

The Mineworkers' Pension Scheme TCFD Report for Scheme year ending September 2022

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”) is now required to publish its first annual TCFD 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 125,000 pensioners and deferred members as at the end of September 2022. 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 at 30 September 2022 total Scheme assets were valued at £11.64bn.

The Scheme's approach to climate change and TCFD - Summary

The Trustee's fiduciary duty is to act in the best interests of members and the Trustee's primary objective is to maximise total pensions for all members over the full life of the Scheme. The Trustee recognises that climate change is a significant source of risk and opportunity which will, and already has, affect the pricing of assets and the ability to meet the Scheme's liabilities. Climate change is an urgent issue of global significance, so the issues related to climate change are legitimate concerns for pension fund trustees.

This first TCFD report issued by the Trustee demonstrates how the Scheme is assessing and addressing the risks and opportunities associated with climate change, as well as openly discussing the difficulties around data coverage, changing methodologies and areas where progress still needs to be made. Much work is being done to improve and understand the data, however much remains to be done and so many of the estimates in this report are subject to considerable uncertainty. This applies particularly to the scenarios.

The report details the Trustee's climate-related governance framework, strategy, risk management process, and chosen metrics and target - aligning with the framework set out by the Financial Stability Board Task Force on Climate-Related Financial Disclosures. Climate change risks are being addressed and opportunities explored across the Scheme and the Trustee continues to build up data coverage (as fast as it realistically can given the reliance on industry data improvements and

disclosures), taking very seriously both its duty to members and regulatory requirements. The Trustee is actively working to transition the portfolio, reducing exposure to unrewarded risk and adding to Climate Opportunities where this is seen to be likely to contribute to the financial return required to pay pensions. This is an ongoing process that will take several years.

The Trustee has set out numerous beliefs and intentions in this report, demonstrating the ongoing commitment to transitioning the portfolio. The Trustee will consider these areas further ahead of the drafting of the Scheme's second TCFD report especially where new or unforeseen information may affect an initial stated intention. The Trustee also acknowledges the significant uncertainty around all data and models utilised in producing this report and therefore the challenges this presents to decision-making.

Key Areas of Progress

In 2020 the Scheme's adviser and investment manager CPTI hired a Head of Responsible Investment and in 2021 the Trustee updated the Scheme's Responsible Investment and Stewardship policies, which each identified climate change as a key area of focus for the Scheme.

Climate change is now an agreed investment theme for the Trustee and as such CPTI, on behalf of the Trustee, has significantly increased focus on climate change across all areas of investment.

The Trustee has built out climate and broader ESG data coverage over the past year, appointing data providers across both public and private markets, and has set a target to improve coverage of climate data significantly by the end of 2024. Understanding the starting point is critical in order to make the best investment decisions, albeit this has not stopped the Scheme from making progress on risks and opportunities in the near term.

Importantly beyond policy and data, over the last year the Scheme has made good progress in reducing exposure to areas exposed to high levels of financial risk from climate change and increasing investment in those areas where a positive impact on financial returns is expected. This includes new mandates in public equity, changes to the approach to infrastructure and real estate and moving away from mandates not sufficiently taking into account climate change. The Trustee believes that the climate transition presents investment opportunities and this report discusses several examples of companies and assets the Scheme is invested in.

The Trustee has committed to track and report two core climate metrics, which are in line with the statutory guidance, and one additional metric having considered a range of options. These will be reported across all of the Scheme's assets as far as is possible and are set out below:

- **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. Currently reporting is on Scope 1 and 2 emissions which means emissions the companies/assets invested in directly produce through burning fossil fuels or indirectly through the emissions from the electricity that is consumed. The Scheme will begin monitoring Scope 3 emissions ahead of its next annual TCFD report.
- **Carbon intensity** – an efficiency metric based on absolute emissions relative to the enterprise value including cash (EVIC).

- **Data Quality** – the proportion of the Scheme where reported (not proxied) scope 1 and 2 carbon emissions data can be reported.

In line with the statutory guidance, the Trustee has also agreed a target focused on the additional 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.

The Trustee has not committed to an emissions reduction target and at present aims to build a greater understanding of the Scheme’s starting point and whether a target can align with the Trustee’s fiduciary duty to members.

- **Alignment Metric** – In line with reporting requirements the Scheme will be adding an Alignment metric when it publishes its second TCFD report in 2024.

Initial progress on metrics and targets:

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 76% at the end of September 2022. However much of the data is still from proxies rather than directly reported by companies and assets. Actual reported data has decreased by 5% from 41% to 36% despite having more information on more asset classes in that period. This was due to a reduction in the allocation to public equity of 13% which has proportionally high reported coverage compared to those assets that have increased in allocation. 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.

Whilst there is no specific target for emissions reduction, from 30 September 2021 to 30 September 2022, Scheme emissions have fallen by over 40%. This has partially been driven by asset class changes but has also resulted from targeting investments explicitly taking advantage of climate opportunities and reducing unrewarded risk in this area.

Finally, the Scheme’s first exclusion policy has been introduced during this year, prohibiting investments in companies which violate the UN Global Compact principles e.g. those committing abuses to their work force, local communities or the planet, or engaging in corrupt business practices. This exclusion policy will be included in all IMAs and, for fund investments, the Scheme will seek a side-letter where possible. Where an external manager is invested in such a company, the Scheme will seek a strong rationale around expected resolution otherwise it expects the position to be divested over a reasonable period.

The Scheme also introduced a formal exclusion policy on controversial weapons. The Trustee believes that there is a strong financial case to exclude any companies that violate UK signed and ratified treaties and conventions in relation to controversial weapons. Companies engaged in such activities expose themselves to unacceptable litigation risk and these specific weapons have been identified due to their potential for mass destruction and/or indiscriminate impact on civilians. The Trustee does not believe that these activities or any involvement with them is sustainable. The Scheme’s policy will exclude these for future investment and divest within 12 months companies that do not comply with the named treaties or legal bans on controversial weapons.

Conclusion

The Scheme has made significant progress over the last Scheme year in working to address the risk and opportunity climate change poses to its assets and thus its duty to members. That said there is significant further work to be completed, not least owing to the ongoing development of data, which will be discussed in future TCFD reports. The Trustee is committed to a multi-year process of reducing unrewarded risk and adding to climate opportunities to improve expected outcomes for members. Whilst significant work has already been undertaken and progress made in the recent past the Trustee acknowledges there is still much more work to be done.

Section 1 – Governance

The Trustee has an established governance framework for considering all investment opportunities and risks. The Trustee’s governance of climate, outlined below, was formalised in 2021 in the context of this and as an extension of existing governance arrangements.

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 COM’s 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.
- 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 from 36% 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. COM delegates to ISC the ongoing oversight of investment risks and opportunities, including those relating to climate. ISC is responsible for:

- Implementing 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 believes are appropriate;
- Reviewing progress against the established climate target as set out above and taking action 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. These include:

- 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 carried out; and
- Providing all required reporting and market information.

Risk management

The ISC is informed about relevant climate-related risks and opportunities on a quarterly basis by CPTI who collect and collate available information. This area remains a work in progress and CPTI is still building up data coverage for the Scheme.

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 and through 2023 is looking to formalise its approach to climate risk. 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 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 will be planned in 2023 on Paris Alignment and Scope 3 in line with the additional requirements for the Scheme's TCFD report. This will be provided by subject matter experts within CPTI as well as external parties-

The Trustee also has two experienced 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.

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.

Appropriate Time Periods

It is important to define the time periods over which the Trustee is assessing risks and opportunities and relate these to the individual requirements of the Scheme. These timeframes are not specific to climate change or TCFD but align with the broader approach to Scheme strategy. The Trustee has defined these as follows:

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 risk to the Scheme's assets is likely to be Transition Risk, as defined below. That said The Scheme has already experienced the impact of some physical risks to the Real Asset portfolio. Climate Opportunities are also expected to be material over this period as spending in this area from governments and corporates increases significantly.

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. Around 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, Physical Risk and potentially Stranded Asset risk in some of the least efficient fossil fuels are all relevant. Climate Opportunities are expected to be realised over this period.

Long term: Defined as anything beyond 10 years up until 35 years (2057) when only 2% of the Scheme's future payments (in real terms) are expected to remain.

While some areas of climate risk may seem too long term to be considered given the Scheme's liability profile – for example physical risks (fire, flood, storms) in say 40 years' time, it is likely that such impacts will be priced much sooner. For example, some regions in the UK (and worldwide) could become uninsurable, unmortgagable, or unrentable due to the anticipation of future physical risks.

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 will 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. In line with the Trustee’s fiduciary duty, it is critical the Trustee assess and position the assets to best manage these risks and take advantage of opportunities. CPTI, on behalf of the Trustee, is seeking the best investment opportunities for growth related to the 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. Developments in each asset class are summarised on page 17. Incorporation into the expected returns and scenarios is expected to be completed in 2023.

