback from the manager on improving access to longer duration markets to support their transition.

- Q3 2022: Discussions with BP focused on the measurement of scope 1,2, and 3 emissions, with the manager emphasising the importance of clarity in transition planning.
- Ongoing: Periodic engagement to ensure BP's strategy continues to align with the company's stated long-term commitments.

Outcomes and Next Steps: The manager consider the company to have positive externalities. The engagement and understanding of BP's transition strategy have led to comfort in owning longer-dated BP transactions, provided they are appropriately priced. This approach enables capturing inefficiencies in pricing.

Case study 2: Stewardship in Private Equity

The Scheme has committed capital to a diverse selection of managers over a long period. Climate change, net zero, broad-ESG and diversity all continue to be a focus of our stewardship in PE in ongoing reviews and in particular where CPTI are part of Advisory Committees. In private equity, investments in funds and co-investments are regularly evaluated. For example, consideration of ESG factors for both fund and co-investment opportunities is a critical input to the due diligence and monitoring process as well as in the ongoing stewardship. Many of MPS private equity investments were made at the recommendation the PE advisor Cambridge Associates, who has functioned as a steward of the underlying assets on the Scheme's behalf and raised any queries or challenges with the underlying manager. Through its own LPAC seats, MPS is also able to engage more deeply with the PE manager and encourage best practices.

Examples of the ESG approach in this area are detailed below: Cinven Fund 7, in which MPS is an investor, was awarded top 40 ESG innovator by Real Deals early in 2023; the firm has made material efforts to enhance its ESG function and introduced a standalone ESG Value Creation Playbook. It also made use of a sustainability-linked loan at the firm level with its interest rate linked to annual performance targets centred on diversity, decarbonisation and ESG governance. Additionally, Cinven co-led the Climate Change Working Group, developing a carbon valuation guidance framework for the private equity industry. Good progress was made throughout the portfolio in 2023, with 90% of portfolio companies reporting GHG emissions, more than half have in place or are developing a decarbonisation plan, and two thirds are using renewable electricity. In 2022 Cinven further strengthened its climate strategy by setting a target for 100% of eligible portfolio companies to set a Science Based Target by 2030 and continues to make progress towards this; additionally, it has set a target for a 42% reduction in its operational emissions (Scope 1 and 2) by 2030. Following a carbon footprinting review of the portfolio in 2022, Cinven found that 85% of its emissions come from four portfolio companies due to their production processes and value chain. Cinven is working with these companies to actively manage their emissions. Support across the portfolio includes helping companies to source renewable electricity, improve energy efficiency and build action plans to decarbonise.

The Scheme is also an investor with venture capital firm Balderton. Balderton has taken its own approach to ESG governance and set its Sustainable Future Goals in 2021 which it uses to support and guide its young and growing portfolio companies. Alongside this, the firm has run sessions for VentureESG, is a member of the UNPRs working group focused on venture capital and a working group formed by ImpactVC. There are multiple examples of portfolio company investments throughout the portfolios that are aligned with the firms SFGs, including Sweep, which works with FTSE-500 companies to build science-based and data-driven climate programmes that respond to the climate emergency and anticipate upcoming sustainable reporting regulations.

Case study 3: Stewardship in Infrastructure – Greencoat Solar Fund II

During 2023 the Scheme made no new infrastructure commitments but continued to work with its incumbent managers to monitor climate-related topics. The Scheme has invested in Greencoat Solar II LP, which is invested across a diverse portfolio of 119 solar farms (plus 2 in construction) in the UK, with aggregate generating capacity of 949MW. The portfolio could power the

equivalent of 262,000k homes and has contributed to the avoidance of 304,000k tonnes of CO2. CPTI notes the manager's commitment to renewable infrastructure throughout its business lines and how it has improved its ESG processes including a Scope 3 emissions reduction plan, focusing on the supply chain through formal supplier monitoring and reducing risks associated with modern slavery. The manager has increasingly improved its measurement and tracking of ESG performance, culminating in its fourth annual ESG report at the end of 2023. Solar II is SFDR Article 9 regulated, NZAM committed and has submitted GRESB. The ESG Framework focuses on nine areas including enhanced TCFD questions and monitoring of biodiversity, environmental impact and climate risk. The manager will hold workshops with portfolio companies to share best practices and enable collective learning. The Scheme continues to work with Schroder Greencoat to improve its emissions reporting.

