Pension Protection Fund

Climate Change Report

2021/22

About the PPF:

Protecting people's futures

Our purpose is to protect the future of millions of people throughout the UK who belong to defined benefit (DB) pension schemes. Should a scheme fail, we're ready to help.

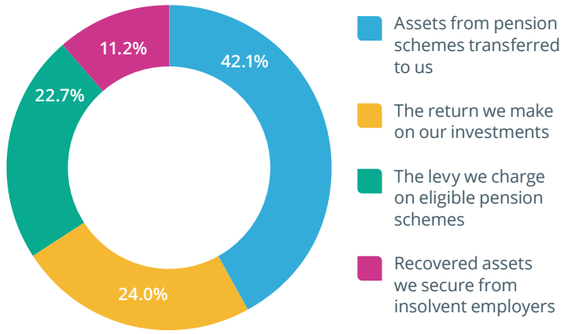
We do this by charging a levy, investing sustainably and paying our members.

Our work has a real impact on people's lives. So whatever we do, we strive to do it well, with integrity and members' futures in mind.

How we are funded

When an employer becomes insolvent and its pension scheme cannot afford to pay the pensions promised, we compensate scheme members for the pensions they have lost. We raise the money we need to pay PPF benefits and the cost of running the PPF in four ways:

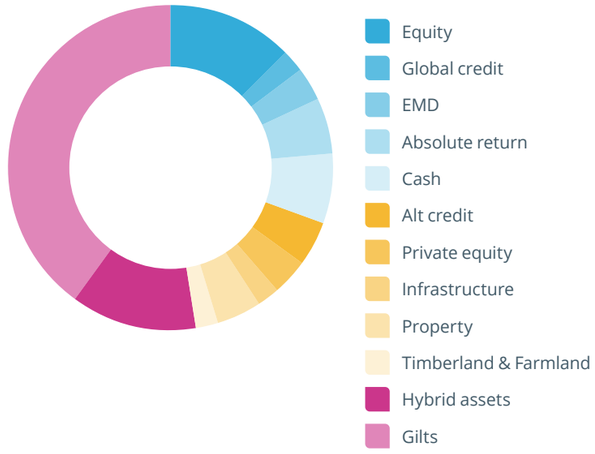
Split of funding sources



How we are invested

We hold £39 billion in our investment portfolio (31 March 2022). This amount is managed in a broadly 50/50 split by internal and external investment teams. We invest across both public and private markets, seeking to capture both capital growth and reliable income generation to meet pension commitments.

Split of asset allocation



The PPF in numbers

as at 31 March 2022

9.7 million
members of schemes we protect

5,000+
DB pension schemes protected

295,000
PPF members currently receiving benefits

£39 billion
of assets under management

The PPF portfolio is currently managed to achieve two long-term objectives:

- Grow assets at cash + 1.5 per cent annualised over the long term
- Allocate a risk budget to assets in our investment universe as efficiently as possible, while ensuring that the interest rate and inflation risks within our liabilities are fully hedged through our Liability Driven Investment (LDI) strategy.

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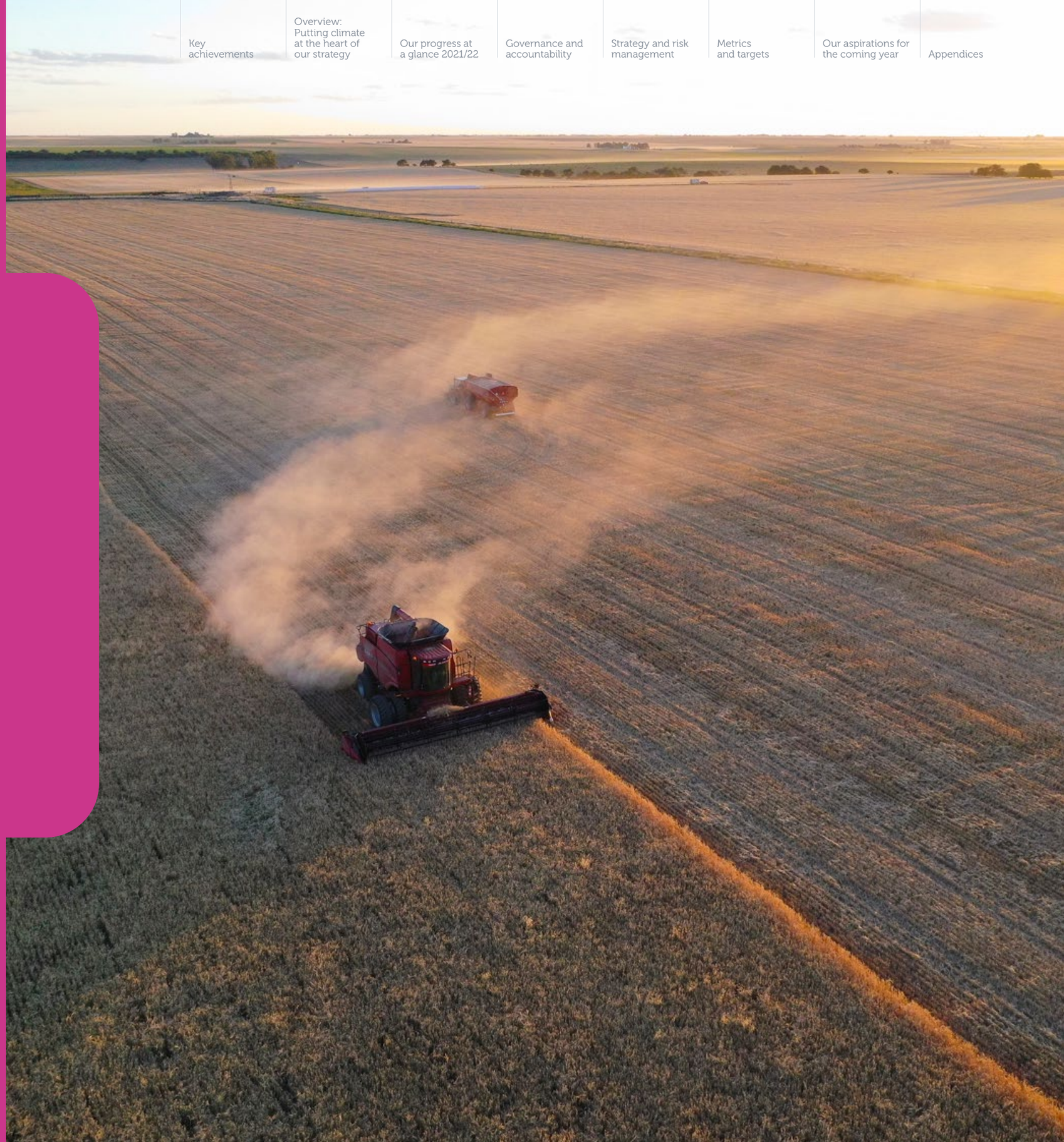


Introduction from our Chair

Kate Jones
Chair

The COP26 Climate Summit held in Glasgow last November intensified the impetus for co-ordinated global action on climate change. It also increased expectations on major institutional investors – such as pension schemes and their trustees – to assess the role their assets are playing in either contributing to, or mitigating, the threat of global warming.

The PPF is committed to shaping best practice in this regard. One of the four priorities of our new Strategic Plan for the next three years is 'Making a difference'. As part of this, we are developing a holistic sustainability strategy, and continuing to set ourselves high standards on climate change, responsible investment and diversity & inclusion (D&I).

We aim to set the standard in our approach to responsible investment by constantly advancing analysis of our climate-related risks and setting clear expectations and actions to respond to them. We continue to advance our stewardship practices to reduce the risks to which we are exposed. And we engage constantly with our external fund managers to encourage ever-greater levels of transparency and disclosure.

We also recognise that we need to be prepared to hold ourselves to the same high standards as we do others. As well as rigorously assessing the climate risks of our investment portfolio, we have therefore started to look at the environmental impact of our own operations.

Many organisations are making statements about their ambitions to support a world of 'Net Zero' carbon emissions. We share this vision. But to ensure our actions are effective, practical and sustained, we are taking a thorough, data-led approach to change.

So we're looking at the detail, measuring our performance, and driving action based on facts and analysis. Through this kind of work and innovation we will make a positive difference, particularly in the areas directly within our control. I'm proud of the work we're doing in this area. We have a genuine opportunity to help shape the debate and raise standards.

Key achievements

Addressing climate change through best practice is a priority for the PPF.

We continue to evolve our strategy and actions to monitor, manage and ultimately reduce the carbon emissions connected to our investments and our own operations. In this way, we strive to reduce the risk that climate change presents to our members' future financial wellbeing – and steer all our investments to support a Net Zero world.

Governance and accountability

- Committed to developing a holistic sustainability strategy as part of the PPF's new Strategic Plan — **See page 09**
- Accepted by the Financial Reporting Council (FRC) as a signatory to the UK Stewardship Code 2020
- Introduced new company voting guidelines for climate change — **See page 09**
- Reported climate-related risks through monthly dashboards to our CIO and through quarterly dashboards to our Investment Committee — **See page 07**

→ **Created clear commitment to and oversight of action to reduce climate-related risks on behalf of our members**

Strategy and risk management

- Updated our climate policy and tools to reflect scenarios for global action to limit warming to 1.5°C rather than 2°C — **See page 10**
- Conducted a Net Zero alignment project across our complete portfolio to assess our alignment with the Paris Agreement and identify highest priority engagement targets — **See page 12**
- Transitioned to our new equity benchmark to drive a significant reduction in the carbon exposure of our equity mandates, especially passive ones — **See page 16**

→ **Acted to reduce exposure to climate risks across our portfolios to safeguard our members' future financial wellbeing**

Engagement and collaboration

- Helped to develop a cross-body industry-standard TCFD template for managers to report carbon emissions to clients — **See page 11**
- Actively participated in a working group for the newly launched IIGCC Net Zero Stewardship Toolkit — **See page 15**
- Participated in CA100+, the biggest-ever investor engagement initiative to which we are a signatory, which saw over 50 per cent of targeted companies committing to Net Zero and nearly 75 per cent aligning their disclosures with TCFD during the year
- Encouraged to see a number of our external fund managers joining the Net Zero Asset Managers initiative – 25 per cent have committed so far

→ **Continued to support and encourage industry best practice to protect the long-term interests of our members**

Disclosure

- Began reporting against the Greening Government Commitments on our operational environmental impact — **See page 30 and our 2021/22 Annual Report & Accounts**
- Expanded the range of TCFD-related metrics on which our Liquids[1] managers report to us — **See page 10**
- Started requiring basic climate data from our Alternatives managers and introduced key ESG risk analysis — **See page 10**
- Shortlisted for the Pensions for Purpose Paris Aligned Awards for the Best Climate Governance and Strategy Statement in November 2021

→ **Ensured we share as deep an insight as possible of the climate exposures we face to provide transparency for our stakeholders**

1 'Liquids' refers to Global Credit, Public Equity, Absolute Return, Emerging Market Debt and Strategic Cash. All of these, apart from Strategic Cash, are managed externally.

Overview: Putting climate at the heart of our strategy

This year we continued our integration efforts to improve our access to underlying climate data via our portfolio management systems. For listed markets, the emissions data available through our systems has increased from 30 per cent to 55 per cent of the Fund's net asset value (NAV) over the year.

Data is still largely unavailable for private markets, however. Understanding the climate risk profile of a diverse portfolio such as ours, with exposure to a number of unlisted investments, therefore remains challenging. To address this, we are actively supporting a broader environmental, social and governance (ESG) data outreach project, led by alternative investment technology platform eFront, to engage with private markets managers to improve the availability of data at a portfolio company and fund level.

As we detail in this report, we are also working with Dutch consultancy Ortec Finance to assess climate alignment across every asset class in our portfolio, with a particular emphasis on private markets.

The aim of this extensive and ambitious project is to measure forward-looking alignment with climate targets. In particular, we have looked to assign a temperature score to every asset we invest in so we can see how the portfolio aligns with the Paris Agreement to limit global warming. In this way, we can establish a baseline and therefore better manage the climate risk exposure of our whole portfolio.

Of course, currently, there is no standardised process for doing this. So our attempt may be a good example of how it might be done for a complex portfolio made up of public and private investments and where diversification is essential to managing investment risk.

Only by doing this groundwork can we figure out how we, as an investor, can get to Net Zero efficiently and at pace – and without any greenwashing.

Barry Kenneth
Chief Investment Officer

A holistic approach to sustainability

The impact the PPF has on the lives of its current and future members is clear, which is why we have further strengthened our commitment to making a difference in everything we do.

Over the coming year we will develop a holistic sustainability strategy, building on our established approach to responsible investment and the significant progress already achieved in our strategic response to climate change. As always, we are focused on balancing the financial commitments to our members with the need for urgent, large-scale action to limit global warming.

As a recent signatory to the FRC's UK Stewardship Code 2020, our commitment is clear. Driving action through thorough data-driven analysis and solutions, transparently managing risk, setting new standards in responsible investing (RI) and sharing our learnings to help others, are all core to our beliefs and values.

We will continue pushing ourselves to further the sustainability of our investments, as well as managing our own operational environmental impact, and that of our suppliers.