Risks and Opportunities

The Trustee aims to monitor and manage climate risks and opportunities across the whole portfolio including both public and private assets, albeit recognising data for the latter is challenging at present. Indeed, data and methodologies across all areas are still being built across the industry and are subject to change. Similarly the Trustee looks to understand the full effects across both asset strategy and funding strategy.

The results of the assessment of climate risk and opportunity have already begun to impact the Scheme’s asset allocation, manager appointments and mandate design/focus with the approaches taken continuing to evolve.

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.

Each of these areas are discussed in more detail below.

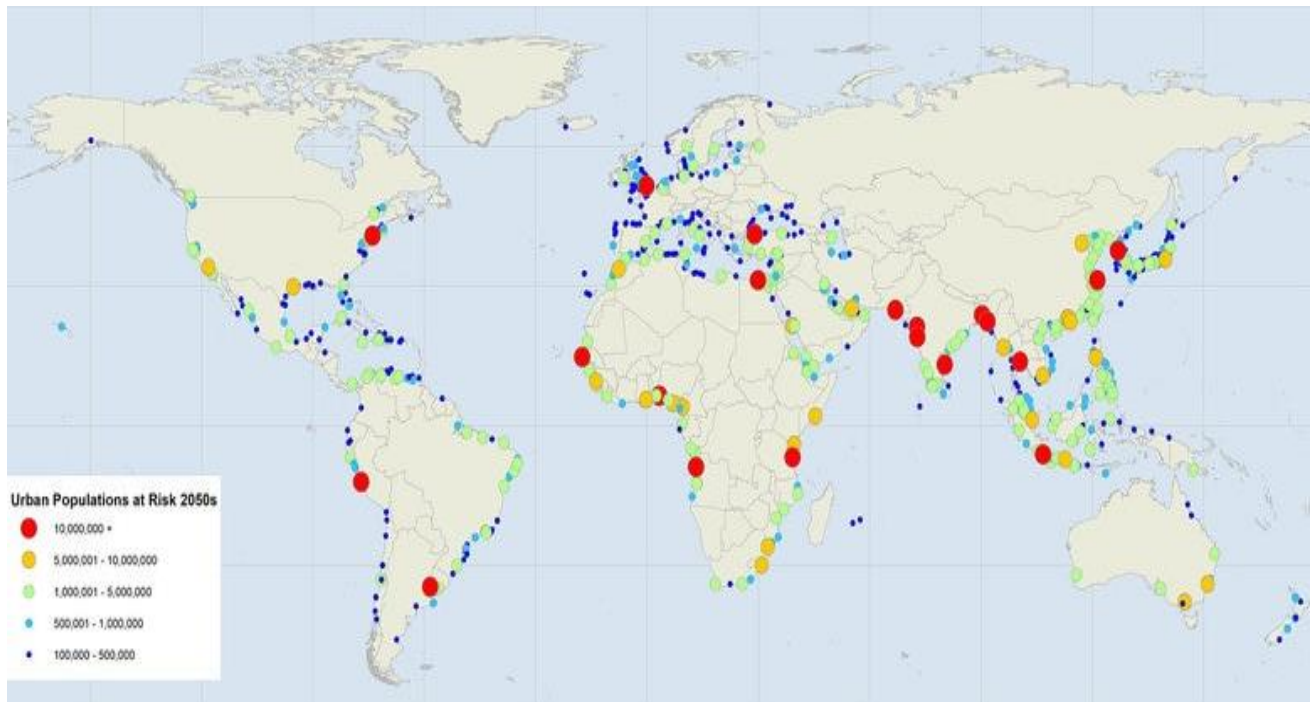
1) Physical Risk

Physical risk pertains to the risk of direct adverse impacts from climate change both extreme (fire, flood, drought, extreme temperatures, storms) and less extreme changes to weather patterns and temperatures (average temperature changes, humidity, rainfall etc).

Physical Risk a Hazard Example – Sea Level Rises:

Taking just one change as an example, the below graphic shows the impact of sea level rises if current emission levels continue (Source: C40 Cities). According to the publication the total urban population at risk from sea level rise, if emissions don’t go down, could number over 800 million people, living in 570 cities, by 2050. The estimated cost to GDP of this could amount to \$1 trillion by mid-century. As with other climate hazards, local factors mean that cities will experience sea level rise at different paces. Cities on the east coast of the U.S., including New York City and Miami, are particularly vulnerable, along with major cities in Southeast Asia, such as Bangkok and Shanghai. In the U.S., east coast cities are witnessing sea level rises two to three times faster than the global

average while cities along China's Yellow River Delta are predicted to experience a sea level rise of 48cm by 2050 according to the First Institute of Oceanography, China.



Physical Risk to the Scheme's Assets:

Climate change will directly impact the Scheme's holdings in physical assets such as buildings and infrastructure and will also have a broader impact through changes to growth and productivity. In terms of opportunities the Scheme is considering investments in areas such as Sustainable Commodities, agricultural commodities in particular will be affected by physical risk. Beyond direct impacts examples of the secondary impacts of physical risk include the following:

- Insurance premiums and availability will change materially with more regions moving outside of insurance provision and premiums rising.
- 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 new 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 new 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. This represents a ten-fold increase from the current documented refugee and internally displaced populations. To put the number in perspective, it would mean that by 2050 one in every 45 people in the world will have been displaced by climate change.

Understanding Scheme Exposure to Physical Risk

The Trustee is in the early stages of understanding the Scheme’s exposure in this area. To understand the Scheme’s asset exposure to physical risk CPTI, on behalf of the Trustee, plans to:

- 1) Assess for the directly held 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, CPTI has actively engaged with its third-party real estate managers on their approach to physical and transition climate risk in order to improve understanding and create asset-specific action plans to reduce overall risk exposure. During 2023, CPTI will expand this analysis to understand the Scheme’s physical risk exposure in infrastructure, public equities and bonds as well as starting to think through incorporating physical risk into broad economic assumptions and scenarios. Physical risk has not as yet led to significant strategy changes to the Scheme’s assets, albeit it has led to some spending changes in property, in particular around flood risk mitigation. Data on flood risk assessment so far has been completed for 85% of the properties owned. CPTI does expect to see physical risk to start featuring more heavily in real asset spending and planning over the next several years.

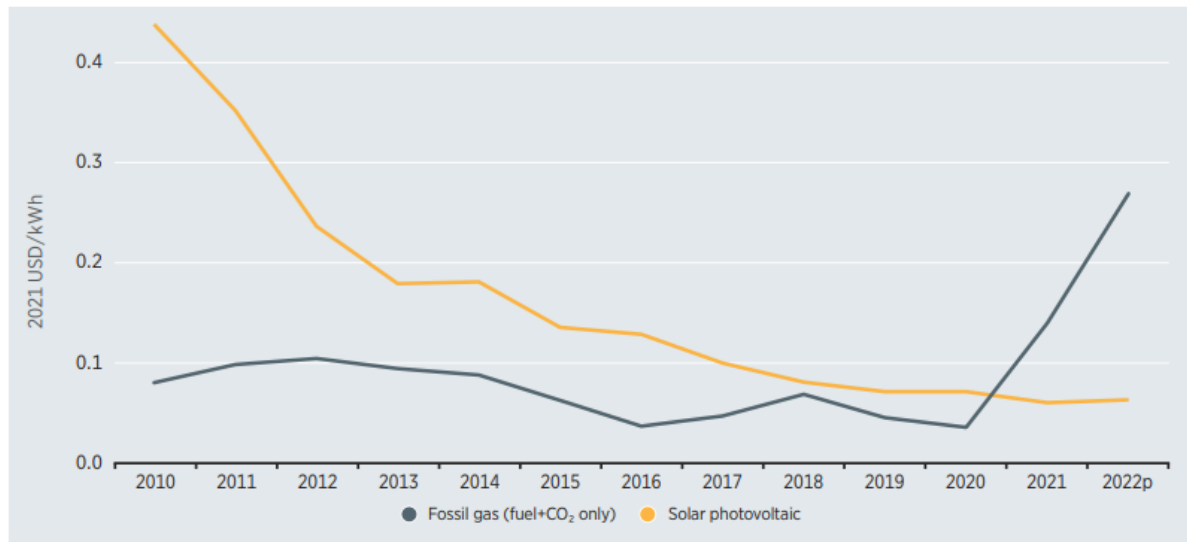
2) Transition and Stranded Asset Risk

Transition risk refers to how assets will perform under a transition to a net zero scenario. This can be an orderly and gradual change 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). To reach net zero and achieve the goals of the Paris agreement, many current high cash flow assets need to be stranded. Even in the absence of climate targets, assets are becoming stranded for economic reasons – for example the cost of excavating and processing coal is now too high in many places to justify extraction when compared with renewable energy generation. As the price of carbon increases, or other costs of extraction including labour and materials increase, and as the cost of renewable solutions continues to fall, more assets will become stranded. The chart below shows the

levelized cost of one kwh of European power comparing solar and gas. While the high current price of gas shown at the end of the chart may normalise and prove an anomaly, carbon emission costs are expected to continue to rise.