Case study 4: CPTI Stewardship in Property – Delancey Real Estate Asset Management

As discussed in the Scheme's last TCFD report, CPTI's own stewardship of the Scheme's real estate assets led to a change in property manager, a project which involved in depth engagements between CPTI and prospective managers. CPTI also engaged at length with Delancey regarding an insufficient level of insight and planning on climate, which CPTI is pleased to now report that Delancey very quickly took the feedback on board and made significant steps toward delivering excellent plans on all points discussed.

Case study 5: Property Stewardship (Delancey Real Estate Asset Management) – Trafalgar Trading Estate, Enfield (Industrial)

In 2023, Delancey instructed a refurbishment for Unit 9 at Enfield. The Unit already has an EPC B rating, but in order to reduce operational emissions, all gas heating systems will be removed and capped and replaced with electric panel heaters and a new air sourced heat pump VRF system installed. The refurbishment will also see improved insulation through replacing the existing single glazed timber windows with new double glazed aluminium windows.

Along with the above, the refurbishment will also focus on circularity and minimising the use of materials. The below sets out items which Delancey are trying to re-purpose in order to reduce the footprint of the refurbishment:

- Existing doors will be retained and re-purposed where applicable.
- Existing ceiling tiles to the first floor office will be greatly retained and replaced where necessary.
- Existing first floor office lighting and warehouse lighting will be retained, and new lights to be added where necessary.
- Kitchen units will be retained instead of full replacement.
- Delancey have specified new Interface Transformation carbon neutral carpet flooring.
- All existing sanitaryware will be retained instead of full replacement.

Appendix 3 – Scenario Analysis

The Trustee has reviewed the analysis and concluded that it would not conduct new scenario analysis in the 2023 Scheme accounting year since the results would not be significantly different and the available models remain flawed, particularly in relation to modelling physical risk. The Trustee agreed to instead wait for the availability of new or improved scenarios or modelling capabilities, or events that might reasonably be thought to impact key assumptions underlying scenarios. The decision to conduct new scenario analysis will be revisited again in 2024, however as required new scenario analysis will be undertaken by 2025.

Approach

Understanding the performance of the Scheme's assets under various scenarios is a key part of the risk management and asset allocation approach. This applies to climate in the same way as inflation or recessionary scenarios are considered. The approach here is both quantitative where possible, understanding both risks and opportunities, and also qualitative in understanding how different assets may be positioned.

In terms of quantitative analysis, after reviewing a variety of providers and observing what other schemes had done, consultant Mercer was commissioned to undertake the first climate scenario analysis for the Scheme in 2021. Mercer was able to consider the whole portfolio for the analysis albeit proxies based on rough asset class definitions were used for private assets.

Scenario Analysis Methodology and Caveats

Mercers model works as follows:

1. Third party Cambridge Econometrics delivers assumptions on transition and physical damages inputs across different regions.
2. Each asset class and sector are linked in the model to an economic variable e.g. GDP and assigned a sensitivity to that variable. The model matches each risk factor (spending for transition or physical damages) to specific sectors and regions.
3. The risk factors and risk sensitivities are then applied to the portfolio under each scenario.