Oliver Morley
Chief Executive

Our progress **at a glance**

Achieving more comprehensive reporting

55%

of our Fund's net asset value now covered by carbon emissions data via our portfolio systems

2021: 30%

81%

of carbon data for our Equities portfolio reported by companies themselves

2021: 75%

Focusing on investing with managers committed to climate action

25%

of our external managers now signatories to the Net Zero Asset Managers Initiative

91%

of our externally-managed assets now managed by signatories to the PRI

2021: 84%

Reducing our investment portfolio's carbon footprint

50%

reduction in the absolute carbon emissions[2] and 37% in the carbon intensity[3] of our Equities portfolio over the year

25%

reduction in the exposure to thermal coal reserves of our Equities portfolio – down to <1%

Cutting our climate risks

12%

reduction in our Equities portfolio Climate Value-at-Risk (CVaR)[4], led by our Climate Minimum Variance Equity benchmark

32%

of our Equities portfolio invested in companies that have committed to science-based targets (SBTs)

Assets under management (AUM) percentages based on market value

2 PPF Equities Total Financed Emissions (tonnes CO_2e)

3 PPF Equities Weighted Average Carbon Intensity (tonnes CO_2e/$m revenues)

4 Based on the most aggressive transition risk and physical risk scenarios (1.5°C disorderly, aggressive) provided in the MSCI Climate Value-at-Risk (CVaR) tool – see page 23

Governance and accountability

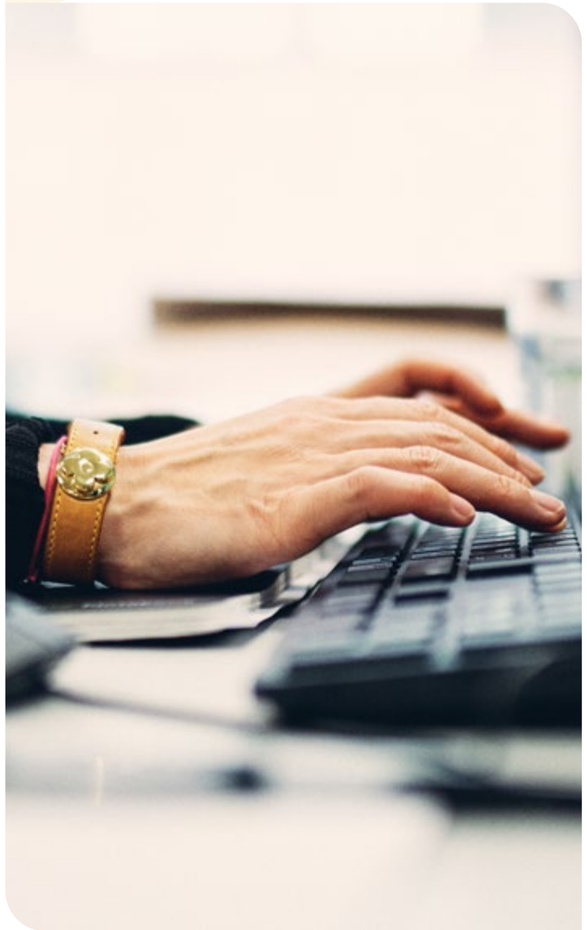
Strong governance, with clear oversight, responsibility and accountability, is key to delivering on our climate strategy as well as our broader investment goals.

This year, we have supported our robust RI governance framework with actions to put climate commitments at the heart of our business strategy and continued to be an active steward of the companies we invest in.

Our governance-related activities during the year

	Function	Roles & responsibilities	Climate-related activity in 2021/22
1	PPF Board	Highest governing body with oversight for responsible investing (RI) and stewardship activities (including climate-related)	Approved our new voting guidelines
			Discussed in detail the RI activities and progress taking place throughout the year, including outcomes from the transition to a new lower-carbon Equity benchmark and our Paris Portfolio Alignment Project
			Undertook extensive training to expand the Board's knowledge and awareness of climate change risks and how these can be managed and monitored
			More training planned in 2022 around our Sustainability strategy
2	Investment Committee	Responsible for developing and maintaining the PPF's RI and stewardship principles and policies (including climate-related)	Approved the update to our Climate Change Policy and our new voting guidelines and reviewed our Stewardship Policy
			Our RI and climate-related activities and progress were reported on and discussed at all four IC meetings, providing the Committee with regular oversight on implementation
			The content within the quarterly IC reporting is still evolving as ESG data and tools improve
3	Investment Team	Led by the CIO, responsible for ensuring adherence to the RI framework, stewardship principles and associated policies across all asset classes whether internally or externally managed	Climate-related risks in the portfolio reported to our CIO and Head of Investment Strategy through monthly dashboards
			ESG and climate assessments continued to be formal components of all investment due diligence and manager monitoring processes
			A number of teach-ins held with portfolio managers, including dedicated workshops for each desk on our Paris Portfolio Alignment Project
			In-house portfolio managers given access to more ESG and climate-related resources from external providers through our investment risk systems
			PPF shortlisted in November 2021 for the Pensions for Purpose Paris Aligned Award for the Best Climate Governance and Strategy Statement

GOVERNANCE AND ACCOUNTABILITY CONTINUED



Our governance-related activities during the year continued

	Function	Roles & responsibilities	Climate-related activity in 2021/22
4	ESG Team	Part of the Investment Team, helping to oversee implementation of the RI framework, monitor investments for ESG risks and opportunities, engage with portfolio managers, external managers and our stewardship services provider	Developed our new voting guidelines – see Appendix F Throughout the year, the ESG Team provided updates in the daily Investment Team meetings on ESG issues and trends The ESG Team was expanded with the addition of an ESG Data Analyst to help streamline and improve efficiencies within our ESG data management Our Head of ESG was one of a select few to participate in the UK's CFA Institute pilot of its new Certificate in Climate and Investing qualification and was awarded the certificate in March 2022
5	Asset Managers and Stewardship Services Provider* * EOS at Federated Hermes (EOS)	Follows the PPF's RI framework and stewardship policy, undertakes ESG integration and issuer engagement then reports transparently and accordingly	**Asset Managers** Having rolled out our new quarterly ESG reporting templates for Liquids managers last year, we evolved the templates this year to expand on the range of TCFD metrics requested To improve disclosure within Alternatives, we encouraged a number of private markets managers to join the ESG Outreach pilot project initiated by eFront **Stewardship Services Provider*** We further consolidated our voting processes, bringing more under the remit of our agreement with EOS, giving us better oversight of our voting decisions, especially in terms of consistency around climate-related ballots For pooled funds outside of this agreement, we have a split voting set-up that allows us to override on significant votes and used this during the year

GOVERNANCE AND ACCOUNTABILITY CONTINUED

Putting sustainability at the heart of our business strategy

The PPF is committed to driving best practice in sustainability as an organisation. This year we launched a new **Strategic Plan for 2022–25**. Reflecting our strategic priority on 'making a difference', this includes commitments to develop a holistic sustainability strategy, to set the standard in our approach to responsible investment and to reduce our own environmental footprint as an organisation.

To support our holistic sustainability strategy, we are forming a Senior Leaders' Steering Group for interested non-executive and executive committee members to provide input and direction as work progresses. We are also creating internal working groups to address specific development and implementation initiatives.

Updating our climate policy

Next steps

By 2023 we will establish a baseline of the PPF's own environmental impact, and propose a sustainability strategy and targets to reduce our impacts over the period to 2025, reflecting best practice standards.

Since the release of the IPCC special report in late 2018 describing the additional negative impacts caused by 2°C warming compared to 1.5°C warming, global focus has shifted overwhelmingly to efforts to limit warming to 1.5°C. We are now starting to see this reflected in available climate scenarios, including the International Energy Agency (IEA)'s newer 1.5°C scenario released last year. Accordingly, we have aligned our climate policy with this greater ambition, referencing climate-related scenarios seeking to limit global warming to 1.5°C rather than 2°C (see Appendix B for our updated policy).

Strengthening our stewardship commitment

We view stewardship as one of the most powerful ways we can drive companies to transform their climate impact, generating real world decarbonisation. In March 2022, we were accepted by the Financial Reporting Council as a signatory to the UK Stewardship Code 2020, recognising our efforts in responsible investment and the strength of our new **Stewardship Policy**.

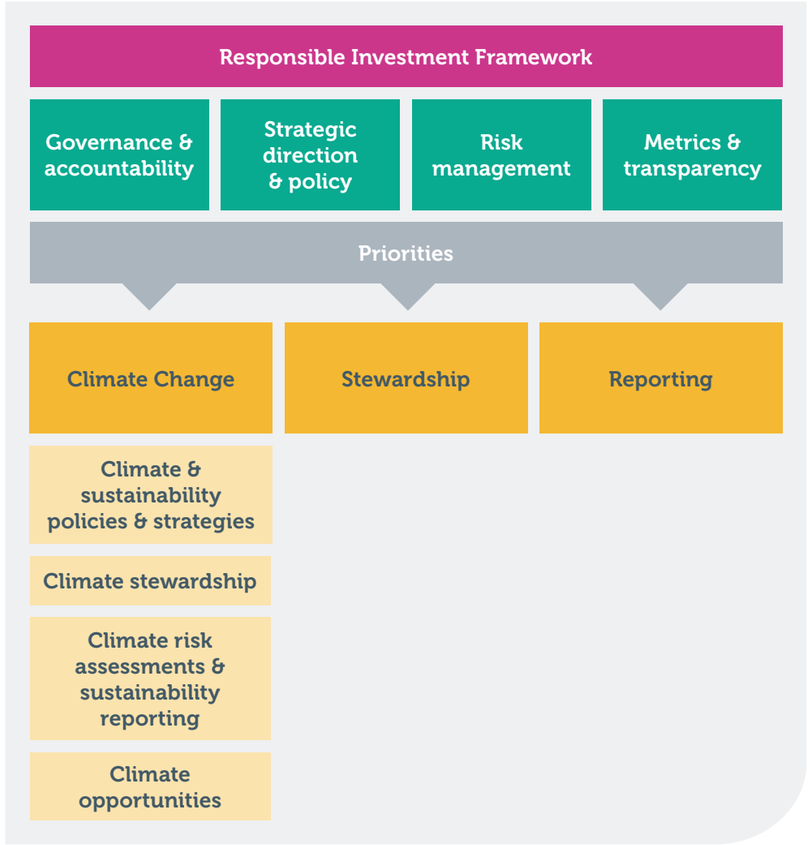
Escalating our engagement through climate-related voting is also a critical element of our stewardship activities. We drafted new voting guidelines during the year to inform our voting decisions in the 2022 AGM season. The guidelines summarise situations where the PPF will consider voting against management on issues relating to climate change, modern slavery and D&I – see Appendix F for guidelines related to climate change. We have selected these topics to reflect our own focus areas as an organisation.

We also consolidated our voting processes across our different equity mandates further to provide greater oversight and consistency – see the 'Activities by governance function' panel above for more detail.

Being open about what we can do

We are pragmatic and transparent about doing what we can around governance and oversight of climate change in relation to our investments. We recognise that some elements may currently be too costly or too difficult to implement in their entirety. But we continue to monitor the landscape and work with fund managers, regulators and other industry actors to progress best practice, particularly on metrics and reporting initiatives. Where assumptions have been made, or limitations faced in our assessments, we are open about this.

Our RI framework puts our core beliefs into practice:



Signatory of: STEWARDSHIP CODE | 2021

Strategy and risk management

We continue to look to improve how we identify, quantify and manage climate-related risks and opportunities that could affect our investments, our business plans and strategy. Increasingly we are also looking to take account of our own operations and reduce the impact of our day-to-day activities on the environment.

Certain risks (and opportunities) can have different likelihoods or magnitude of impact, depending on the asset class.

Some examples of the risks and opportunities we've identified include:

- **Transition –** Risks that may impact company earnings in the shorter term, e.g. policy risks arising from carbon pricing or taxes.
- **Technology –** Risks and opportunities as companies develop, or don't adopt, superior technology to build industry-based solutions.
- **Physical –** Risks in the medium to long term that may impact assets, e.g. infrastructure and property in certain locations.
- **Opportunities –** There are opportunities within some asset classes, e.g. sustainable forestry assets that offer a viable nature-based solution to climate change mitigation.

How we consider the impact of climate on our strategy and resilience

To assess climate-related impacts on our investment strategy and our planning, we use a wide range of metrics and techniques. We constantly look to use the most advanced and relevant analytical tools available to provide the most accurate and helpful analysis.

This year, we've moved to considering the impact of a more aggressive 1.5°C climate policy on our portfolios and strategy, mainly by starting to consider Net Zero scenarios within our scenario analysis (namely within our Paris Portfolio Alignment Project – see page 12, and MSCI Climate VaR – see page 23). We are also thinking about the implications of a 1.5°C warming target more specifically in our pre-investment due diligence: for example, what does it mean for housing associations in the UK?

Advancing our external manager reporting to determine material risks – We continue to push our fund managers across all asset classes to step up their regular reporting to us and encourage them to set best-in-class reporting standards for their markets. Over the year, we have made steady progress to improve the quality of both ESG and climate reporting from our managers, which has led to much more fruitful conversations with our managers about specific risks and potential impacts on investment theses.