The weighted average levelized cost of energy of utility scale solar PV compared to fuel and CO2 cost only for fossil gas in Europe 2010-2022 (Source: International Renewable Energy Agency)



Looking at the ongoing change to market structure outside of climate change, stranding/obsolescence is a normal part of progress: since 2000, 52% of the companies listed in the Fortune 500 have ceased to exist. While some of the businesses were subject to mergers and acquisitions, the majority lost out because they failed to keep pace with a changing world. Indeed, the average tenure of a company in the S&P 500 has reduced from 25 years in 1980 to 18 years by 2011.

Some sectors are more obviously exposed to climate transition risk than others – in particular those relating to fossil fuel extraction, production, and use, with the least efficient, most emitting areas the most likely to be heavily penalised and sooner. UK property is a great example of fast changing regulation towards net zero. As of 1 April 2023, all commercial buildings in England and Wales are required to have a valid EPC rating of at least E under the Minimum Energy Efficiency Standard (MEES) regulation. It is expected that regulations will tighten the rating requirement further for both non-domestic and domestic properties; needing to achieve an EPC rating of C by 2027 and 2028 respectively. The Scheme’s portfolio currently holds a number of properties with either no rating or a rating below E. A MEES compliance assessment was undertaken by Delancey Real Estate Asset Management (DREAM) at the start of their appointment in December 2022. The assessment found 18.0% non-compliant units (where EPCs were missing, expired, or below E) and asset level action plans were created to undertake any necessary works and re-assess the units. To date the share of non-compliant EPCs had already been reduced to 15.4%.

More broadly, CPTI, on behalf of the Trustee, assess transition risk on a qualitative and quantitative basis, looking to understand how assets will perform under different scenarios. Quantitative assessment is easier done on public assets with greater data availability. The Scheme has made changes, as discussed later in this document, to both its passive and active Chinese public equity exposure to ensure this risk is adequately reflected.

Scheme Exposure to Transition and Stranded Asset Risk

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 is extremely difficult. 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's passive equity and Chinese equity portfolios. As such, changes have been made and examples are discussed in the appendix to this report.

CPTI has also undertaken a detailed review of the Scheme's real asset portfolios given the long-term nature of these investments and the ongoing spend required to maintain some of them. CPTI has identified some assets at risk from stranding as well as a number of assets which require a high level of ongoing investment in order to meet new standards across this area of the portfolio and is exploring options to make changes.

Net Zero/Emissions Reduction

The Trustee has decided not to implement a net zero or emissions reduction target. The Trustee has set a target around increasing carbon emissions data across the portfolio. The Trustee will continue to review this through time. As such the focus during this Scheme year and over the immediate future is to:

- increase data coverage on climate risk across the full portfolio, public and private, with a target to increase this to 90% (see targets and metrics section);
- reduce exposure to the areas most at risk of near-term loss from climate risk; and
- increase investment in climate opportunities.

3) Climate Opportunities

The climate transition and associated new technology developments and changing consumer preferences present significant investment opportunities across many asset classes. The Trustee will seek to ensure the Scheme is positioned to benefit from these opportunities and envisages significant opportunity cost from not doing so. There are opportunities in this area across many asset classes and the Scheme has already begun to make investments in public and private equity and infrastructure as well as beginning to align capital expenditure in Real Estate around expected rent and liquidity differentials. The Scheme expects to continue to increase exposure in this area including looking at opportunities around businesses transitioning from fossil fuel related activities to take advantage of the energy transition.

Examples are provided in the appendix of this report.

Implementation

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 early stages of considering how climate change will impact expected returns across asset classes, regions, sectors and in aggregate. CPTI plan to do more work to incorporate climate change into the Scheme's expected returns and economic scenarios in 2023. That said, there are investment areas that are expected to offer clear benefits as a result of the energy transition. In particular, CPTI has identified infrastructure and climate aligned commodities as growth areas. Beyond this, no other asset class level changes have been made, however changes have been made to managers and mandates as discussed below and summarised in the table.

2) Manager assessment

For all new appointments, CPTI assesses 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.

For existing managers, where changes can be made, CPTI has formally reviewed manager portfolios and in some cases recommended mandate changes. In the extreme, a manager relationship could be discontinued if risks and opportunities are not sufficiently 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 proposed mandate changes.

For legacy private markets exposures where CPTI cannot easily make changes the priority is to understand the Scheme's exposure to risk and engage with the managers.

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 and exclusions around some of the worst environmental offenders which have breached the UN Global Compact principles.

Key mandate changes have included a focus on climate transition risk with passive equities. The Scheme additionally has some mandates specifically focused on climate opportunities. 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 planning focuses on climate risk and opportunity. More detail on these examples is provided in the appendices.

4) IMAs

Where appropriate, CPTI is updating the Scheme's IMAs to ensure compliance with exclusion policies and the requirement to cooperate with TCFD reporting requirements. CPTI is also ensuring managers have reviewed and are comfortable with the Scheme's Responsible Investment and Stewardship policies.

5) Reporting requirements

CPTI is looking to ensure all 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 and CPTI is communicating this to all of the Scheme's managers and providers. As stated in the Scheme's Stewardship Policy:

“Stewardship is the responsible allocation, management, and oversight of capital to create long-term value for clients and beneficiaries leading to sustainable benefits for the economy, the environment and society.

As with all areas of investment, stewardship is aligned with the Trustee's fiduciary duty and improving investment outcomes. Stewardship can be an effective tool for both reducing investment risks and improving returns.

Consistent with the Trustee's Responsible Investment Policy, the focus of stewardship is to create long-term value by effectively addressing material factors in the following areas:

- Environment – in particular risks and opportunities related to climate change but also other areas such as pollution, natural resources, biodiversity, and land use.
- Social – human rights, labour rights, inequality and diversity, health, and wellbeing
- Governance – how well the companies and assets invested in are run and overseen with sufficient rights and accountabilities.

The Scheme is an active owner and has been accepted as a signatory to the UK Stewardship Code. The Scheme is also a signatory to the Principles for Responsible Investment (PRI).

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 (i) the appointment of aligned managers and stewardship providers; and (ii) ongoing engagement, oversight and challenge of those managers and providers.

The nature of stewardship varies across asset classes, from private markets where the investment managers have direct control over an asset or company, to public markets where the reliance is on engagement and voting. “

Examples are provided in the appendices of this report.

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 isn't, CPTI must determine whether investing in a particular manager, sector, company or asset still makes sense. For particular areas with high levels of risk of financial loss the Trustee may consider exclusions. 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, where deemed appropriate CPT/CPTI will contact managers in the case of holdings in companies where material issues have been identified.

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

Where targets are contractual and have been incorporated into the manager agreements, these are monitored by way of IMA compliance and managers are explicitly required to monitor the portfolio and report to CPTI if they are in breach of the contractual requirements.

The Trustee monitors the Scheme's exposure to laggards, high emitters and UNGC Watchlist companies on a quarterly basis. Where a holding is highlighted by the data providers, 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.

As an example, CPTI followed up with Wellington regarding Americold which flagged as an Environmental Laggard held in the Scheme's Global Opportunistic Value mandate. The company's carbon intensity levels were very high, and it had no commitment to carbon neutrality. Wellington were concerned that longer term this could become problematic as investors increasingly focus on environmental issues.

Wellington shared their engagements particularly around the lack of science-based targets for carbon reduction. This is especially important for Americold because its carbon intensity is nearly twice that of the global REIT industry average since it uses significant amounts of electricity to keep food frozen and chilled. The Board's reason for a lack of emissions targets was unacceptable and Wellington communicated the importance of carbon neutrality, with specific commitment to a 1.5°C, 2.0°C scenario ideally. The company countered with the difficulty it has making carbon reduction commitments since it is highly acquisitive and data collection with acquired entities may be onerous. Wellington provided recent examples from T-Mobile which maintained its 2021 carbon neutral commitment that was made before it acquired Sprint and maintained despite the scope of the company doubling to illustrate that it is possible for acquisitive companies to make pro forma commitments. Wellington also shared that large customers including Tyson have committed to carbon reduction consistent with a 2.0°C warming scenario and failure to reduce emissions could harm commercial relationships.

Subsequent to their discussions, Wellington have hesitated to add to their holdings in Americold despite the recent stock price weakness because they are not convinced that the company and the food processing industry have reformed labor practices and compensation enough to attract and retain labor, in addition to wanting to see the company make firm carbon reduction commitments given its above average carbon intensity. Wellington noted that in May 2022, management

indicated interest in pursuing science-based targets to achieve Net Zero. Wellington plan to follow-up regularly to monitor the status of their potential commitments.