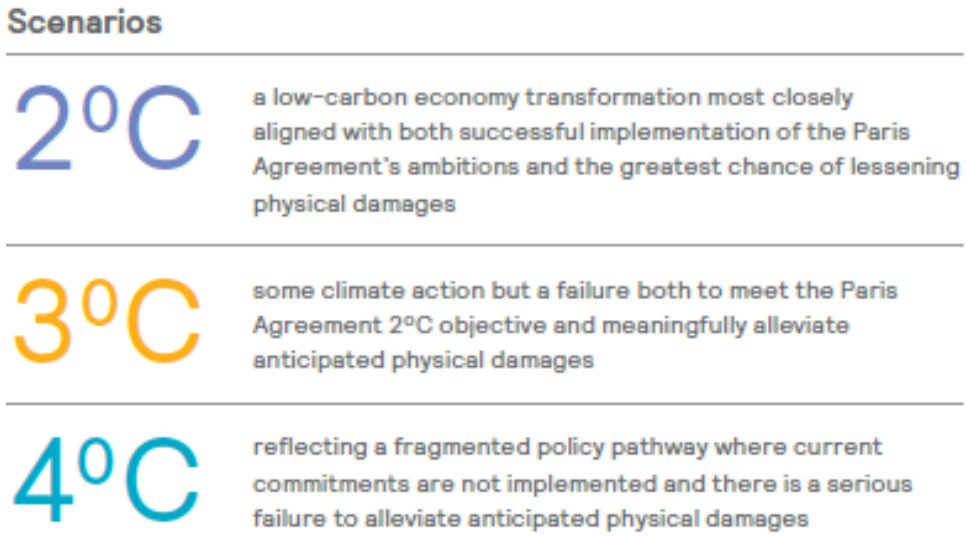
There are a number of things that have not been included in the model. Additionally, whilst this was a leading model as recently as last year, the methodology and data used is now somewhat dated in this fast-evolving area. Mercer is in the process of updating the model and data and expects a number of key changes. The following key limitations and aspects not covered in the model are:

- Physical impacts are underestimated (e.g., feedback loops like permafrost melting).
- Financial stability and insurance "breakdown" (e.g., systemic failure, inevitable policy response and uninsurable 4^0C).
- Most adaptation costs and social factors are not priced (e.g., population health, migration).
- Multi decade timeframes and mean returns used here lead to small average impacts rather than true stress tests. All of the caveats above also mean the impacts to our scheme of physical damages in particular are likely to be underestimated.
- The impact on future pension payments (i.e., the Scheme's liabilities) were not directly included in the model.

Given the above, in taking conclusions as discussed below, CPTI has advised the Trustee to focus on relative impacts and whether impacts are positive or negative, rather than the specific numbers in which we have low confidence and are likely to change each time we present this.

Chosen scenarios

The below figure summarises the three scenarios used for the analysis. The first scenario reflects a successful transition, limiting temperatures by the end of the century (albeit not keeping temperatures below 1.5 degrees) and the other two show increasing impacts of physical damage.



These scenarios were chosen in line with regulatory requirements and also to address the key areas of risk and opportunity. The lower temperature scenario demonstrates greater transition risk and opportunity, and the higher temperatures incorporates greater physical risk. While a 1.5-degree scenario was not run, the effects are expected to be in the same direction but of greater magnitude to the 2-degree scenario.

Results

Some of the result from the scenario analysis undertaken by Mercer are shown over the next pages. In each case Mercer have modelled the cumulative impact of different regulation, price change or physical events occurring vs not occurring.

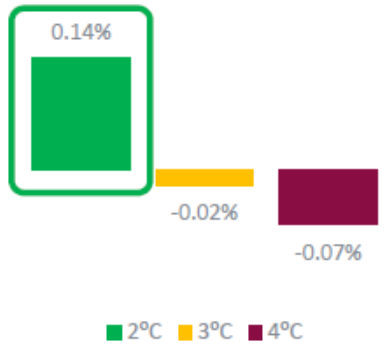
The first figure below shows the per year impact of the 2 degree (successful transition) and two unsuccessful, physical impact scenarios. The figure shows the performance impact of the scenarios on the total portfolio, these are assumed to be experienced every year for the whole period and so in aggregate are much larger than the single year impacts shown. While the analysis here shows the impacts smoothed over a long period, we expect many physical risks to impact prices in this decade (i.e. before 2030) and thus will impact our assets. The transition will also happen (or fail) this decade. As such the longer dated time frames remain relevant even though much of the Scheme's liabilities will be paid sooner. In the two-degree scenario, the portfolio benefits from an additional return of 0.14% per annum based on the asset allocation at the time of analysis. The 3 degree and 4-degree scenarios both detract from performance.

Total Portfolio to 2030 and 2050, Annualised

The results emphasise the physical damages risks and why a below 2°C scenario is most beneficial, and the 4°C and 3°C scenarios are to be avoided, from a long-term investor perspective.