Assessing Liquids – After the success of getting our Liquids managers to implement our quarterly ESG reporting templates last year, we've since concentrated on expanding the range of TCFD-related metrics on which they report. These now include:

- additional carbon footprints beyond just Weighted Average Carbon Intensity (WACI)
- a breakdown of the largest contributors to carbon intensity (by sector and individual holding)
- aggregated exposure to fossil fuel reserves
- percentage of holdings disclosing emissions and percentage providing TCFD-aligned reporting
- scenario analysis across at least two (ideally three) scenarios, and
- an assessment of the portfolio's alignment to the Paris Agreement and the percentage of companies with targets.

We have a minimum level of mandatory climate reporting for all of our Liquids managers. Acceptance of these minimum reporting requirements feeds directly into pass/fail funding decisions.

Assessing Alternatives – For alternative asset classes such as real estate and private equity, there is generally far less data available. However, there is increasing attention on private markets and real asset classes and their importance in the transition to Net Zero. We now require our Alternatives managers to report some basic climate data for their funds and demonstrate their grasp on strategy and risk management of climate risks for portfolio companies.

Next steps

The enhanced additional TCFD metrics we now request in our quarterly ESG reporting templates will become mandatory in time. However, we acknowledge that data/analysis doesn't yet exist for all of the data we have requested from managers, particularly in areas including emerging market debt and strategies using derivatives. Therefore, a lot of data is currently provided on a 'best efforts' basis by our managers. We continue to support our managers in developing their processes to provide more depth and accuracy to these metrics as it becomes feasible to do so.

STRATEGY AND RISK MANAGEMENT CONTINUED

Increasing our internal access to portfolio data

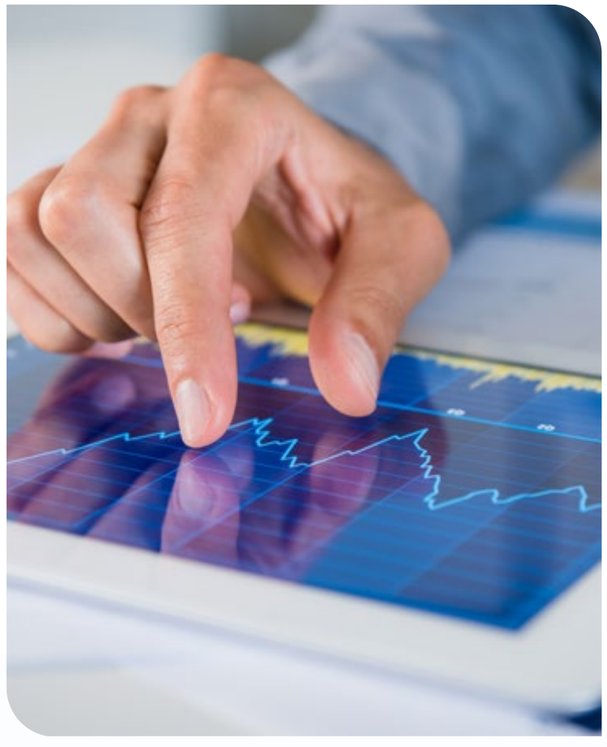
We regularly review the climate-related services of our main ESG data provider, MSCI, which is rapidly expanding its breadth and depth of analysis, especially within its scenario analysis and climate value-at-risk (CVaR) measurements. Much of this expansion feeds directly into our portfolio and risk management system, Aladdin, so we can now run comprehensive TCFD assessments for our listed Equity and Credit portfolios in the moment. We have also acquired access to a new sustainability module in our private markets investment software, eFront, which allows us to conduct key ESG risk analysis for our Alternatives funds. More progress is still needed, however, in the coverage of private markets and real assets, especially on carbon emissions and transition/physical risks.

We have broader ESG data and scores available through our portfolio management systems for 70 per cent of the Fund's net asset value (NAV), accounting for almost all of our listed holdings. Within these systems, the access to more specific carbon emissions data – whilst lower than the broader ESG scores – has increased over the past year from 30 per cent to around 55 per cent of NAV[5].

The difficulty in assigning carbon emissions and understanding our exposure for our sovereign debt holdings continues to limit this coverage. Over the next year we hope to see an expansion in tools addressing sovereign markets to help inform our strategy further.

Next steps

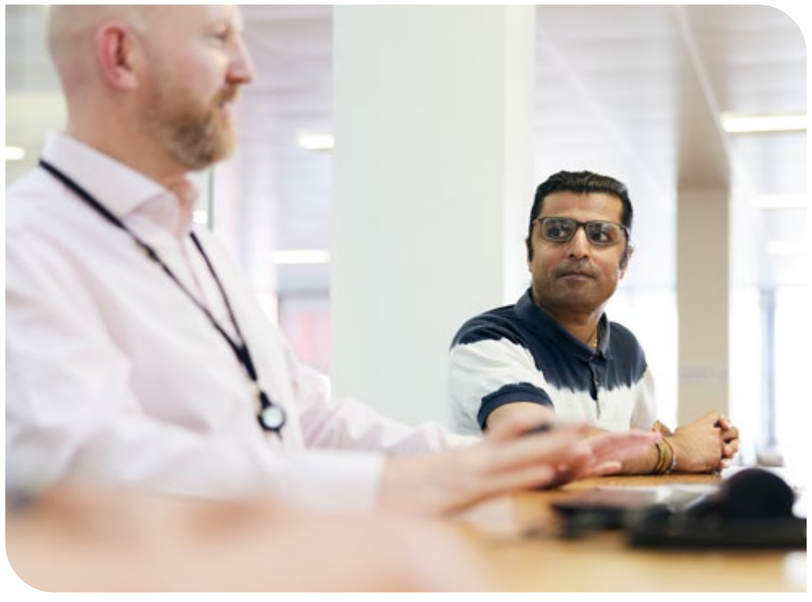
We strongly support tools such as the expansion of the Transition Pathway Initiative (TPI) into more credit issuers, and the new ASCOR project by the Principles for Responsible Investment (PRI) to develop a robust carbon and climate-risk assessment framework for sovereigns. As this is work in progress, however, we have started to assess our sovereign exposure using newly proposed approaches, starting with our UK Gilts portfolio, which we detail later in this report.



Standardising reporting frameworks

We see real value in pushing the industry to agree on more common climate reporting frameworks and templates, and being able to share our experience and thoughts on this. We played an active role in a working group led by the Pensions and Lifetime Savings Association (PLSA), the Investment Association (IA) and Association of British Insurers (ABI) tasked with developing a standard TCFD template for reporting carbon emissions. The template was recently finalised and we plan to roll it out to managers shortly.

We have also joined eFront's ESG Outreach pilot project, which will work with private equity and credit managers to collect relevant ESG metrics on their underlying portfolio companies to feed into investor reporting – an important step in addressing the lack of ESG data and reporting from private companies. The solution will be available to over 2,500 private markets managers, reaching over 70,000 private companies.



> "We can now run comprehensive TCFD assessments for our listed Equity and Credit portfolios in the moment."

Considering our operational emissions

Most of our material exposure to climate-related risks exists in the downstream 'financed emissions' in our investment value chain. As a result, we focus our strategy and risk management primarily on these financed emissions, as recommended by the Greenhouse Gas Protocol Scope Calculation Guidance.

However, in support of the Government's commitment to reduce its impact on the environment we're also reporting against the Greening Government Commitments (GGC). This includes reporting on the environmental impact of our operations out of our two shared-lease buildings in Croydon and London, both of which use energy from renewable sources and have zero Scope 1 greenhouse gas emissions from combustion. We will evolve this as part of our plans to develop an organisation-wide, holistic sustainability strategy.

5 The percentage of carbon emissions data is lower than broader ESG data, due to a more limited amount of datapoints for sovereigns, supranationals and agencies.

STRATEGY AND RISK MANAGEMENT CONTINUED

CASE STUDY

Assessing our portfolio alignment with the Paris Agreement

There has been a lot of focus recently on how investment portfolios can align to Net Zero commitments, with varying opinions on what it should entail. Wanting to be better informed about our own fund's position, we began an innovative project in early 2021 to carry out a practical, bottom-up assessment of our portfolio and the implied temperature rise our investments indicate relative to Paris targets.

The challenge

In 2019, we became involved with the IIGCC's Paris Aligned Investment Initiative (PAII) to support investors to align their portfolios to the goals of the 2015 Paris Agreement. The PAII developed the Net Zero Investment Framework (NZIF), which provided a useful starting point for us to assess the alignment of our own portfolio with the Paris target to limit global warming to no more than 1.5°C.

But the NZIF covered less than 25 per cent of our portfolio. This was primarily because our significant allocations in liability hedging instruments and private market assets were out of the NZIF's current scope. We therefore appointed an external consultant, Ortec Finance, to help us design an independent, objective measure that could baseline our entire portfolio in a way that aligns with the PAII's goals.

Our solution

For the first phase of the project in summer 2021, we analysed our public equities and bonds (including LDI, sovereigns and corporates across both developed and emerging markets), and real estate portfolios. As a starting point, we applied one of the open-source methodologies referenced in the NZIF. However, its default implied temperature rise (ITR) of 3.2°C for all companies without disclosed targets, regardless of their sector or current emissions, meant we were unable to identify the better or worse performers in specific sectors for over 80 per cent of our corporate holdings by value. We therefore couldn't prioritise companies for engagement, or identify companies that were unlikely ever to align.

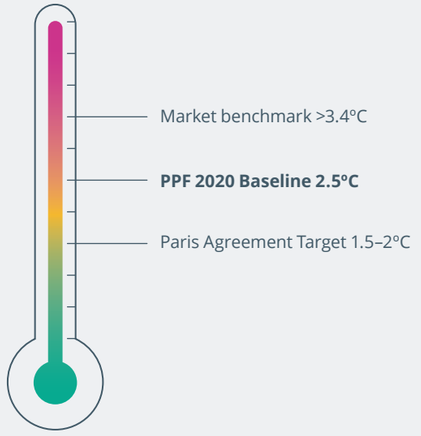
To address this, we adopted an alternative approach that considered how companies are operating today and then estimated the amount of global warming if the entire world operated at the same emissions intensity as the entity in question. This was then compared with a target emissions reduction pathway for each company's sector. We also estimated sector-specific baseline scores for companies lacking emissions data, which was crucial in allowing us to proxy our private markets holdings on a more granular basis in the second phase of the project.

Interpreting the results

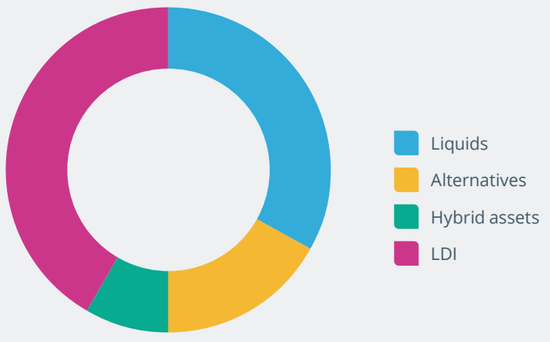
The overall weighted ITR score for the Fund's December 2020 baseline was assessed as 2.5°C, covering all desks[6]. For context, this is below the global market estimate of 3–3.5°C warming and at the bottom of the global current country policies ITR projection of 2.5–2.9°C by 2100, both assessed by Climate Action Tracker[7].

The results indicate that LDI is the biggest overall contributor to the Fund's ITR (see chart right). However the relative strength of UK climate policies means that UK LDI assets contribute to a lower overall ITR (although we note that even the UK is not yet deemed to be aligned with 1.5°C). But we can also see that a lot more needs to be done by both corporates and governments, especially in emerging markets. We cannot address this in isolation, but we can undertake targeted engagement with specific issuers to encourage a shift towards a more aligned trajectory, starting in many instances with better disclosure.

Implied Temperature Rise (ITR) baseline score of our Fund



ITR baseline contribution by desk



Next steps

Firstly, we acknowledge the data limitations with these calculations and we've had to make some assumptions during the project. However, we do now have a much better understanding of the most material contributors to climate change in our portfolio and can therefore make much more informed decisions about what we need to do going forward.

There are few assets in the broad investment universe that can already be categorised as "aligned" to Net Zero. Just under 20 per cent and 4 per cent in the PPF Equities and Credit portfolios were identified respectively through Ortec Finance's analysis of these portfolios[8]. Credible targets set by companies are, therefore, a way to identify both the opportunities certain companies face to improve their alignment to Net Zero, and the risks others face if they don't adopt a feasible strategy to become aligned. See page 26 for our current exposure to companies that have committed to or set science-based targets.

We are now highlighting the parts of our Fund where the greatest need to transition lies, and identifying a subset of portfolios, sectors and companies as our highest priority engagement targets. We will work with our stewardship services provider EOS, with our fund managers, and also consider direct engagement ourselves, to ensure this subset is held to clear and measurable progress. We will provide more detail on how this will feed into our engagement plan in our next Responsible Investment Report.

6 But excluding derivatives, short positions, pure cash instruments, FX, Forestry & Farmland and holdings without lookthrough (e.g. ETFs, secondaries).

7 Glasgow's 2030 credibility gap: net zero's lip service to climate action | Climate Action Tracker

8 By market value, holdings as at 31 December 2021.

STRATEGY AND RISK MANAGEMENT CONTINUED

How we assess the risks and opportunities

Our climate transition scenarios

We continue to consider three main climate transition scenarios when stress-testing our assets. We believe that a disorderly transition to Net Zero is likely to have a different impact on assets from an orderly transition. We also feel it is prudent to consider a failed transition scenario too.