Voting

CPTI also monitors the Scheme's voting on key themes, including Climate related management and shareholder resolutions. CPTI has appointed an external advisor to enable better understanding of the voting carried out 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.

Summary of Progress across all Asset Classes

	Physical Risk		Transition/Stranded Asset Risk		Climate Opportunities	
Asset Class	Progress In Scheme Year End September 2022	Next steps	Progress In Scheme Year End September 2022	Next steps	Progress In Scheme Year End September 2022	Next steps
Public Equities	-Begun discussions with managers on understanding in this area -Scenario analysis of high warming scenario completed	Source appropriate risk metrics and tool for assessment	-Appropriate risk metrics identified and tracked - Exclusions implemented around UNGC violators - Manager changes made in passive equity and semi passive Chinese equity - Implemented transition aligned approach to passive equity -Hired Climate solutions focused manager	-Continue to monitor and evolve risk metrics -Ongoing monitoring of managers -Ongoing review of exclusions policies	-Hired manager focused on climate solutions -Implemented transition-focused overlay to passive equities -Added metric to quantify exposure here	-Continue to monitor and increase exposure to climate opportunities -Continue to review metrics in this space
Private Equities	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 -Engaging with managers around approach and assessment of risks and provision of direct data -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 the area and better provision of data	Limited new commitment for Scheme given maturity and total liquidity. Investment made to HyCap (UK hydrogen ecosystem).	N/A
Government Bonds	Actively seeking market consensus for data approach in this area -Engaging with managers on approaching this area	Continue to clarify approach on data and assessing risk more broadly	Engaged with a number of managers on different methodologies and approach in this area	-Continue to monitor and evolve risk metrics and develop approach to sovereign risk -Ongoing monitoring of managers	N/A	Consider approach to analysing sovereign risk
Property	-Completed assessment of flood risk and used external data provider for formal analysis of physical risk - Focus on approach in this area as part of manager appointment	Work with new manager on assessment and mitigation/capex/new investment spending in this area	-Initial data on emissions and intensity received and reviewed -Strategy going forward in this area key part of manager appointment	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
Infrastructure	Scenario analysis completed using proxy data Managers considering qualitative assessments in the near term -Begun discussions with managers on their approach in this area	-Work with new manager on assessment and mitigation/capex/new investment spending in this area -Build out analytics in this area	-Obtained data on emissions and intensity on some of portfolio -Reviewed approach of managers in this area -Agreed changed to be made on some exposures in utility and energy production	-Make sales and purchases in line with risk and opportunities in this area Continue to build out data coverage -Continue to review managers' competence in this area	Written strategy for sales in this area	Review opportunities across infrastructure, debt and equity in public and private assets.
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 -Agreed with go-forward manager on data provision in this area	-Look to assess risk data once implementation of the new analytics provider is complete -Continue to engage with managers around approach to the area and better provision of data	In rundown for legacy assets. Incumbent managers are aligned with thinking on climate risk and opportunities.	Continue to review opportunities around transition lending.
Shipping	In the process of exiting this asset class, partly due to future stranded asset risk					
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 -Engaging with managers around approach and assessment of risks and provision of direct data -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 the area and better provision of data	No investment thus far	Review investment opportunities investments in this space

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 has to invest 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 an important factor, as the average age of members (weighted by pension amount) is around 70 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.

Section 3 – Risk Management and Monitoring

The Trustee’s goal is to monitor and manage climate risks and opportunity across the whole portfolio, public and private. CPTI is currently building up the tools, data and relationships to allow the Trustee to do this.

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 required return in an environment where climate transition and physical risks will change the risk/return dynamics across investments.

Incorporating Climate Risk and Opportunities in overall Investment Strategy

CPTI, on behalf of the Trustee, is in the early stages of considering how climate change will affect the Scheme’s expected returns across asset classes, regions and sectors. CPTI aims to have greater clarity on this through 2023.

Frequency and Tolerances

The ISC reviews climate risks and TCFD metrics on a quarterly basis. COM will formally review climate risks including metrics and targets 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.

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 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. 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 the quarterly reporting for 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 Chief Investment Officer before being presented to the Trustee.

The quantitative approaches CPTI looks at include the following:

- Scenario testing (discussed in the next section)

- ESG scoring
- Controversy and laggard exposure
- Understanding carbon exposure, direction and commitments of both managers and underlying companies
- Exposure to potentially stranded assets

The risk metrics that CPTI is considering and intends to review on an ongoing basis are detailed below. At present full coverage of the portfolio is not available but CPTI is seeking to build this up through time and by using proxies where there is an absence of reported data.

Monitoring of Risk Metrics

CPTI monitors different types of climate risks in relation to the Scheme, which are set out below. CPTI monitors and reports to ISC quarterly to assess these types of climate risks (and to some extent broader ESG risk). To the extent possible, these risks are monitored for every asset class in the portfolio, however some remain a work in progress.

Physical Risk: Initially flood risk for real estate with others to be added through time

Transition Risk:

- Carbon emissions: absolute and change over time; currently scopes 1 and 2 but Scope 3 to be added in 2023
- Carbon emissions intensity: absolute and change over time
- Climate Stress Testing
- Portfolio Warming Potential and Paris Alignment (to be added)

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 will be 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. Laggard companies are defined as companies with scores equal to or lower than the bottom 3% in the benchmark.

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

The output of the above is expected to be summarised in a risk dashboard, which will be a subset of ISC's broader risk reporting and included in quarterly ISC reports. The report includes numerical risk metrics and qualitative descriptions. As this process is still being developed, it has not yet led to changes in the Scheme's prioritisation of risks and opportunities. However, flood risk in particular has been noted as a near term concern for UK Real Assets.

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 eFront is being onboarded. Lastly, CPTI engaged with a number of consultants in this area, particularly Redington and Mercer (who provided the scenario analysis in the next section of this document). CPTI, on behalf of the Trustee, has significantly increased the Scheme's available data in this area over the last year.

Climate Opportunities

CPTI, on behalf of the Trustee, has started to measure the percentage of the portfolio that is invested in climate opportunities. For public investments this 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.

Current exposure is summarised below at the end of Q3 2022.

Asset class	At Sep 22
Public Equity	11%
Private Debt	1%
Infrastructure	19%
Private Equity	0%
Total climate opportunities	5%

Benchmark (FTSE AW)	10%
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Section 4 – Scenario Analysis

Requirements:

Scenario analysis must be undertaken in the first scheme year in respect of which the requirements apply to the Trustee. As such, initial scenario analysis was reviewed by COM in September 2022 and the results are set out in the following pages. We would emphasise there is a huge level of uncertainty in these scenarios and climate models generally. In particular we expect the physical risk scenarios to be significant underestimations of likely damages even in the near term.

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. 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

Mercer's 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°C).
- 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 the 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 CPTI has low confidence and are likely to change each time it is presented.

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.

Scenarios



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 results 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, the Trustee expects many physical risks to impact prices in this decade (i.e. before 2030) and thus will impact the Scheme's assets. The transition will also happen (or fail) this decade. As such the longer dated time frames remain relevant even though most of the Scheme's liabilities will be paid sooner. In the two-degree scenario, the portfolio benefits from an additional return of 0.12% per annum based on the asset allocation at the time of analysis. The 3 degree and 4-degree scenarios both detract from performance.

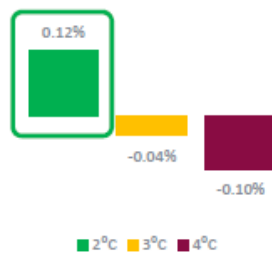
Total Portfolio to 2030 and 2050, Annualised



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

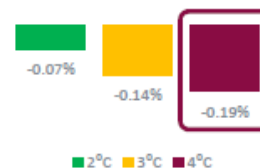
Under 2°C to 2030, the SAA is expected to benefit from the low carbon transition - a cumulative +1.4% return benefit.



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 -5.9% on a cumulative basis.



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

The MPS Fund has exposure to infrastructure and sustainable infrastructure, which are the asset class driving the “low carbon transition premium”, under 2°C to 2030. The Mercer model expects a period of significant investment in infrastructure and real-estate under a low carbon transition, to develop low carbon buildings/retrofit old buildings, whilst sustainable infrastructure is expected to drive clean technology innovation and renewable assets.

The above green bars for the 2-degree scenario indicate that in a transition the Scheme’s 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 the 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 9 for the total effect and the right chart need to be multiplied by 29 for the total effect. Whilst the total numbers are bigger, CPTI still expects these to be an underestimation.