SAA – 2030

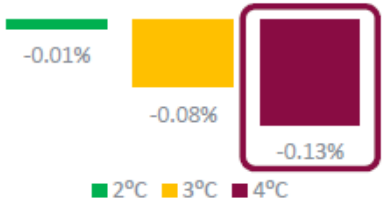
Under 2°C to 2030, the SAA is expected to benefit from the low carbon transition. This provides a +1.7% return benefit, on a cumulative basis.



Climate change impact on return (% p.a.)

SAA – 2050

Under high carbon scenarios to 2050, particularly 3°C and 4°C, physical risks act as a negative drag on returns. Fund returns are expected to degrade by -4.1% on a cumulative basis.



Climate change impact on return (% p.a.)

The Coal Pension Scheme SSS Fund has exposure to infrastructure, which is driving the positive result under 2°C to 2030. In general, the positive expectations for infrastructure are given the more stringent climate change policy in this scenario driving a period of significant investment in this asset class. Mercer also expects exposure to clean technology innovation and renewable assets in most infrastructure allocations under a low carbon transition.

The above green bars for the 2-degree scenario indicate that in a transition our infrastructure assets will do well through the period to 2030. The numbers are smaller to 2050 as results are just averaged over a larger number of years. The yellow and red bars show that physical damages will hurt our portfolio in the period to 2030 and 2050 – the 2050 bar is bigger as more damages are modelled to happen by this period. The numbers above are due to happen each and every year so for the left chart need to be multiplied by nine for the total effect and the right chart need to be multiplied by twenty-nine for the total effect. Whilst the total numbers are bigger, we still expect these to be an underestimation.

This next figure shows how the portfolios SAA at time of analysis compares with what Mercer defines as a sustainable portfolio – one tilted to benefit from the climate transition. The Sustainable portfolio performs much better in the transition scenario and no worse in the other two scenarios. Again, these performance amounts are expected to occur each and every year for the time periods shown and so the aggregate numbers will be much larger. So, to 2030 the sustainable portfolio is expected to perform better than the current portfolio by 7% under a successful transition scenario.

The analysis shows the limited downside risk of 2°C scenario aligned investment, vs 4°C aligned 'business as usual' investment, as the modelled portfolios are similarly impacted under a 4°C scenario.

		SAA	SUSTAINABLE PORTFOLIO
		Climate change impact on return (% p.a.)	
2°C	2030	0.14%	0.72%
	2050	-0.01%	0.37%
	2100	-0.06%	0.11%
3°C	2030	-0.02%	0.04%
	2050	-0.08%	0.03%
	2100	-0.12%	-0.04%
4°C	2030	-0.07%	-0.06%
	2050	-0.13%	-0.10%
	2100	-0.19%	-0.14%