- **Paris Disorderly, or Late Action:** A sudden disorderly transition to a temperature rise of 1.5°C or below 2°C by 2100.
- **Paris Orderly, or Early Action:** An orderly transition in line with the Paris Agreement that limits global warming to 1.5°C or below 2°C by 2100.
- **Failed Transition, or No Additional Action:** Continuation of current trends, with little-to-no transition, leading to at least 3–4°C rise in temperature by 2100.

Assessing transition risks

As they are most widely available to us, we're currently using the following modelling tools, methodologies and forecasts to assess the risks to our portfolios of transitioning to a zero-carbon global economy.

- MSCI ESG's Portfolio Climate Value-at-Risk (VaR) – see further detail and advances in the MSCI ESG Climate VaR tool on page 23
- IEA scenarios (from its Energy Technology Perspectives report), available through the open-source Transition Pathway Initiative (TPI) and the Paris Agreement Capital Transition Assessment (PACTA) tools
- The PRI's Forecast Policy Scenario under its Inevitable Policy Response

Every tool complements each other but we are primarily using MSCI Climate VaR to inform our climate risk management across the listed portfolios as its coverage is comprehensive. We use TPI and PACTA to support this with additional analysis on specific high-impact sectors.

As mentioned earlier, we have also started asking our Liquids managers to report transition scenario analysis as part of the enhanced TCFD data we require from them, to compare and contrast with our own results.

Assessing physical risks

We continue to inquire how our fund managers are assessing physical and adaptation risks across our portfolios, especially among our real assets.

Physical risk analysis is one area where we have seen slower progress over the year than intended, mainly due to a lack of usable external tools and the additional resource required. However, we have seen improvements in the MSCI Climate VaR tool to further incorporate physical risks over the year, and we have been leveraging this in our assessments of our Equities, Global Credit and UK Credit portfolios – see page 24.

Identifying and exploiting opportunities

A decarbonising economy presents investment opportunities as well as risks. We are especially focused on seeking opportunities where real assets can contribute positively to the global transition to Net Zero, as well as offer adaptation and resilience to the impact of a warming climate:

- **Forestry**
  Sustainable forestry is one of the few viable, nature-based solutions to deliver carbon sequestration and help mitigate CO_2 emissions. Well-managed and certified forests also contribute to biodiversity and help adapt to climate-related physical risks such as flooding and soil erosion. Over the year, our investments in forestry have grown by 20 per cent to approximately £1 billion. As well as reporting on certification progress, all of our external fund managers now provide some data on carbon sequestration across our forestry assets. See page 27.
- **Infrastructure**
  Sustainable infrastructure is an attractive opportunity, both helping to reduce the carbon emissions related to economic development and providing communities with greater resilience to the impacts of climate change.

  We invest with infrastructure managers that take a diligent and robust approach to measuring climate risks and who are able to report on their progress. This year, we invested in a pioneering urban resilience fund to support cities in delivering critical resilience infrastructure projects – see case study, right.
- **Real estate**
  Construction and buildings account for nearly 40 per cent of energy and process-related carbon emissions and therefore play a core role in global efforts to decarbonise[9]. According to the IEA, in order to meet the target of carbon neutrality by 2050, all new buildings and 20 per cent of existing ones would need to be zero-carbon-ready as soon as 2030[10].

  Real estate accounts for just under six per cent of the total NAV of our investment portfolio. In line with our overall approach to climate risks, consideration and assessment of transition and physical risks in our Real Estate portfolio are a vital part of our approach. As our real estate investments are predominantly managed externally, our focus is on ensuring robust monitoring and oversight of our managers' capabilities. See page 26 for more detail.
- **Opportunities through low-carbon technologies**
  We use the MSCI Climate VaR tool to identify how listed companies exposed to opportunities from low-carbon technologies might benefit our portfolios in the future under various scenarios.

  Technology opportunities are identified based on a company's current green revenue estimates and low-carbon technology capacity. MSCI estimates current green revenues based on a Sustainable Impact classification of the company's products and uses patents as a proxy for low-carbon technology capacity. MSCI allocates future green revenues (and future green profits) to each sector and then each company gets a share of the revenues based on its current market share and its modelled patent share.

CASE STUDY

Investing in an urban resilience fund

More than half of the world's population live in cities but urban infrastructure and resilience are increasingly being tested by rapid urbanisation and the impacts of climate change. To address this, we invested this year alongside world-leading organisations in a new urban resilience fund. The fund will look to invest in five areas (see below). The fund is seeking to align with the Paris Agreement alongside having dedicated resilience objectives, which will measure its contribution to the UN SDGs (with a carried interest linked mechanism to resilience / impact objectives). As such it will also seek to qualify for Article 9 fund status under the Sustainable Finance Disclosure Regulation (SFDR). The fund's financing model is novel in combining institutional capital with that of development finance institutions, enabling it to meet different risk profiles whilst ensuring stability. The manager will track a suite of metrics related to the carbon footprint of assets, labour standards and community development. Our investment is targeted towards OECD countries.

The fund's investment focus

- **Urban mobility and related services**
- **Energy transition and adaptation of existing services**
- **The built environment (schools, hospitals, public/community infrastructure)**
- **Smart city solutions**
- **Circular economy and resource management**

9 "The buildings and construction sector accounted for 36% of final energy use and 39% of energy and process-related carbon dioxide (CO_2) emissions in 2018, 11% of which resulted from manufacturing building materials and products such as steel, cement and glass". Global Status Report for Buildings and Construction 2019 – Analysis - IEA

10 "buildings remain off track to achieve carbon neutrality by 2050. To meet this target, all new buildings and 20% of the existing building stock would need to be zero-carbon-ready as soon as 2030". Tracking Buildings 2021 – Analysis – IEA

STRATEGY AND RISK MANAGEMENT CONTINUED

Summary of our progress in assessing climate risks across asset classes

The following table summarises the progress we've made over the year using various metrics to measure our climate-related risks in each asset class.

METRIC TYPE	ASSET CLASS	WHAT IS MEASURED?
Carbon emissions	Corporate Bonds & Equity	**Absolute carbon emissions** apportioned (using EVIC) to PPF's holdings *(tonnes CO_2e)*
		Relative carbon intensity apportioned (using EVIC) to PPF's holdings, normalised by amount invested *(tonnes CO_2e/USDm)*
	Corporate Bonds & Equity	**Weighted average carbon intensity** of PPF's holdings, normalised by revenues (corporates) or PPP-GDP (sovereign), *(tonnes CO_2e/USDm)*
	Sovereign Debt (UK only)	
	Real Assets	**Carbon metrics –** work in progress
Climate Value-at-Risk (CVaR)	Corporate Bonds & Equity	**Transition risks –** policy risk costs, technology opportunities *(% of Enterprise Value)*
		Physical risks *(% of Enterprise Value)*
	Sovereign Debt	**Climate VaR metrics –** work in progress
	Real Assets	**Climate VaR metrics –** work in progress
Green revenues	Equity (passive only)	Revenues generated from green business activities *(% of revenues)*
Portfolio alignment	Corporate Bonds & Equity	% of portfolio companies committed to the Science Based Targets initiative (SBTi) or other science-based targets
	Corporate Bonds & Equity	**Implied Temperature Rise,** expressed in °C (by 2100)
	Sovereign Debt (UK only)	
	Real Assets	
	Private companies	

STRATEGY AND RISK MANAGEMENT CONTINUED

How we manage the risks

Considering the positioning of our portfolios

As detailed in the case study on page 16, we have moved to a low-carbon equity benchmark to actively manage our equity positioning in relation to the energy transition. Alongside our passive mandates that closely track this benchmark, we have also seen an indirect feed through into the positioning of our active quantitative equity strategies.

We use the information reported to us by our managers in our quarterly ESG templates to review any material risks highlighted by them and compare these reports against our own internal monitoring. This has allowed us to have much more constructive discussions in our manager review meetings, so that we can understand their investment theses and potentially challenge them on their assumptions where necessary. The stewardship sections of our manager reporting template also provide us with more detail on how our managers are engaging with issuers or policy-makers, and highlights on progress made or specific escalations taken.

Stewardship and engagement

We engage heavily with our external managers to encourage ongoing improvements in their approaches to managing climate risks and to ensure they continue to meet our high standards in this area. In addition, our stewardship services provider EOS prioritises climate risk and opportunity management in their engagement with issuers, which feeds into voting recommendations at company AGMs.

We are also adopting the Institutional Investors Group on Climate Change (IIGCC)'s Net Zero Stewardship Toolkit, which was launched in April 2022. This aims to raise the bar for investor climate stewardship by providing a systematic framework that focuses investors on ensuring they prioritise high-impact engagement while systematically ensuring they have measures in place to hold laggard companies to account.

Our RI reports provide more detail on the stewardship activities and progress of EOS, our fund managers and any direct or collaborative engagements we have carried out. This includes activities related to climate issues.

Industry collaboration

We continue to participate in climate-focused memberships and networks, such as the IIGCC and the ongoing Climate Action 100+ initiative – see the case study, right. We are carefully reviewing the different frameworks available for aligning our portfolio with Net Zero (e.g., the IIGCC Net Zero Investment Framework, the UN Net Zero Asset Owners Alliance, and the Science Based Targets initiative). We are thoughtfully considering their respective recommendations for different asset classes to ensure any chosen framework can be realistically applied to how we manage our assets across a highly diverse portfolio.

Engaging with non-responsive issuers

We are active supporters of CDP, a not-for-profit organisation that runs the global environmental disclosure system in three key areas: climate, water and forests. CDP's Non-Disclosure campaign, through collaborative engagement efforts among investors, aims to persuade non-responsive companies to take action and report to the CDP questionnaires, depending on which of its three focus areas are material to their business activities or supply chains.

Earlier this year, we identified the companies across our listed portfolios that have not responded to CDP in recent years. As we prefer engagement with companies to assist them in their Net Zero journey instead of divesting, we are currently involved in this campaign to encourage over 700 non-disclosing companies to respond to CDP, either via leading the engagement ourselves or supporting it.

We will assess the progress made on this engagement campaign once the annual reporting period closes and the results are published at the end of the year.

Establishing our voting guidelines on climate change

As mentioned in the previous section, we drafted new voting guidelines during the year to summarise some of the key escalation situations where we will consider voting against management on issues including climate change. See Appendix F to see an overview of these new guidelines.

CASE STUDY

Climate Action 100+

We are a signatory to Climate Action 100+, the largest-ever investor engagement initiative on climate change, involving around 700 investors in 33 markets who collectively hold half of the world's assets under management.

Climate Action 100+ puts pressure on the world's largest emitters, which together account for approximately 80 per cent of global industrial emissions.

The initiative published its 2021 Year in Review: A Progress Update in March 2022. The review found that, largely as a result of Climate Action 100+, **52 per cent of targeted companies have made Net Zero commitments and a substantial 72 per cent now report in line with TCFD recommendations**. Some examples around the world include:

- In Italy, Enel, the biggest utility company in the world, has committed to being Net Zero by 2040 solely by using renewables (with zero reliance on offsets or negative emissions removal technology)
- The Chinese national oil company Sinopec has committed to be carbon neutral by 2050 – 10 years earlier than China
- The Australian company Boral is the first cement company to commit being aligned with 1.5°C in its Scope 1 and 2 emissions
- Rolls Royce, the FTSE 100 aerospace and defence company, is committed to making all its civil aero-engines compatible with 100% sustainable aviation fuel by 2023 and has embedded this target into its executive remuneration policy
- The South African chemicals company Sasol has set a target to be Net Zero by 2050
- US energy company Phillips 66 is the first oil refiner to include Scope 3 emissions in its target (aiming to reduce the carbon intensity of its energy products by 15 per cent by 2030).

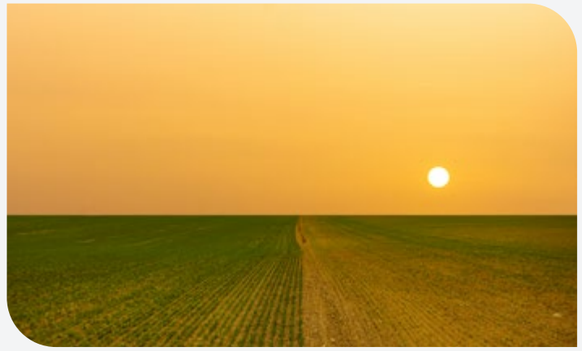
Although the success of this initiative has been encouraging, there is a long way until companies fully align their capital expenditure with a 1.5°C world and achieve high-level performance across all indicators assessed by Climate Action 100+. Lots more work needs to be done.

STRATEGY AND RISK MANAGEMENT CONTINUED

CASE STUDY

Moving to our climate-aware equity benchmark

As reported in our 2021 Climate Change Report, we transitioned to a new equity benchmark, the FTSE Custom All-World Climate Minimum Variance Index, in order to help us recalibrate our overall Equity portfolio's exposure to carbon-intensive companies.