This next figure shows how the portfolio’s asset allocation (SAA) at the 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 10.9% 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	0.12%	0.98%
	2050	-0.07%	0.50%
	2100	-0.11%	0.15%
3°C	2030	-0.04%	0.05%
	2050	-0.14%	0.05%
	2100	-0.18%	-0.05%
4°C	2030	-0.10%	-0.08%
	2050	-0.19%	-0.14%
	2100	-0.28%	-0.18%

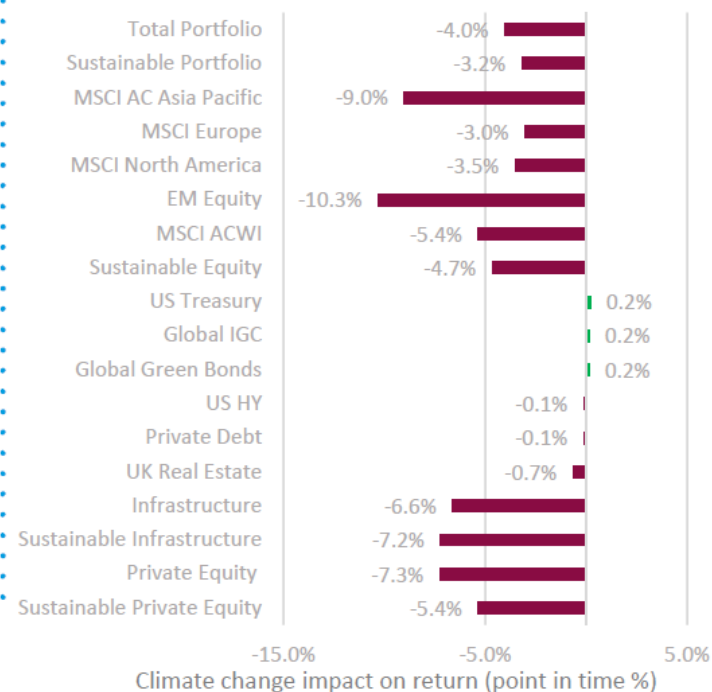
“Low carbon transition premium” is found under 2°C across the full time spectrum for the Sustainable Portfolio, as compared with just 2030 for the SAA.

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

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, CPTI 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 -4.0% and for the Sustainable Portfolio is approximately -3.2%.

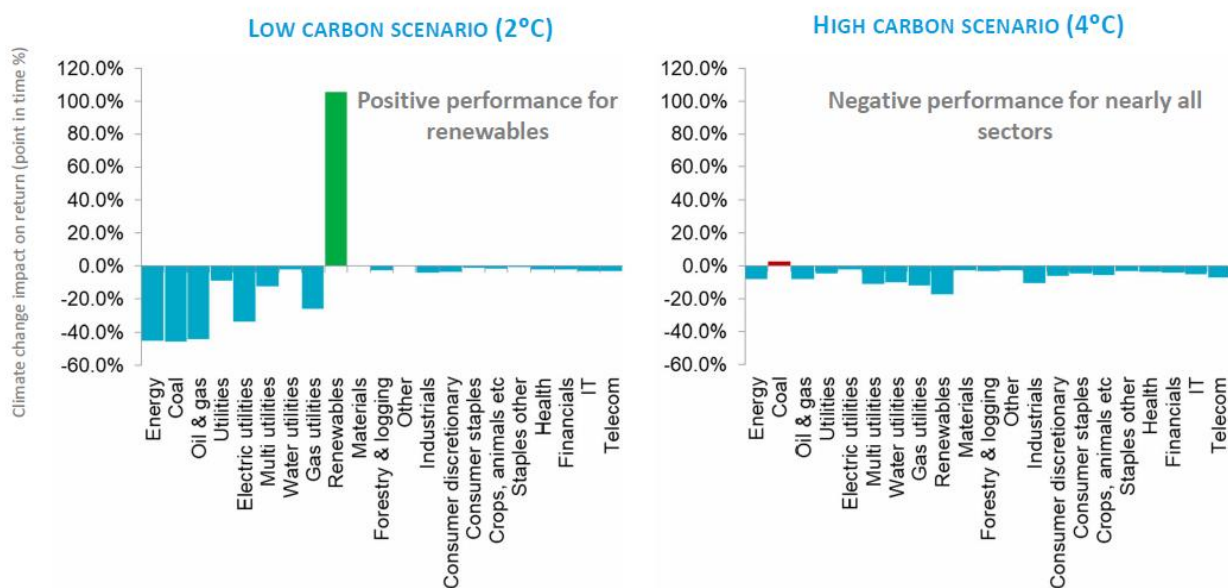
The largest negative impacts under 4°C are found for real assets and equity markets given the quadrupling of physical risks as compared with today

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 is 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.

Sectors, Stress Tests



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

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 70 years old and over 50% 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

Whilst the scenario analysis modelling carried out 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.
- 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.

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 1.5% to 3.5% 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 0.5% higher to 1.5% lower than the increase in liabilities) and a more 'sustainable portfolio' (as modelled by Mercer) would provide an additional return of around 7% (so 5.5% to 3.5% 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 very 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 and thus could impact the end benefits paid to members.
- 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 portfolio's 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 Section 3 and 4 of this document. As discussed above, whilst the greater understanding the Trustees 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.

Section 5 – Metrics and Targets

In line with new Government regulation, the Trustee agreed new climate metrics and put in place a climate target in 2021. This section provides a description of the metrics, the rationale for these and the change since they were established. COM has established the climate metrics to monitor and the ISC has the responsibility to monitor these metrics and any additional metrics they believe are relevant. COM has also established the climate target, which the ISC will review progress towards and take action as necessary to ensure the Scheme remains on track.

The Trustee has committed to report two core climate metrics, which are in line with the statutory guidance. These will be reported across all of the Scheme's assets as far as is possible and are set out below:

- **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. Currently reporting is on Scope 1 and 2 emissions which means emissions the companies/assets invested in directly produce through burning fossil fuels or indirectly through the emissions from the electricity that is consumed. It does not include scope 3 emissions, which relate to upstream or downstream activity from customer use of products or supplier sourcing of materials for example. This metric has been chosen as it is in-line with industry consensus. Scope 3 emissions will be added to reporting and targets ahead of the publication of the Scheme's next annual TCFD report.
- **Carbon intensity** – an efficiency metric based on absolute emissions relative to the enterprise value 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 utilised may change in future. Additional metrics are monitored where appropriate to particular assets, for example looking at intensity/sales and intensity per square meter in real estate or per unit of energy produced in certain infrastructure assets. Scope 3 emissions will be added over the next 12 months.

The Trustee has also committed to an additional metric, set out below, having considered a range of options:

- **Data Quality** – the proportion of the Scheme where reported (not proxied) scope 1 and 2 carbon emissions data can be reported. Getting reliable data on emissions remains a challenge and there is not currently data across the whole of the Scheme's portfolio. The Trustee believes this metric is important as it focuses on the integrity of data in an area where data availability and accuracy remain a challenge. The metric also focuses on really understanding the Scheme's position across the whole portfolio in terms of risks and opportunities from climate change and the energy transition. An additional Scope 3 target will be included in the next TCFD report.

In line with the statutory guidance, the Trustee has also agreed a target focused on the additional 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.

The Trustee believes this is an ambitious target as at present data is unavailable for a number of asset classes. However, the Trustee has provided a reasonable time frame to meet the target and carbon emissions data continues to improve. CPTI, on behalf of the Trustee, is engaging with the Scheme’s investment managers to improve data availability across the Scheme’s assets and particularly in private market assets where data availability at present is lower.

Portfolio Alignment – in line with regulation the Trustee will add a metric considering portfolio alignment in its second TCFD report.

The pages that follow set out the Scheme’s data under the above metrics.

Carbon Emissions Data Quality and availability by Asset Class

The table below details all assets currently invested in and shows the data quality by asset class and at the total Scheme level as at 30 September 2022:

Asset Class	% coverage (including proxy and reported data)	% coverage (reported data only)	% of total Scheme NAV (excl cash)
Public equity	96%	78%	33%
Private equity	100%	2%	18%
Private debt	10%	0%	6%
Government bonds	0%	0%	12%
Special Situations Debt	100%	0%	8%
Infrastructure	71%	71%	6%
Property	93%	34%	13%
Shipping	100%	100%	1%
Hedge funds and other	0%	0%	3%
Total	76%	36%	100%

Data Coverage, use of Proxied Data and Performance versus Target

From 30 September 2021, when measurement of the Scheme’s emissions began, to 30 September 2022, data coverage has increased by 19% including both proxy and reported data. However, coverage using only actual reported data has decreased by 5% despite having more information on more asset classes in that period. This was due to a reduction in the allocation to public equity of 14% which has proportionally high reported coverage compared to those assets that have increased in allocation.

CPTI assesses reported data coverage using information from data providers about the percentage of companies directly reporting data in public markets. In private markets, the private asset managers have been asked to report the amount of reported data collected on individual assets and

companies directly to CPT and CPTI. This is aggregated to the asset class level and portfolio level in the table above for the Trustees.