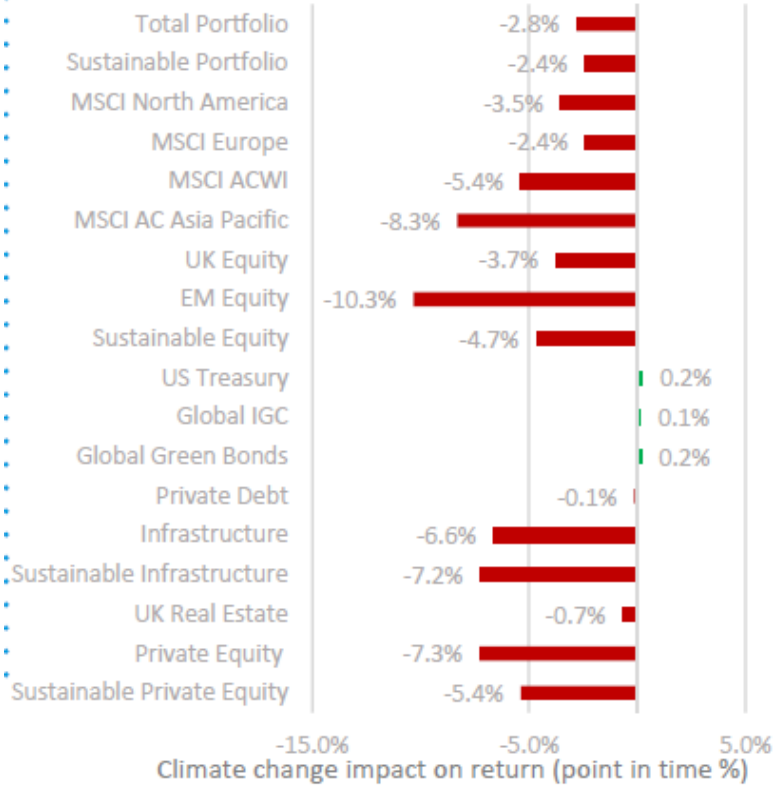
≤ -10 bps > -10 bps, < 10bps ≥ 10 bps

"Low carbon transition premium" is found under 2°C to 2030, 2050 and 2100 for the Sustainable Portfolio, as compared with just 2030 for the SAA.

The below figure shows the impact of the 4 degree scenario taken as a loss i.e. adding up the losses from each year. As with the above caveats this is likely to be a significant underestimate of actual losses but shows the relative impact across different areas of the portfolio as well as the general negative impact. So, for example Private equity on average will return 7.3% less than it otherwise would and sustainable equity 5.4% less than it otherwise would. Again, we would question whether in actual fact returns across the board would be absolute negatives.

STRESS TEST TOWARDS 4°C AND 80% MARKET AWARENESS

This situation could e.g. arise should multiple natural disasters occur across key markets (to which the portfolio is exposed), which act as a return detractor.



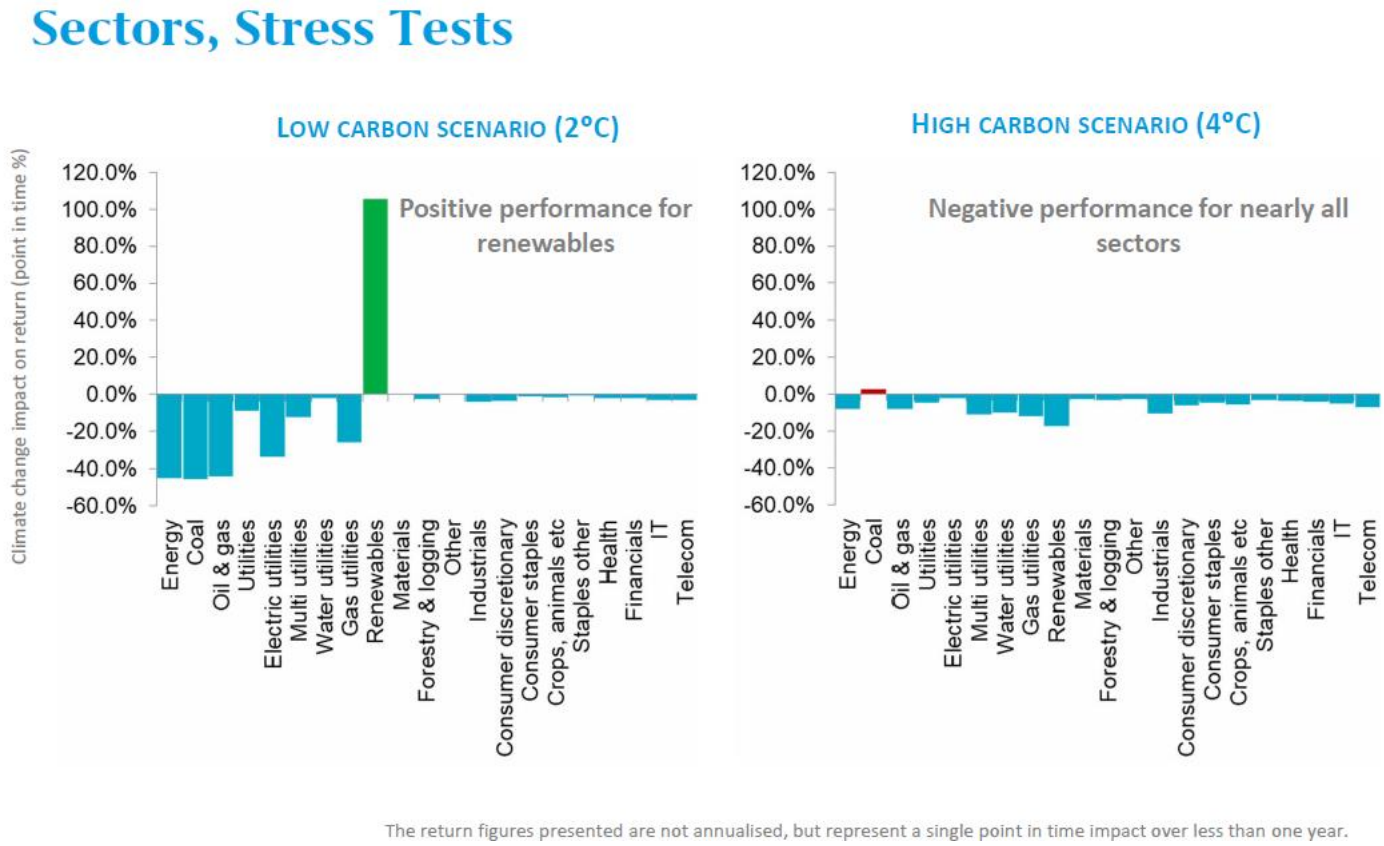
Under this stress test scenario, the expected return impact to the SAA is approximately -2.8% and for the Sustainable Portfolio is approximately -2.4%.