How it works

This new index considers three constraints in its construction to mitigate some exposure to climate-related risks: **a 50 per cent reduction in scope 1 and 2 carbon emissions, a 50 per cent reduction in fossil fuel reserves and an increase in 'green revenues'.**

The purpose of the index is not to divest from sectors such as Oil and Gas. However, we want to limit our exposure to significant contributors whose management quality around climate change is considered to be lagging the industry. We aim to remain engaged and supportive of companies that are critical to a successful energy transition while also identifying companies that do not seem prepared or able to adapt to a Net Zero world. The new index therefore also incorporates the Transition Pathway Initiative's Management Quality (TPIMQ) level to assess the management quality of companies in fossil fuel sectors.

Companies are excluded from the index where:

- More than 25 per cent of revenues come from coal extraction
- More than 50 percent of revenues come from coal power generation (or 25–50 per cent where the company's TPIMQ level is less than '3')
- More than 50 per cent of revenues come from oil and gas and the company's TPIMQ level is less than '3'.

Benchmark sector breakdown – before and after

The aim of the new index is to limit exposure to individual climate laggards rather than exclude whole sectors. As the graphs right show, there have only been slight changes in high-impact sector weights.

Impact on our carbon exposure

As well as being the benchmark that our passive mandates now track, the climate-aware index is also the reference and performance benchmark for all of our active equity mandates.

Moving to this new benchmark has reduced the carbon footprint embedded in our index by over 75 per cent, while remaining closely aligned to the investment style of the parent index. It has also led to nearly a 50 per cent reduction in the overall carbon footprint of our Equity book[11]. This has been achieved predominantly through our passive mandates, but also indirectly through our active systematic strategies. In particular, the risk exposure of our equity book to thermal coal revenues (which might pose an elevated risk of assets becoming stranded at some point) has reduced from five per cent to two per cent. Our minimum standards exclusion policy has also been integrated into the index design, removing exposure to controversial weapons.

75% drop in Equity index carbon footprint

50% drop in PPF Equities carbon footprint

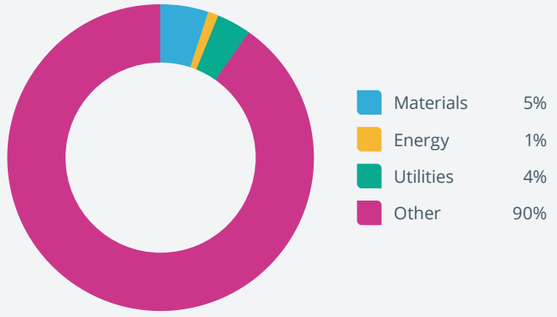
5% → 2% exposure to thermal coal revenues

No controversial weapons

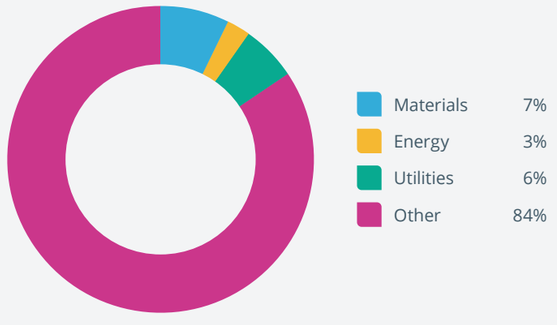
11 Based on Financed Carbon Emissions Intensity – see Appendix D for details.

Change in high-impact sector allocations

Benchmark 2021 = FTSE Custom All-World Climate Minimum Variance Index



Benchmark 2020 = FTSE All-World Minimum Variance Index



Metrics and **targets**

This year, we have seen material improvement in both the level of disclosure of carbon data and the level and intensity of emissions for our Equities portfolio – the latter resulting from the move to our new climate-aware equity benchmark. Our task now is to maintain this positive trajectory and work towards similar change across other asset classes.

Metrics on our external managers

Supported by our engagement, 25 per cent of our external fund managers are now signed up to the Net Zero Asset Managers (NZAM) initiative, part of the Glasgow finance group convened at COP26. This includes some Alternatives managers in Private Equity, Infrastructure, Property and Forestry. Meanwhile, three of our private equity managers have committed to Science-Based Targets as part of the newly-launched SBT initiative – see page 26.

After requiring our Liquids managers to start reporting to us quarterly using our ESG portfolio templates last year, we have now asked them to enrich the range of TCFD-based metrics on climate, as detailed on page 10. Over a quarter of the managers were able to provide this additional data in our January 2022 review meetings. The majority are expected to comply by the end of Q2 2022.

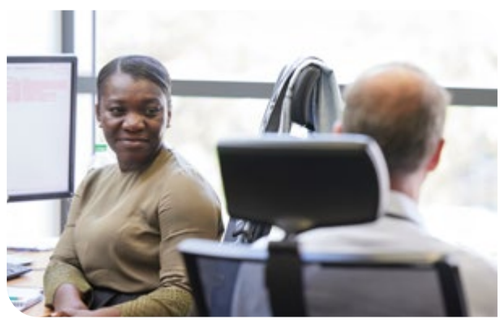
Measuring carbon and climate risks for sovereigns

We acknowledge the difficulties in assessing sovereign bonds comprehensively as there is still a lack of suitable methodologies and (often a lag in) data availability. We strongly welcome various efforts to track the carbon footprint and climate risks of sovereign debt and are supportive of the establishment of the ASCOR project by the PRI to develop a robust assessment framework for sovereigns.

As the ASCOR tool is still being developed, we are putting our efforts into assessing our sovereign exposure with existing tools, data and methodologies where we can. After reviewing the latest draft consultation from the Partnership for Carbon Accounting Financials (PCAF), we decided to calculate our own sovereign carbon emission intensity metric for our LDI portfolio.

We have started by calculating the sovereign emission intensity of the physical UK gilts held in our LDI portfolio. In line with PCAF's consultation, we chose UK Production Emissions including LULUCF (Land Use, Land-Use Change and Forestry) as an approximation of emissions[12]. See the Relative Carbon Intensity section below for the results of our analysis. Note that we have reported sovereign carbon emission intensity on a standalone basis and are not comparing or aggregating this with other asset classes, due to methodological differences.

We aspire to incorporate sovereign financed emissions into our analysis. We will continue evaluating different approaches (e.g. territorial; consumption versus production-based) and closely watch for the latest developments in this area.



12 We decided to include LULUCF, despite the ongoing debate of the potential distortion it might have, to have a more complete overview (which is also in line with PCAF's recommendation). As we want to be consistent with PCAF, we have used GDP-PPP Adjusted as the denominator following PCAF's recent consultation on this.

25% of our external fund managers are now signed up to the Net Zero Asset Managers initiative

METRICS AND TARGETS CONTINUED

Absolute carbon emissions

Again this year, we measured the total operational Scope 1 and Scope 2[13] carbon emissions associated with our liquid investments in global equity ('Equities'), global investment grade (IG) and emerging market (EM) credit ('Credit') and the publicly-traded UK credit sleeve within our internally-managed hybrid assets ('UK Credit'). Collectively, this accounts for just over US$14.5 billion of our overall assets under management – or just under a third of our overall AUM. See Appendix D for full calculations.

Our total financed emissions in this portion of our portfolio have dropped by 35 per cent from over 1.2 million tCO_2e to less than 797,000 tCO_2e. This is primarily coming from the Equities portfolio – where the total financed carbon emissions of our Equities portfolio (which includes both passive and active mandates) has halved over the year – although the UK Credit and Credit portfolios also saw small declines. Lockdowns during the Covid-19 pandemic will have reduced emissions, plus there may be some impact from decarbonisation and efficiency efforts by companies too.

Our total financed emissions in tonnes for 2021 for listed equity and credit

	Scope 1+2 emissions (tonnes CO_2e)	PPF AUM assessed ($m)	Carbon data coverage (Scope 1+2)
Equities	395,353	6,090	99%
Credit	321,205	6,451	89%
UK Credit	80,412	1,981	80%
Total financed emissions	**796,970**	**14,522**	

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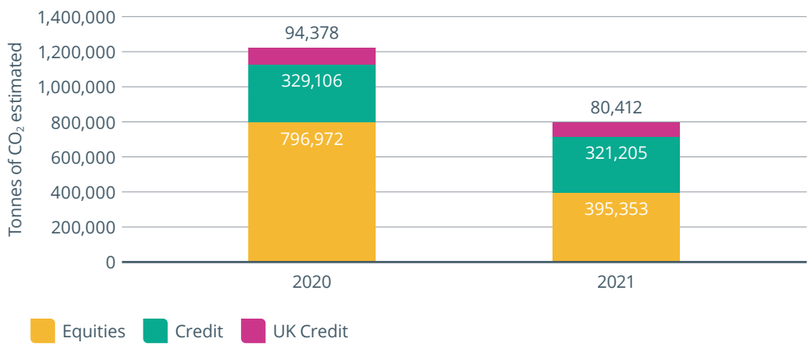
Year-on-year change in our total financed emissions for listed equity and credit



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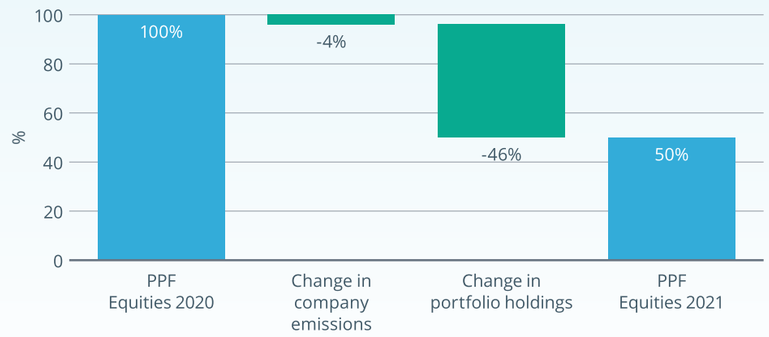
Digging a bit deeper into the reduction in total financed emissions for Equities, the below chart shows that the majority of this reduction was driven by changes in the Equities portfolio holdings, largely as a result of the equity benchmark change during the year.

The companies themselves decarbonised by four per cent over the year, however we suspect that this is mainly explained by the effect of pandemic-related lockdowns during 2020 (on which most of the emissions data is based).

Causes of change in PPF Equities financed carbon emissions between 2020 and 2021



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Our sovereign holdings are currently not considered in scope for aggregating our total financed emissions. This is because the accounting methods for financed emissions for sovereign bonds are still in draft form, and the general recommendation is not to aggregate sovereign and corporate emissions together (due to issues with double-counting).

Next steps

Our focus going forward will be on engaging with a priority list of holdings to deliver real economy decarbonisation of their emissions, as detailed in our Paris Portfolio Alignment Project – see page 12.

Assessing Scope 3 emissions

Our focus on understanding Scope 3, as well as Scope 1 and 2, emissions has increased through the year. However, the Scope 3 reporting from companies is still lacking. For example, the TPI's 2021 assessment of the energy sector found that less than half of Oil and Gas producers are providing Scope 3 disclosure, even though it is the largest source of their emissions.

We are starting to take account of Scope 3 emissions in two key ways:

1. **In our Equity benchmark –** Scope 3 disclosure is a key requirement in the TPI's Management Quality assessment, which directly feeds into our Equity benchmark (see page 16) and our voting decisions, as well as other benchmark analysis such as the Climate Action 100+ Net Zero benchmark.
2. **In our Net Zero alignment assessments –** As part of our Paris Portfolio Alignment Project, we are assessing the full spectrum of emissions including Scope 3 upstream and downstream. We feel this is critical to understanding how aligned or misaligned a company is, and what they are enabling. We expect companies to reflect Scope 3 emissions in their target setting if it is material. We take this into serious consideration when deciding whether to support a company's climate transition plan or not in our voting activities.

13 Based on the definition set by the Greenhouse Gas (GHG) Protocol

METRICS AND TARGETS CONTINUED

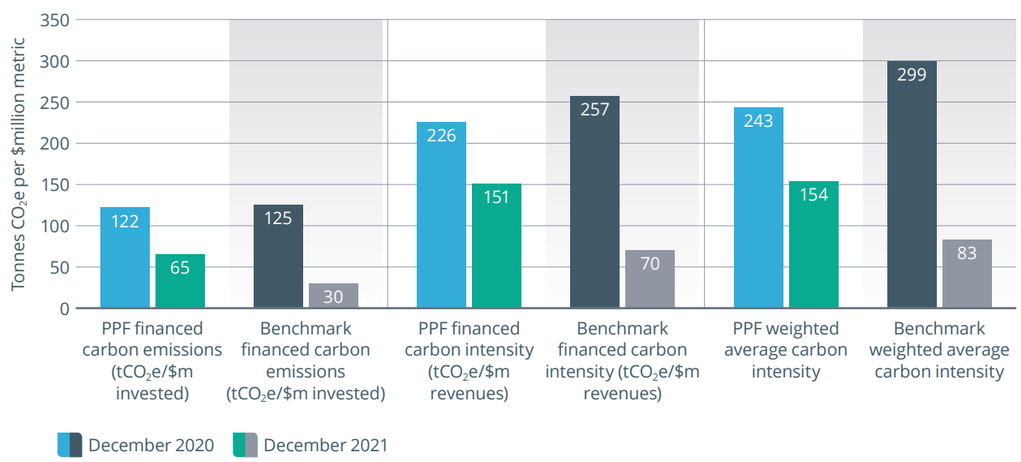
Relative carbon intensity

We continue to use three key metrics to assess the relative emissions-based intensity of our portfolios, giving us a fuller picture and allowing us to measure different asset classes and different sizes of portfolio on a like-for-like basis. See Appendix D for an explanation of each of these metrics.