Coverage in private assets is currently low, however CPT is in the process of implementing an additional system to assist private asset managers with the collection of reported data from underlying assets and expects a significant increase in coverage in this area over the next 12-24 months.

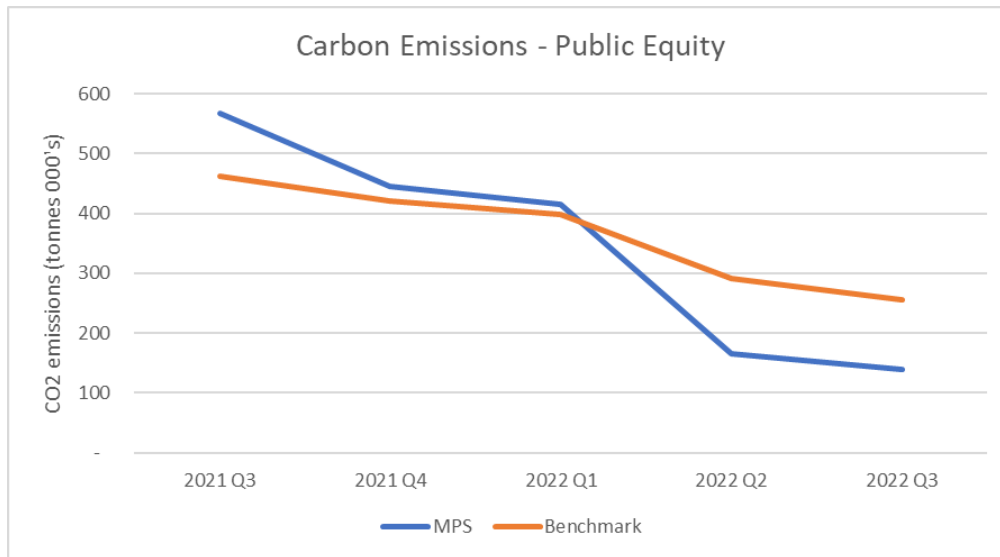
For sovereign bonds and hedge funds (which are invested in sovereign bonds and currency) there is currently no accepted methodology for reporting carbon emissions. For Sovereign Bonds methodologies are developing and CPTI is seeking to gain sufficient comfort in methodologies here to include sovereign bonds in the Scheme's second TCFD report.

Given the above along with data coverage improvements across the market, and the inclusion of contractual targets with Scheme asset managers – Scheme reported data coverage is expected to ramp up significantly. 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 changes to the investment strategy.

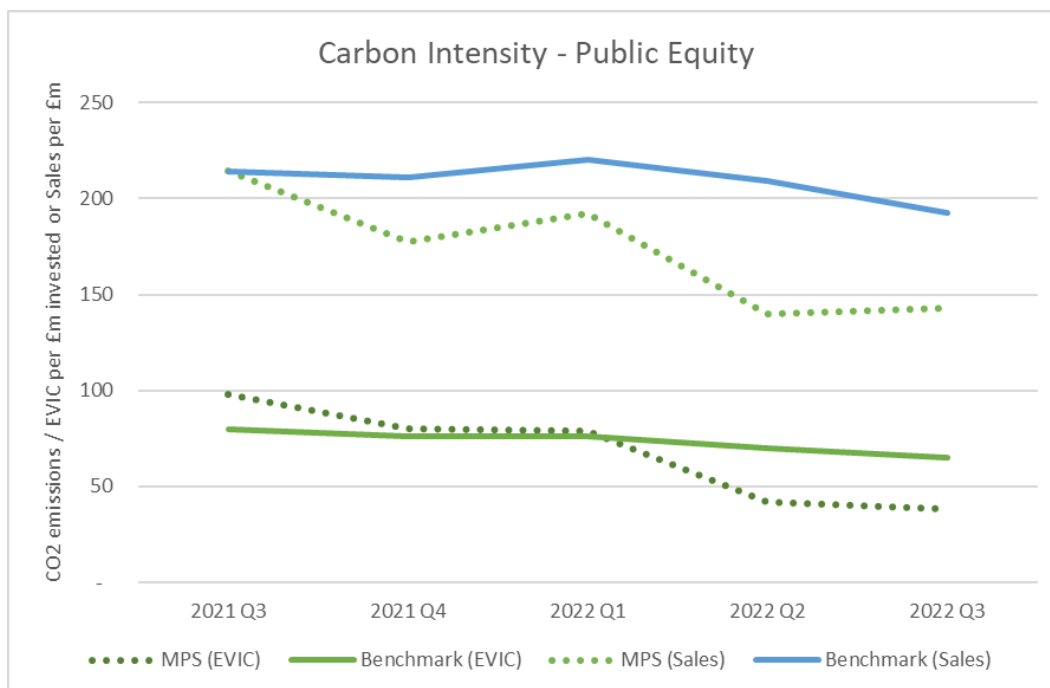
As at 30 September 2022 only 36% of the Scheme's data comes from actual underlying company or asset data. As such the actual carbon emissions of the Scheme could differ significantly from what is reported here using best estimates and proxies as well as noting the level of unreported data. That said, 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 and given scope 3 emissions are not included, the total emissions number in this report is expected to be an underestimate. Increasing data coverage and accuracy is a key focus for the Trustees. Where proxy data is used, this is based on the actual sector and regions of the assets and thus is expected to be an indicative (if not accurate) estimate of actual data.

Absolute and Intensity Metrics Public Equity

For public equity, carbon emissions are apportioned to the investor based on an investor’s share of the enterprise value including cash of a company. The chart below shows the total carbon emissions for public equity at the end of each quarter from Q3 2021 when the metrics were agreed. In each case progress through time is shown as well as versus the relevant asset class benchmark.



For carbon intensity an additional metric (sales) which shows the carbon emissions as a proportion of sales for underlying companies is tracked. Both are shown on the chart below.



Source: MSCI

Total carbon emissions intensity has fallen significantly from 30 September 2021 to 30 September 2022. This fall was driven mostly by the transition of the passive portfolio to the BlackRock Low Carbon Transition Readiness (LCTR) fund in Q4 2021, followed by the termination of an asset manager with proportionally high emissions in Q2 2022. Whilst the Scheme has not set a target

around absolute emissions or intensity CPTI believe a fall in intensity reflects the increasing risk around owning carbon intensive assets and as such would expect this trend to continue across the portfolio's assets over the medium term, albeit this will be accompanied by significant fluctuations over shorter periods particularly if the Scheme purchases high intensity assets which are then transitioned/improved/run-off.

Other asset classes

For other asset classes, data is typically reported on an annual basis. For property, infrastructure and shipping, data is based on reported energy consumption as provided by the managers of the relevant assets. For private equity and special situations debt data has been estimated using public market equivalent proxy index data based on asset sector and regional asset exposures.

The summary table below shows the total of all reported and proxy scope 1 and 2 carbon emissions data as at 30 September 2022 covering 76% of the Scheme's total assets. This therefore does not cover the data from 24% of the Scheme's assets where CPTI has not yet been able to collect data, as well as not covering scope 3 carbon emissions.

Asset Class	Scheme emissions* (thousands of tonnes of CO2)	Benchmark emissions (thousands of tonnes of CO2)	Scheme intensity* (emissions by £m invested)	Benchmark intensity (emissions by £m invested)
Public equity	139	257	39	65
Private equity	100	241	49	118
Private Debt	2	8	26	117
Special Situations Debt	57	94	63	117
Infrastructure	105	TBC	146	TBC
Property***	20	TBC	14	TBC
Shipping	131	TBC	1,043	TBC
Total**	554	580	61	65

As highlighted elsewhere in this document this reporting shows that the Scheme owns a number of assets within infrastructure with high levels of emissions and carbon intensity. CPTI is closely focused on climate risk in this area and is reviewing next steps here. The transition in infrastructure presents an attractive opportunity.

Next Steps on Metrics and Targets

In future, the Trustee aims to continue to work towards the target of increasing actual carbon emissions data that is available for the Scheme across asset classes. CPTI is already engaging with a number of the Scheme's private market investment managers to improve disclosure as well as mandating disclosure in IMAs. The scheme will also begin monitoring Scope 3 emissions ahead of its next TCFD report.