The largest negative impacts under 4°C are for real assets (in particular infrastructure) and equity exposed to quadrupling of physical risks as compared with today

Fixed income, in particular the US Treasury allocation, is less sensitive to modelled climate risks, which is partly due to modelling limitations, but also partly due to the asset class overall characteristic as a safe-haven asset.

The return figures presented are not annualised, but represent a single point in time impact over less than one year.

The figure below shows the impact on the portfolio of both the successful climate transition (LHS) and the worse physical risk scenario (RHS) both taken as a single number adding up the events that may occur across time. The impacts across each sector of the equity market are shown. Whilst the actual performance is likely an underestimation the relative performance of different sectors is a useful guide. The key thing we take from this chart is the opportunity to invest in areas of Climate Opportunity which could meaningfully outperform.



Liabilities and funding strategy

The Scheme liabilities (i.e. the future payments to be made from the Scheme assets) could be affected by climate change in two ways:

- If UK inflation rates change in future as a result of climate change.
- If the Scheme members live longer or die sooner as a result of climate change.

In both cases, it is also important to consider the timing of when climate change may influence these factors. This is because the average age of members (weighted by pension amount) is around 72 years old and over 65% of the Scheme's future payments (in real terms) are expected to be made over the next 10 years (i.e. over the short and medium term time periods defined by the Trustee). So, for climate change to have a meaningful impact on the future payments from the Scheme these impacts will need to happen sooner rather than later.

UK inflation rates

- Investment from both public and private sectors stimulating the economy.

An increase in inflation of the order of 0.25% to 0.5% pa over the first 10 years could be expected in this scenario.

Following the transition i.e., beyond 10 years, the impact of this scenario would likely be to reduce the rate of inflation. Reasons for this include:

- The move to renewable energy sources and development in technology would reduce energy costs. These savings may be passed to customers.
- Costs associated with paying back debt (private and public) would dampen economic growth and therefore inflation.

Whilst the scenario analysis modelling conducted by Mercer did not directly consider the impact on the Scheme's liabilities, they have considered what might happen to inflation in the scenarios they modelled. That in turn has then allowed the Trustee to consider any resulting impact on the Scheme's liabilities.

Under the 2 degrees Scenario the driver of the change in UK inflation rates is the transition to a low carbon economy. Most of these impacts would happen in the short to medium term (less than 10 years). There are a number of elements of the transition which have the potential to be inflationary, including:

- Additional costs of businesses transitioning being passed to customers.
- Carbon pricing increasing input costs and these again being passed-on.

These impacts would be expected to offset some but not all of the cumulative increase in prices described above.

These changes in UK inflation would result in an increase of around 2% to 4% in the amount of future payments to be made from the Scheme (i.e. the Scheme liabilities).