Equities portfolio: carbon intensity metrics

The December 2021 carbon footprint analysis for our listed Equities aggregate shows substantial progress from our 2020 footprint analysis, with our **weighted average carbon intensity (WACI) declining by 37 per cent year-on-year**. The WACI of the Equity benchmark reduced by over 70 per cent as a result of the transition to our new climate-aware equity benchmark. This had the direct effect of reducing the WACI of our equity passive mandates by the same amount, as anticipated.

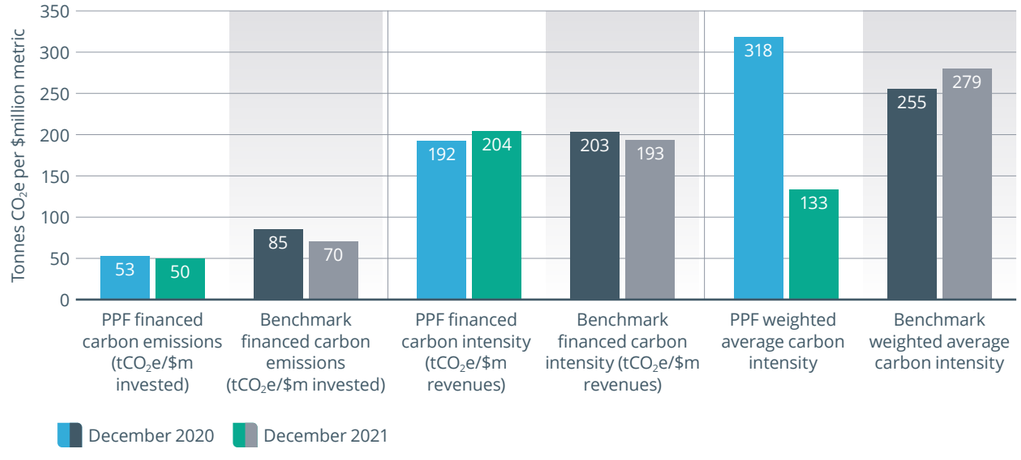
PPF Equities carbon metrics



Credit portfolio: carbon intensity metrics

This is the second year we have included the corporate bonds in our Strategic Cash, IG Credit, EM Debt and Absolute Return portfolios as an aggregate. **The WACI of our global Credit portfolio declined by 58 per cent over the year,** driven largely by our strategic cash portfolio. The financed carbon emissions and financed carbon intensity remained largely unchanged.

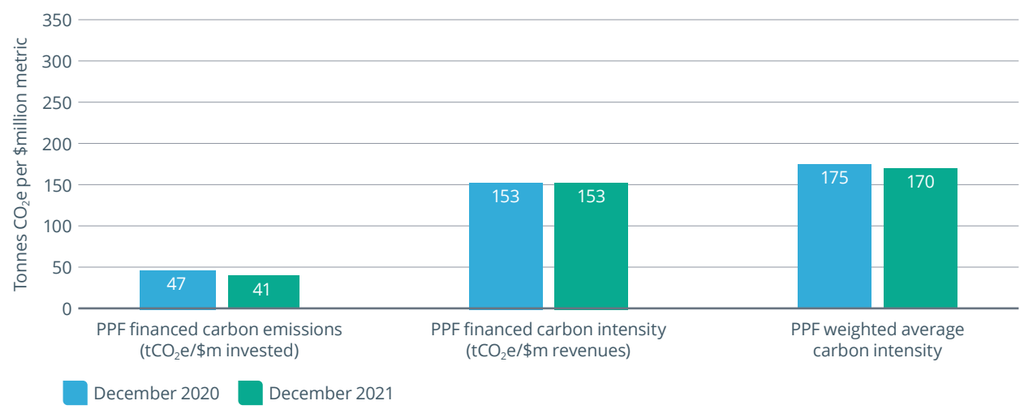
PPF Credit carbon metrics*



UK Credit portfolio: carbon intensity metrics

The availability of reported carbon data for our UK Credit holdings is lower than for our other two portfolios, however we are engaging with a number of issuers to request more disclosure from them. All three carbon intensity metrics have remained broadly unchanged year-on-year, which is to be expected due to the longer holding periods and low turnover of this portfolio.

PPF UK Credit carbon metrics

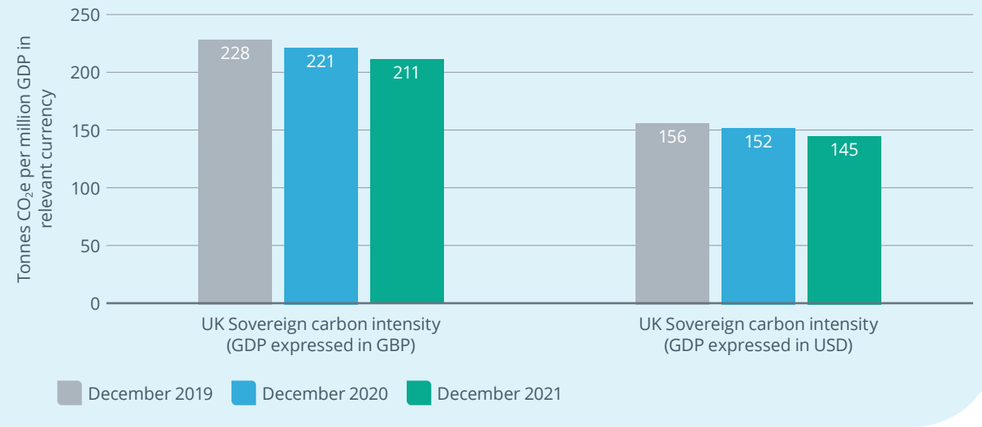


Assessing our UK Gilts exposure

As explained earlier in this section, we have attempted for the first time to footprint the £15 billion of physical UK Sovereign holdings in our LDI book, following a similar approach to that taken by the Bank of England in their latest TCFD report, and the recently proposed approach in the PCAF[14] draft consultation for sovereign bonds. We show the figures in both GBP and USD.

Through this analysis we are pleased to see a year-on-year reduction of the emissions intensity for the UK from 152 tCO_2e/USDm to 145 tCO_2e/USDm (emissions tonnes per $ GDP)[15].

UK Sovereign holdings: carbon intensity estimate



14 PCAF's draft new methods for public consultation (carbonaccountingfinancials.com)

15 Note that UK Sovereign carbon emissions are reported on a two-year lagged basis, so Dec-21 figures are based on 2019 emissions, Dec-20 on 2018 emissions, etc. We decided to include LULUCF, despite the ongoing debate of the potential distortion it might bring, to have a more complete overview (which is also in line with PCAF's recommendation). To be consistent with PCAF, we have used GDP-PPP Adjusted (constant 2017 prices) as the denominator following PCAF's recent consultation on this.

METRICS AND TARGETS CONTINUED

High carbon impact sectors

In line with TCFD recommendations, we pay particular attention to our exposure to sectors that have a higher contribution to global carbon emissions. Guided by these recommendations[16], we have focused on the Utilities, Materials and Energy sectors.

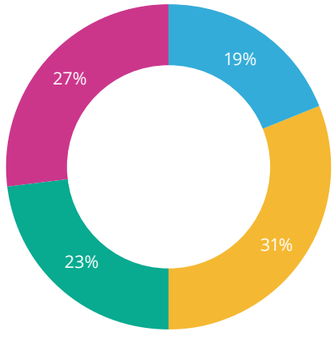
Consistent with last year, Utilities contributed the most carbon emissions to our UK Credit portfolio. However, the sector now contributes just 19 per cent of carbon emissions to our Equities book (compared to 42 per cent last year) as a result of our move to our new climate-aware equity benchmark.

The Credit portfolio saw a similar contribution from Utilities to last year.

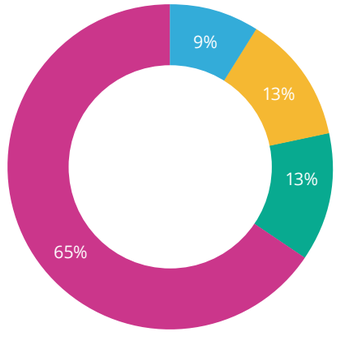
We continue to engage with these sectors – both directly and through our external managers – to transition to lower-carbon activities. As profiled on the case study on page 15, we continue to be an active signatory to the Climate Action 100+ initiative to ensure the world's largest corporate greenhouse gas emitters take necessary action on climate change.

Contribution to overall portfolio carbon emissions by high-impact sectors

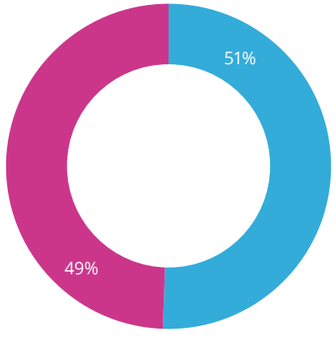
Equities



Credit



UK Credit



Next steps

As part of our Paris Portfolio Alignment Project (see page 10), we are identifying companies that are our highest priority engagement targets in the transition to Net Zero, which will include many in these three high carbon impact sectors. We will work with our stewardship services provider EOS and external fund managers to ensure this subset is held to clear and measurable progress, through both company level and sector level engagement.

> "Utilities now contributes just 19 per cent of carbon emissions in our Equities book."

16 Energy, Materials and Buildings, Transportation and Agriculture, Food and Forest Products are identified by the TCFD as accounting for the largest proportion of GHG emissions, energy usage and water usage.

METRICS AND TARGETS CONTINUED

Exposure to fossil fuel activities

The risk of fossil fuel assets becoming stranded is a significant concern for investors, with the most carbon-intensive assets likely to suffer sudden devaluations, write-downs or conversions to liabilities. As part of our climate risk assessment, we therefore closely monitor our portfolio exposure to fossil fuel reserves overall and by specific fossil fuel type.

The Russia-Ukraine war, and energy and cost of living crises are creating further volatility and uncertainty as to how scenarios will play out. We believe thermal coal still faces a higher likelihood of asset-stranding in the short to mid term, particularly for OECD countries. But we anticipate that oil and gas production outside of Russia may now have some shorter-term support as it seeks to meet the shortfalls created by a loss in Russian supply.

Equities portfolio

The move to our climate-aware equity benchmark has meant that the weight of equity holdings in the benchmark (and therefore our passive equity portfolios) owning fossil fuels reserves reduced from over four per cent last year to less than 2.5 per cent this year. However, the overall weight of companies owning any fossil fuel reserves for our aggregated Equities portfolio is broadly unchanged (6.3 per cent vs 6.1 per cent last year) as the significant reduction within our passive portfolios has been offset by our active equity portfolios.

The potential emissions from reserves in the passive portfolios has been significantly reduced by around 86 per cent and the contribution from thermal coal has been slashed by 99 per cent – from 3 million tCO_2e to 35,894 tCO_2e. The contribution from thermal coal has also reduced in the aggregated Equities portfolio by 11 per cent.

Credit portfolio

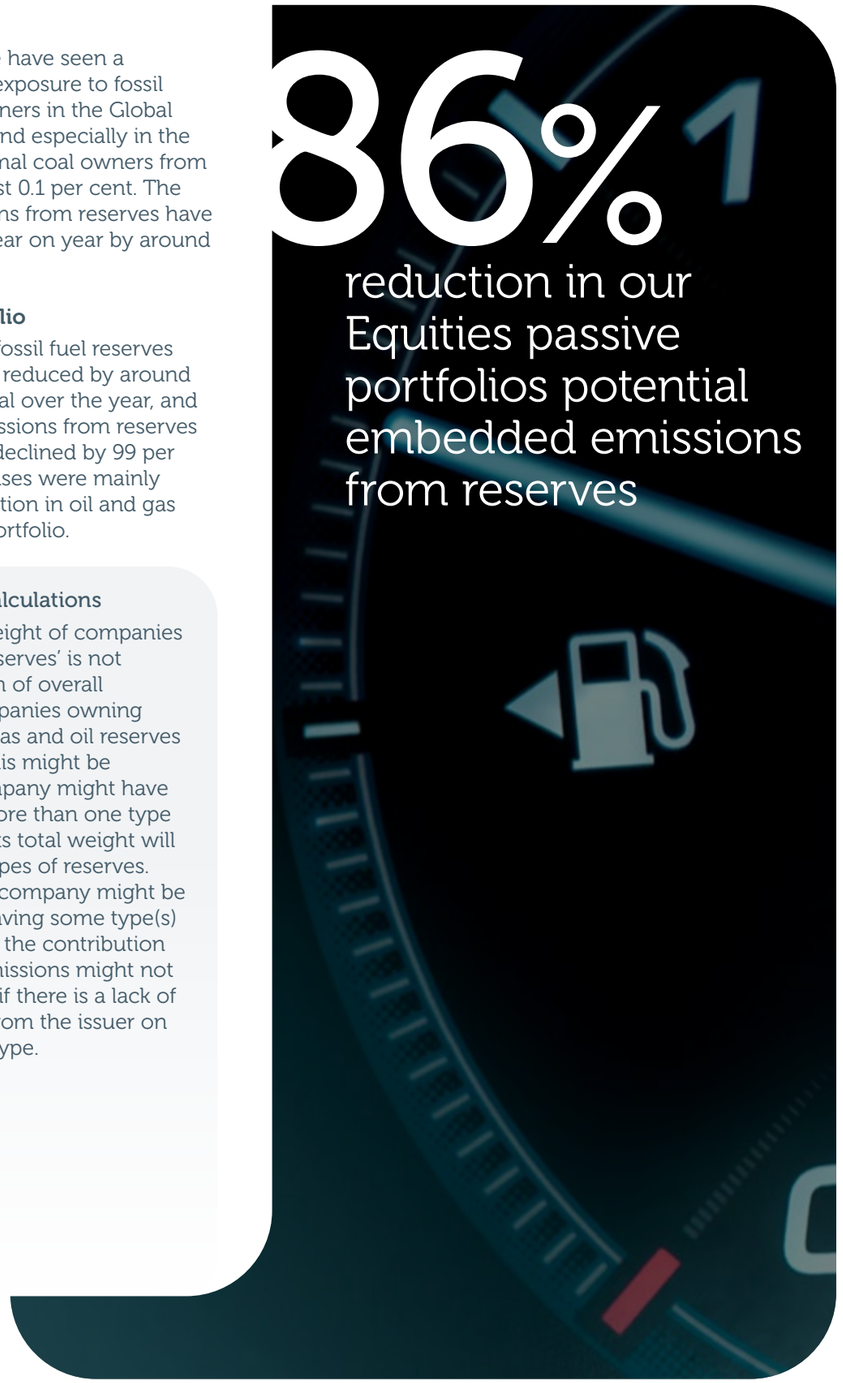
Over the year, we have seen a reduction in the exposure to fossil fuels reserves owners in the Global Credit portfolio, and especially in the exposure to thermal coal owners from 0.3 per cent to just 0.1 per cent. The potential emissions from reserves have also decreased year on year by around 23 per cent.