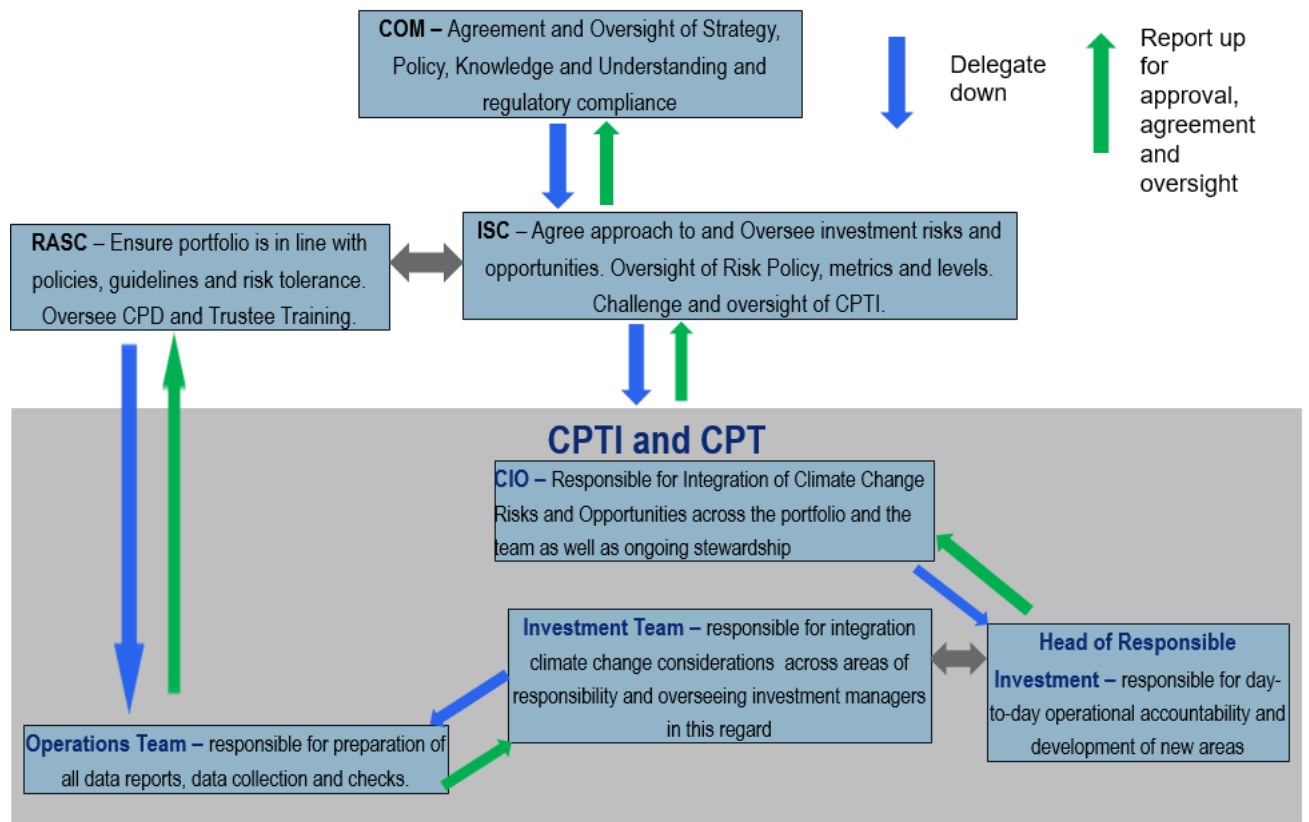
As part of new Government legislation, the Trustee plans to consider the percentage of the Scheme's assets which are aligned to the goals of the Paris Agreement. The Trustee already looks at

this in its approach to engagement through EOS and the Scheme's investment managers. However, the Trustee plans to introduce a metric which can be tracked more formally.

Section 6 – Conclusion

This first 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 Risk and Opportunity, this work will take several years. The Trustee also acknowledges the high level of uncertainty around all of 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 as a whole, it is committed to continuing to develop its approach in this area, and to both challenge and partner with asset managers.

Appendix 1 – Climate Oversight Governance Structure



Appendix 2 – Case Studies

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 taken into account. 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 Trustees appointed EOS to engage and vote for the Scheme on the whole of these portfolios.

The LCTR strategy measures companies along 5 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 5 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. At 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 – Climate and China

The Scheme 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 manager's approach to climate risk and opportunity was also a key factor, as well as their limited stewardship in this area. As at 30th December 2021, the quantitative China portfolio had the public equity portfolio's worst Carbon Intensity value of 423. To put this value into context, the next worst performer in regard to Carbon Intensity for public equity had a value of 215 t/\$m EVIC.

Case Study 3: 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.

Specific ESG Actions to Date

- **ESG Capabilities:** DREAM has scheduled quarterly firm-wide ESG training sessions for 2023, with topic-specific and ad hoc workshops as needed. The most recent training session was held on February 8th. DREAM also hired an ESG Director to help oversee and manage ESG-related performance of the portfolio alongside Delancey's Responsible Investment Director. Finally, DREAM has appointed a team of third-party sustainability consultants to assist with data management and climate-related modelling, action-plans, and reporting.
- **ESG Data Quality and Coverage:** At the back of discussions with market participants and different ESG data solution providers, DREAM sought to contract a third-party ESG data platform to help manage the ESG data of the portfolio. The platform will help in the drive towards automating ESG data collection, improves quality control, allows for management of action plans, and helps streamline reporting.
- **Physical Risk:** To ensure transparency and consistency in the approach across the portfolio, DREAM will conduct a full physical and transition risk assessment on all assets in 2023, using a more UK-focused methodology. The results will feed into asset prioritisation and sustainability action plans.

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. Several of these are detailed below.

Case Study 1: Infrastructure Investment in Solar Panels with Greencoat Solar II



Source: Greencoat Solar

Greencoat Solar is a platform that owns and operates UK Solar PV generation assets to provide a robust, inflation-linked yield to investors. The fund has raised over £1 billion in committed capital to invest in solar panels and has invested in 1,004MW of installed capacity across 96 solar farms in the UK. The Scheme committed £85m to Greencoat Solar II in March 2018. The Scheme owns the solar panels pictured above through the fund.

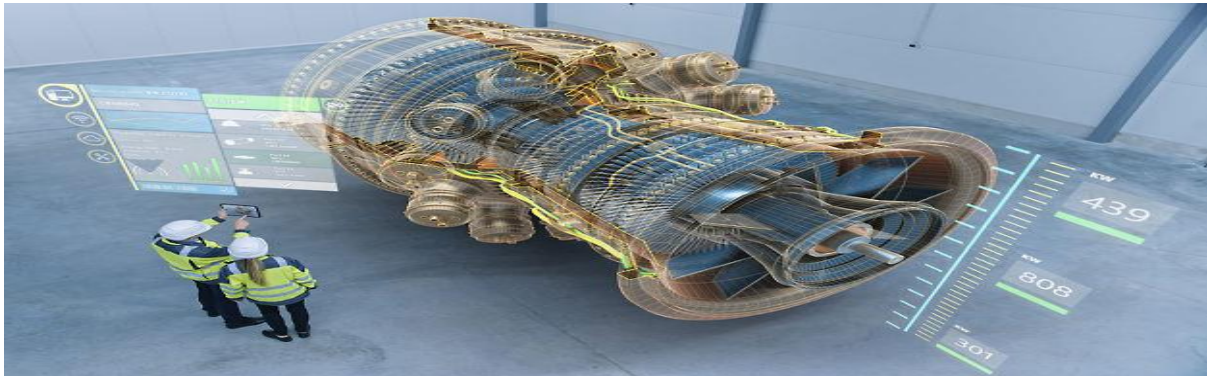
Case Study 2: Climate Opportunities Mandate in Public Equities - Ninety One

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.£355million 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 the Scheme invests in through this mandate are outlined below.

i) Ansys



Source: Ansys

Ansys develops simulation software for computer-aided engineering, which is used to predict how products will behave in the real world. Its software allows customers to reduce material inputs, increase energy efficiency and stimulate innovation within low-carbon technologies across renewable technologies, electrification solutions, and building and industrial processes.

ii) NextEra Energy



Source: Yahoo Finance

NextEra Energy is the world's largest generator of electricity from wind and solar, a market leader in battery storage, and the market leader in North American renewable energy. The company also operates and invests in electric transmission in the US. Sustainable decarbonisation will require a complete change in how we generate electricity, moving away from fossil fuels towards renewable energy, mainly wind and solar. It will also require significant investment in electricity networks to reduce losses and better integrate renewables. As of 31 December 2021, NextEra operated 20GW of wind energy and 7GW of solar across 38 US states and four Canadian provinces. It also operated 87,610 miles of transmission and distribution lines.

iii) **Novozymes**



Source: European Investment bank

Novozymes sells enzymes and microbes which serve as biological catalysts to speed up chemical reactions. The company uses enzyme technology to offer products that improve yields, increase energy efficiency and reduce carbon emissions. Within 'Household Care', its technical enzymes replace fossil-fuel based chemicals. This enables washing machines and dishwashers to run at lower temperatures, thereby saving electricity and reducing emissions. Within 'Agriculture and Feed', microbes and enzymes improve processes such as plant growth and animal-feed conversion ratios, thereby improving energy and resource efficiency. Within 'Food and Beverage', enzymes are used to prolong shelf-life and improve functionality in end-products and the manufacturing process, lowering energy intensity in many cases.