In this scenario it is expected that the current investment strategy would provide a cumulative additional return of around 2% over the period to 2030 (so 0% to 2% lower than the increase in liabilities) and a more sustainable portfolio (as modelled by Mercer) would provide an additional return of around 7% (so 3% to 5% higher than the increase in liabilities).

Therefore, it appears that the Trustee's funding strategy would remain broadly fit for purpose within this scenario, particularly noting the extra resilience

provided by the existence of the UK Government Guarantee should the Scheme's investments ultimately fail to provide the returns necessary to meet all future payments.

Under the 3 degrees Scenario, the transition would initially be muted and so there would be no material impact on inflation in the first 10 years. Beyond that time point, a mix of delayed transition efforts and the impact on physical damages, would likely increase the rate of inflation. Physical damages could impact inflation via the following:

- Increased water shortages.
- Food shortages due to the impact of both drought and flooding on agricultural productivity.
- Potential impacts on supply chains due to natural disasters and reduced willingness to trade scarce commodities.

These impacts could increase inflation by up to 0.25% pa from 10 years' time. Given the Scheme's maturity, this delay to the inflationary impact mutes the impact on the liabilities only resulting in an increase of around 1% in the amount of future payments to be made from the Scheme (i.e. the Scheme liabilities).

Under the 4 degrees Scenario, the key driver in the changes to inflation would be the physical damages. As with the 3 degrees Scenario, these impacts could increase inflation by up to 0.25% pa from 10 years' time. In the longer time, the 4 degrees Scenario would likely bring about greater resource scarcity and higher inflationary pressures. However, these would be beyond the key time horizon for the Scheme so the impact on liabilities would broadly be expected to be the same as the 3 degrees scenario.

Under both the 3 degrees and 4 degrees scenarios, the impact on the assets would be negative which would put more pressure on the Trustee's funding strategy than under the 2 degrees scenario. This might make it more likely that the Scheme may have to rely on the UK Government Guarantee than in the 2 degrees scenario. But ultimately the existence of the Guarantee provides a resilience to the Trustee's funding strategy in both the 3 degrees and 4 degrees scenario.

UK life expectancy

The impact climate change will have on UK life expectancy is extremely hard to predict and will also depend on non-climate change factors (e.g. medical breakthroughs and health service funding). One possible consequence of climate change is that global warming leads to both warmer UK winters and summers. This would likely reduce the number of cold-related winter deaths but increase the heat-related deaths. It is hard to predict with any kind of certainty the overall impact of this.

Furthermore, given the maturity of the Scheme, it seems unlikely that the climate change impact on the life expectancy of the Scheme's members will be material, particularly over the next 10 years when the majority of the Scheme's liabilities are expected to be paid. As such, the Scheme's funding strategy is expected to be relatively resilient to the effects of climate change on life expectancy.

Conclusions from Scenario Analysis

The Scenario Analysis shown reinforced the conclusions the Trustee had already reached on the significance of climate risk and opportunities as discussed throughout this document:

- Climate change could have a significant impact on the financial outcome from the Scheme's investments and potentially on the Scheme's liabilities.
- There are significant opportunities and risks presented by climate change – both transition and physical.
- The risks and opportunities vary across asset class.
- There are options to shift the portfolio to better capture the opportunities and reduce the risks.

As such the scenario analysis reinforced the Trustee's desire to move forward with increasing the ability to assess the portfolios exposure to risk and opportunities and to continue looking to reduce unrewarded risks and take advantage of opportunities in-line with its fiduciary duty to deliver the best outcomes to all members.

The summary of actions taken is included in the main body of the report. As discussed above, whilst the greater understanding the Trustee have built around climate risk and opportunity has not changed the overall funding and asset strategies, it has led to changes within asset classes and around particular managers and mandates.

In terms of the scenario analysis itself, the impacts of a climate transition and of significant planetary warming are believed to be underestimated by this analysis. As such, no comfort can be taken in the magnitude of the numbers, particularly under the 3 and 4 degree scenarios.

That said, the existence of the Government Guarantee does provide welcome security to members benefits should the impact of climate change be such that the Scheme's assets generate insufficient returns to meet all future payments, with the Government required to provide any shortfall in funding.

Signed by the Chair of Trustees of The Mineworkers' Pension Scheme Limited