UK Credit portfolio

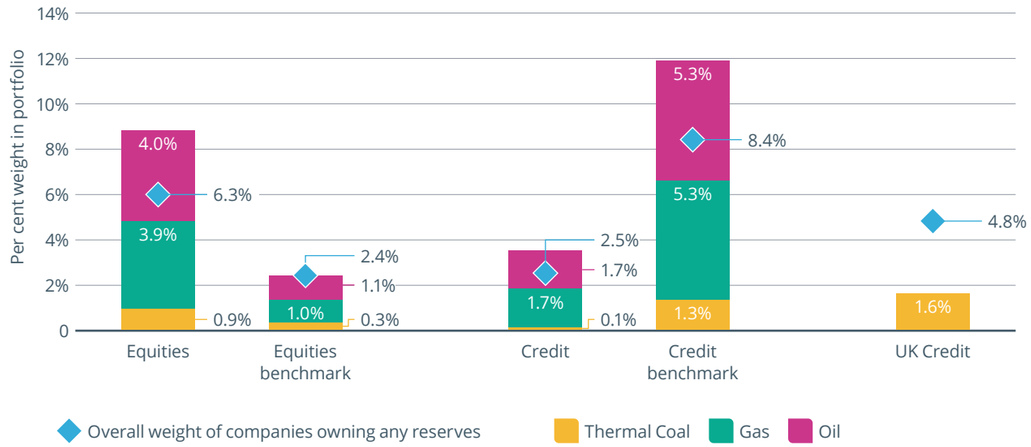
The exposure to fossil fuel reserves owners has been reduced by around 25 per cent in total over the year, and the potential emissions from reserves has significantly declined by 99 per cent. Both decreases were mainly driven by a reduction in oil and gas holdings in the portfolio.

Note on the calculations

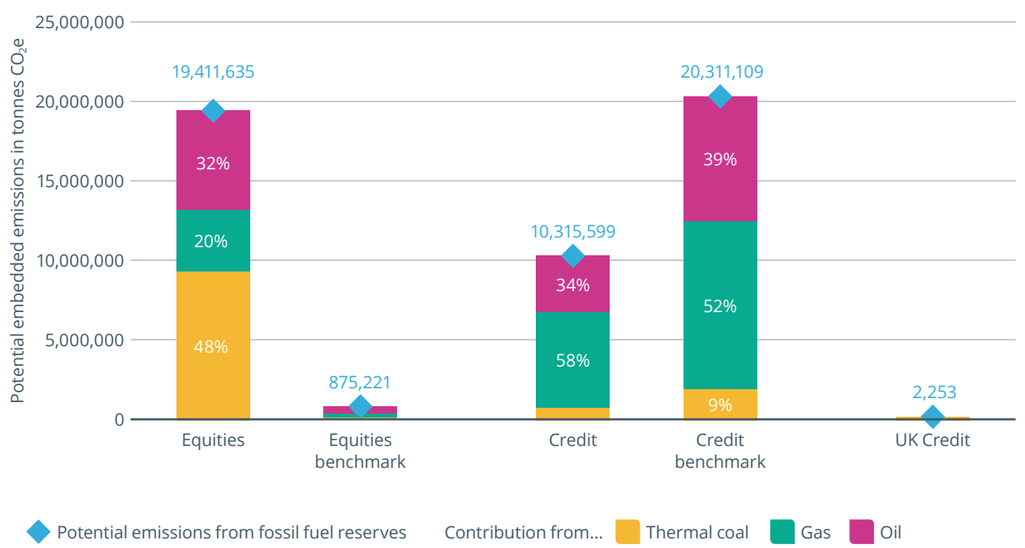
The 'Overall weight of companies owning any reserves' is not always the sum of overall weight of companies owning thermal coal, gas and oil reserves individually. This might be because a company might have exposure to more than one type of reserve, so its total weight will appear in all types of reserves. Additionally, a company might be identified as having some type(s) of reserves but the contribution to potential emissions might not be considered if there is a lack of transparency from the issuer on their reserves type.



Weight of holdings owning fossil fuel reserves in 2021



Potential emissions from reserves and contribution by reserve type in 2021



METRICS AND TARGETS CONTINUED

Disclosure rates and data quality

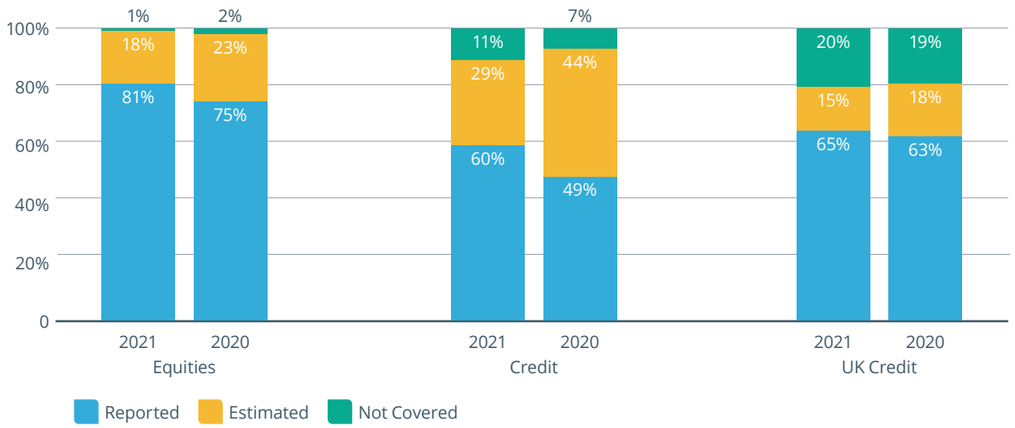
The reported carbon emissions by market value have increased considerably for our Credit portfolio year on year (from 49 to 60 per cent) and for our Equities portfolio (from 75 to 81 per cent) and marginally for our UK Credit portfolio (from 63 to 65 per cent). This means, for example, that 81 per cent of the carbon data for our Equities is reported by companies themselves, based on market value.

This is a welcome result, giving us more comprehensive data points for a greater proportion of our portfolio to enable us to conduct more accurate carbon assessments. The remainder is modelled by our ESG data provider where possible, or else the company is classified as not covered.

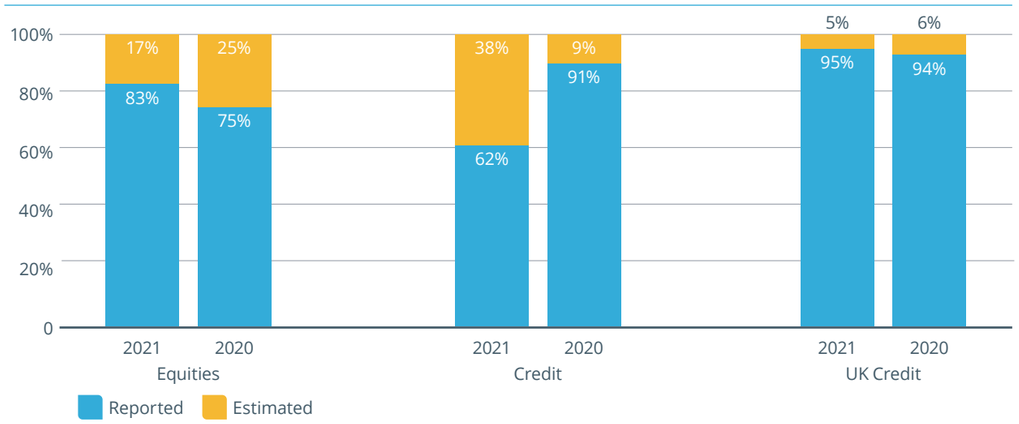
Although the percentage of reported emissions for the Credit portfolios has gone up, so has the percentage of emissions not covered (versus a decrease for the Equities portfolio).

This again highlights the difficulty in assessing credit issuers accurately. We are working to identify the drivers behind the increase in emissions that aren't covered, as well as the increase in the contribution to emissions from estimated sources and will liaise with our managers and service providers to assist them in their continuous efforts to engage with companies.

Year-on-year comparison of carbon emissions disclosure rates (by market value)



Year-on-year comparison of contributions to total carbon emissions by source of data



METRICS AND TARGETS CONTINUED

Forward-looking scenario analysis

We are keen to look ahead and assess how our portfolios might be affected in the future by climate change.

To do this, we deploy a number of tools to quantify the risk posed to our investments and the quality of action being taken by companies. On the following pages we profile two tools whose application we have advanced over the past year: the MSCI Climate Value-at-Risk (CVaR) tool and the Transition Pathway Initiative (TPI) tool. We also assess what proportion of our portfolios comprises issuers setting science-based targets for their climate action, as part of our efforts to start measuring our alignment.

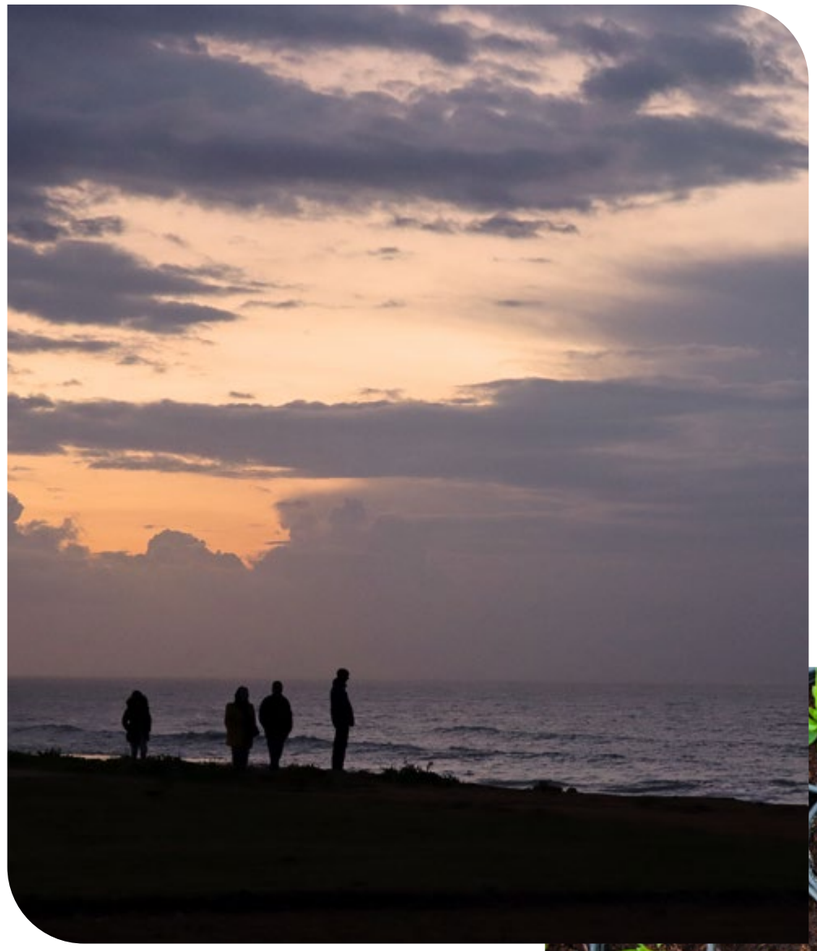
1. MSCI Climate Value-at-Risk

As an asset owner, it is important for us to stress-test our portfolio and see how its value might be impacted in a range of scenarios and circumstances. To explore the impact of climate in our portfolio we extensively analyse one aggregate metric: Climate Value-at-Risk ('Climate VaR' or 'CVaR'). Climate VaR comprises 'Transition VaR' (comprising Policy VaR and Technology Opportunities) and 'Physical VaR', which we extrapolate in our analysis.