Case Study 3: 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) **Joy Capital: company investment – NIO**



Source: NIO

Joy Capital is a venture capital firm based in Beijing, China. The firm seeks to invest in Technology, Media & Telecom (TMT), e-commerce, innovative consumer, automobile, entertainment and traditional industries integrated with the internet. Joy Capital invested in NIO in January 2020. NIO is a Chinese multinational automobile manufacturer specializing in designing and developing electric vehicles. The company is known for its development of battery-swapping stations for its vehicles as an alternative to conventional charging stations and has built a network of 604 battery swap stations and 458 power charger fast-charging stations in China with aims to have over 4,000 battery swap stations worldwide with around 1,000 outside of China by the end of 2025.

ii) **HyCap: company investments - Wrightbus and Ryze Hydrogen**

HyCap is a dedicated climate 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 hydrogen ecosystem of production and storage, transportation and distribution, and end users. The first two investments of the fund are Ryze Hydrogen, a green hydrogen producer (and therefore carbon neutral), and Wrightbus which manufactures both electric and hydrogen buses as well as diesel. Ryze is building its operational capabilities and will scale its distribution network over time, aiming to be the supplier to 3,000 hydrogen electric buses across the UK in the next few years supported by a network of green hydrogen production plants and refuelling stations.

Appendix 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.

1) Stewardship in public markets

In public markets the Scheme oversees its asset managers or its dedicated stewardship provider, EOS, in their voting and engagement. Where the Scheme hires a manager with a strong in-house approach to stewardship the Scheme will enable the manager to directly engage and vote on behalf of the Scheme, otherwise this will be delegated to EOS. CPTI determines in the case of each public markets manager whether the manager or EOS can deliver better stewardship of the Scheme's assets. The Trustee has appointed EOS at Federated Hermes (EOS) to assist in fulfilling its fiduciary responsibilities as a long-term investor in global equities and corporate bonds. EOS is a dedicated stewardship service provider whose purpose is to help long-term institutional investors be more active owners of their assets and to manage their risks by engaging with companies and policymakers on a range of issues including climate. Their approach is to engage in person and at board or executive level wherever possible, in order to effect positive change. EOS provide ongoing assistance to the Scheme and their involvement, as well as the scope of their services, is kept under regular review.

EOS company engagements

Two different company engagements by EOS, on behalf of the Scheme, through the collaborative engagement initiative Climate Action 100+ (CA100+) are outlined below. Since December 2017 CA100+ has been striving to bring the world's biggest corporate emitters into line with international ambitions for a 1.5-degree world. EOS is a significant supporter of CA100+, leading or co-leading engagement at over 25 of the 167 focus companies across Europe, North America, and Asia. According to analysis by research company BNEF, 111 of the CA100+ focus companies have set a net-zero or equivalent target, compared with five prior to January 2018 when the initiative was launched. BNEF estimates that in 2030, the net zero targets set by these 111 focus companies will reduce greenhouse gas emissions by 3.7bn metric tons of carbon dioxide equivalent annually.

i) LyondellBasell

In 2021 EOS stepped up engagement with notable laggards such as chemicals company LyondellBasell, leading a delegation of eight institutional investors who spoke at the annual shareholder meeting on the company's approach to climate transition. While the other agenda items together took only 12 minutes to resolve, there was over 45 minutes of debate on the company's climate change strategy. EOS had escalated this engagement by obtaining support from 27 institutional investors to use a legal mechanism under Dutch law to require a discussion on climate change at the shareholder meeting. Later in the year, the company made a commitment to net zero emissions by 2050 with interim steps set out towards achieving this goal. These included a 30% absolute reduction in emissions target, and a goal of sourcing at least 50% of its electricity from renewable energy by 2030.

ii) **ConocoPhillips**

In the US EOS's North American engagement team co-led a CA100+ engagement with the US oil company ConocoPhillips asking for an enhanced assessment of its climate-related risk. CA100+ has a flagging mechanism to enhance the impact of investor voting on climate-related resolutions. Seeking more ambition from ConocoPhillips, EOS flagged and recommended a vote for a shareholder proposal at the company's 2021 annual shareholder meeting that asked for absolute emissions reduction targets across Scopes 1 to 3. The proposal gained 58% support and EOS continue to engage on the company's response to this request.

iii) **Air Liquide**

In 2021 EOS stepped up engagement with notable laggards such as Air Liquide. EOS attended the annual shareholder meeting of Air Liquide in their capacity as CA100+ co-lead to ask questions about the industrial gas company's energy transition plan. EOS asked about the absence of a target for Scope 3 emissions, which represent 40% of its total emissions, and when it would be communicating a climate action plan.

They followed up with a letter to the CEO seeking confirmation that the company would fully align its disclosures with the CA100+ Net-Zero Company Benchmark by the end of 2023. EOS also co-signed a letter to the chair and CEO about a ShareAction collaborative engagement initiative focusing on the climate risks posed by the European chemicals sector. In response, the company said that Scope 3 emissions in the chemicals sector were not yet well defined, but it was planning to participate in a Science-Based Targets initiative (SBTi) working group to define the sector's decarbonisation approach.

While EOS engages on the majority of the Scheme's public assets the Scheme does have some managers whom it believes to do an excellent job of this including Ninety One's Climate team, we have included an example of this below.

Ninety One company engagement - Zhejiang Sanhua Intelligent Controls

Zhejiang Sanhua Intelligent Controls is the world's largest supplier of commercial and residential air conditioning, commercial and industrial refrigeration, and home appliances. It is industry-leading, dedicated to provide customers with updated, energy-saving, and intelligent systematic solutions. Ninety One's engagement objective has been centred around carbon disclosure and improving board diversity. The team are making progress with the company in improving climate related disclosures. In July 2021, Zhejiang Sanhua submitted its CDP (Carbon Disclosure Project) questionnaire for the first time, following Ninety One's engagements. Ninety One also discussed the Science Based Targets initiative with the company – management were receptive to adopting a science-based target in the medium term but currently they're focusing on Scope 1 & 2 targets as a start.

2) Stewardship in private equity

During 2021 the Scheme committed capital to a diverse selection of managers that have previously delivered strong returns to the Scheme and that are also increasingly articulating and quantifying

their approach to ESG more broadly and climate specifically. CPTI, on behalf of the Scheme, has had numerous conversations throughout the year with private equity managers, particularly those based in the US, around carbon reporting and considering net zero. Many had not previously begun this initiative. CPTI outlines the requirements to produce the relevant information, the value of it and helps to identify ways for the managers to deliver. CPTI has made meaningful progress in this area with the Scheme's managers, both in ongoing discursive engagements and in adding requirements to delivering reporting in this area to manager agreements. This continues to be a focus of stewardship in PE, both when commitments to new managers are made, in ongoing reviews and in particular where CPTI is part of Advisory Committees.

3) Stewardship in infrastructure – Greencoat Solar Fund II

During 2022 the Scheme made no new infrastructure commitments but continued to work with its incumbent managers to monitor climate-related topics. The Scheme has an investment in Greencoat Solar Fund II, which is invested across a diverse portfolio of nearly 100 solar farms in the UK that has over 1MW of capacity. CPTI notes the manager's commitment to renewable infrastructure throughout its business lines and how it has improved its ESG processes including focusing on the supply chain through formal supplier monitoring and reducing risks associated with modern slavery. For the largest relationship in the infrastructure portfolio, the manager has increasingly improved its measurement and tracking of ESG performance culminating in its third annual ESG report at the end of 2022. The ESG Framework focuses on 9 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 Greencoat to improve its emissions reporting.

4) CPTI Stewardship in Property – Delancey Real Estate Asset Management

As described in more detail earlier in this 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. During the appointment process, CPTI engaged with Delancey regarding concerns that their HR policies were outdated and also regarding the lack of a DEI policy. 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.

5) Property Stewardship (Delancey Real Estate Asset Management) - BP HQ, Aberdeen

Building a strong relationship with occupiers is a fundamental catalyst for improving ESG performance of real estate assets over time. Specifically, ESG data collection from tenant-controlled assets is a challenge that needs to be overcome in order to be able to measure and improve performance.

As a tenant-controlled asset, there was no ESG-related performance data available to Delancey for this Aberdeen asset, beyond a flood risk assessment. Through visiting the site and engaging with the onsite management team on ESG topics, Delancey successfully managed to receive gas, electricity,

and water data for the past three years (with waste data incoming). One of the key outcomes of the engagement to date has been that the site-team is happy to collaborate and provide data on a monthly basis going forward. This will feed into their data management platform and help with overall portfolio reporting. The engagement with the on-site team is an ongoing process where Delancey seek to strengthen the relationship over time and thereby improve the asset's ESG performance and data coverage.

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