Transition VaR

We analyse Climate VaR for each of our portfolios under five transition scenarios, led by our Paris Disorderly, Paris Orderly and Failed Transition identified scenarios. For the first two, we decided to further split these out into a 1.5°C and a 2°C scenario after recognising that there are significant differences in the impact even between 1.5°C and 2°C. The highest CVaR (worst) is predicted to be materialised under a Paris Disorderly transition ('1.5°C disorderly' and '2°C disorderly'). The lowest Climate VaR (best) is predicated under an Paris Orderly ('1.5°C orderly' and '2°C orderly') or Failed Transition ('3°C hot house').

- **Policy VaR**
  The highest Climate VaR under a disorderly transition is mainly explained by the abrupt need for a higher and faster reduction in emissions. Companies would be required to achieve a bigger emission reduction and pay a higher assumed carbon price, face higher electricity costs, and absorb higher costs from value chain totalling in a higher Policy VaR. (Conversely a failed transition results in low Climate VaR because it assumes no/minimal policy action is taken so companies would not be required to decarbonise as much. Plus they would not be forced to move into renewable energy as quickly or at all.)
- **Technology opportunities**
  We not only examine our portfolio in terms of extreme risks, but also opportunities that will thrive in a Net Zero world. The higher policy risk that our portfolio faces in a disorderly world is offset to some extent by a higher and positive contribution from technology opportunities. Principally, the VaR model assumes that, as the world moves into a Net Zero world, companies with low-carbon patents will achieve an excellent performance as the demand for renewable energy/low-carbon technologies increases.



> "We not only examine our portfolio in terms of extreme risks, but also opportunities that will thrive in a Net Zero world."

Physical VaR

We have seen improvements in the MSCI Climate VaR tool regarding physical risks and we have been considering these in our assessments. The location database used by the tool now maps to approximately 270,000 locations, including an expansion of the global power plant database. In terms of hazards, the tool has undergone a number of updates over the last year and now covers 10 hazards across acute and chronic types[17].

Please note

Recent updates in aspects of the MSCI Climate Value-at-Risk physical risks methodology mean it is potentially challenging to make like-for-like, year-on-year comparisons for our different asset portfolios. We look forward to showing more reliable year-on-year progress on CVaR in future reports.

17 There are now five acute risks and five chronic risks incorporated. Acute hazards = catastrophic events such as coastal flooding, tropical cyclones, fluvial flooding, river low flow, wildfire. Chronic hazards = extreme heat, extreme cold, precipitation, extreme snowfall, extreme wind.

METRICS AND TARGETS CONTINUED

Climate Value-at-Risk 2021 results by asset class[18]

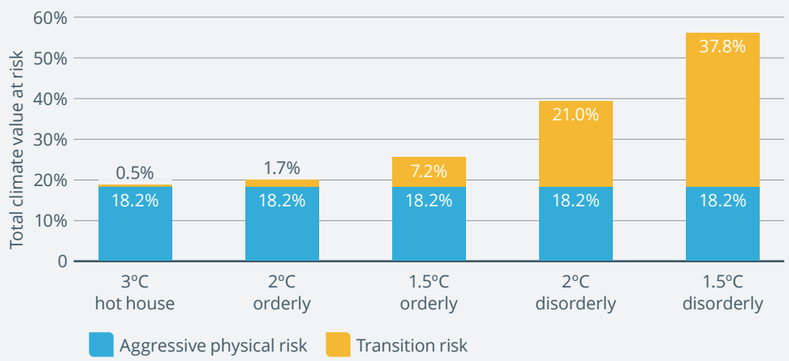
Equities

Our Equities portfolio would see the greatest Climate Value-at-Risk under a 1.5°C disorderly transition, followed by a 2°C disorderly transition. Within our Equities book, Energy and Materials are the most exposed sectors in an orderly or failed transition. However, Food & Staples Retailing and Transportation are most at risk in a disorderly world.

This is because the model projects higher uptake of electrification in the transportation sector in a disorderly world, and Food & Staples do not have many technology opportunities to compensate for their transition risk.

Although year-on-year comparisons are difficult, we are pleased to see a reduction of 11 per cent for the Equities Climate VaR year-on-year, based on the 1.5°C disorderly transition scenario combined with the aggressive physical scenario (which are the worst-case scenarios).

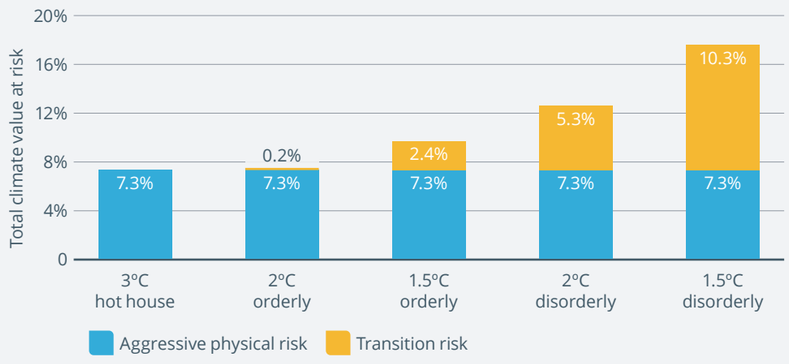
Equities Climate VaR



Credit

Overall, Climate VaR is lower for Credit than for Equities, ranging from 7 per cent to 18 per cent under our five scenarios. Transportation and Energy are the most exposed sectors in Global Credit in an orderly or failed transition, but Household & Personal Products is most at risk in a disorderly world. This is potentially due to higher electricity prices, value chain costs that the sector must absorb and low exposure to low-carbon technologies.

Credit Climate VaR

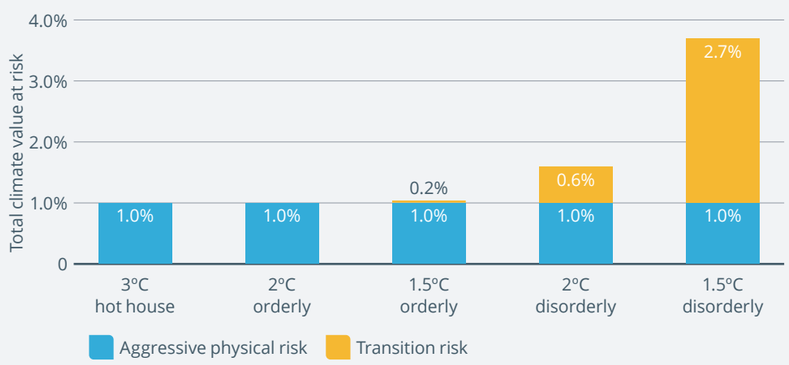


UK Credit

Climate VaR for our UK Credit portfolios is substantially lower – remaining below 4 per cent even for a 1.5°C disorderly transition. This is likely due to the high allocation to Financials in the portfolio.

However, on a relative basis, the 1.5°C disorderly transition poses the largest threat to the portfolio by some margin, mainly arising from Transportation followed by Telecoms sectors.

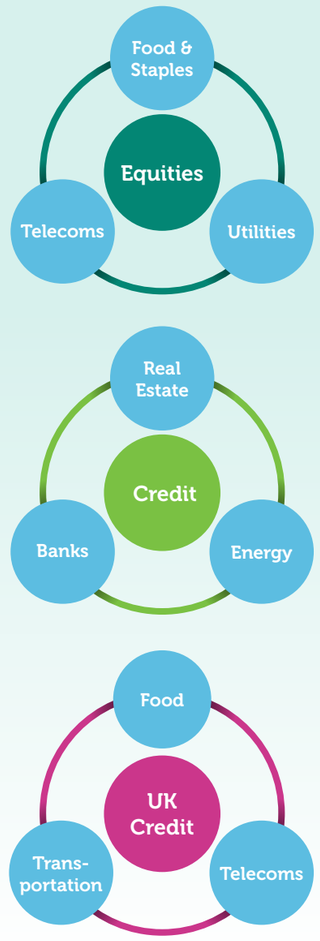
UK Credit Climate VaR



Physical risk

In terms of physical risk, all three portfolios are primarily exposed to extreme heat, tropical cyclones and coastal flooding, although the sectors most at risk do differ for each portfolio. Below, we depict the top three sectors that contribute the most to Physical VaR within each asset class.

Biggest contributing sectors to physical risks by portfolio



Technology opportunities

Technology opportunities are likely to benefit our portfolios most in a disorderly transition (1.5°C and 2°C) and least in a hot house world. Equities see the highest potential benefit, with Technology VaR contributing up to a positive 15 per cent in a 1.5°C disorderly scenario. The UK Credit portfolio is minimally exposed to technology opportunities so its expected Technology VaR is very close to zero.

Taking a more detailed sector overview, the sector best positioned for technology opportunities is Heavy Manufacturing in the Equities portfolio, High Tech Manufacturing or Heavy Manufacturing in the Credit portfolio and – depending on the scenario – Rail in the UK Credit portfolio.

For all this analysis, it is important to stress that results are modelled and often based on estimates.

18 The Climate VaR of a company, in any given scenario, is simply the present value of the costs impacts in that scenario divided by the current enterprise market value of the company. The enterprise market value is computed as the sum of the market values of a company's equity and debt. The book value of debt is used to proxy the market value of debt at the company level.

METRICS AND TARGETS CONTINUED

2. The Transition Pathway Initiative (TPI)

The TPI tool uses publicly-disclosed information collected by FTSE Russell and validated by the Grantham Research Institute at the London School of Economics to assess more than 400 of the world's highest-emitting listed companies on two measures:

- **The TPI Management Quality (TPIMQ) level** assesses companies on how well management is dealing with climate change risks, from Zero to Four Star.
- **The TPI Carbon Performance (TPICP) measure** assesses companies on how effective they are at achieving carbon reduction in line with the Paris Agreement or any target they've set.

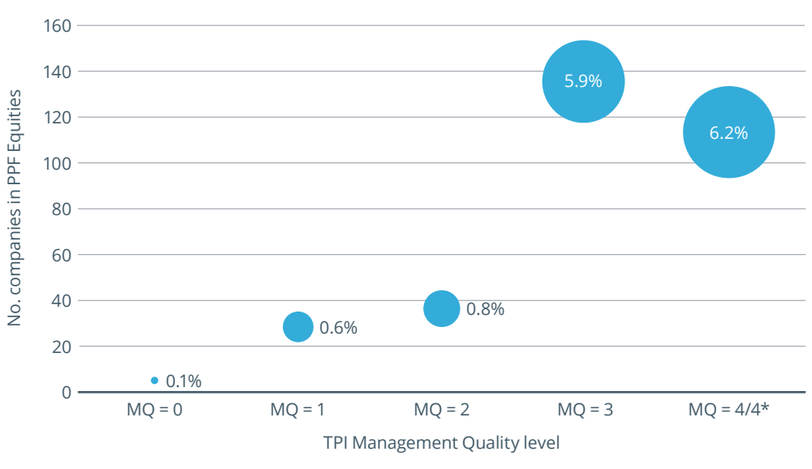
> "A substantially higher number of these companies received a TPIMQ Management Quality level of three or above."

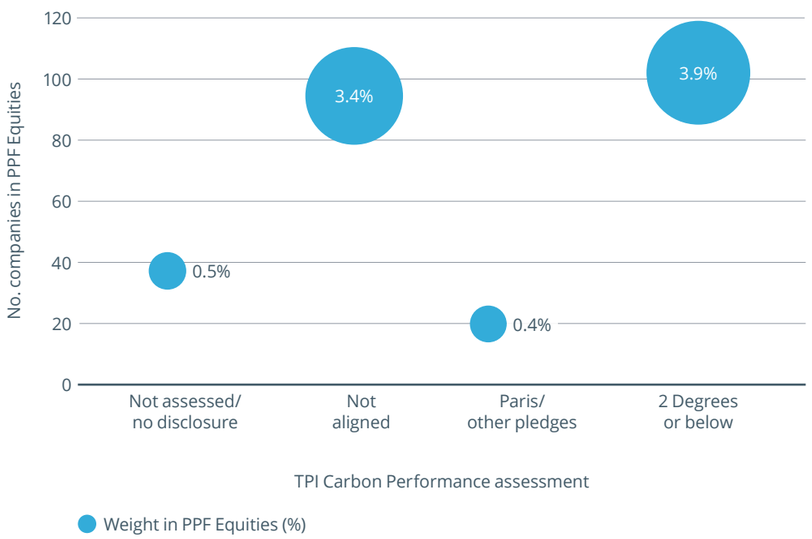
As explained earlier in this report, we have used the TPIMQ level to inform our new climate-aware equity benchmark, the FTSE Custom All-World Climate Minimum Variance Index. Specifically, the benchmark now excludes any company where: a) 25–50 per cent of revenues are coming from thermal coal power generation and the TPIMQ level is less than three; or b) more than 50 per cent of revenues are coming from Oil and Gas production and the TPIMQ level is less than three.

Equity

TPI still only covers around 400+ companies globally so not all holdings are covered. However, coverage for our Equities portfolio has increased to 14 per cent of market value from 12 per cent last year. Additionally, a substantially higher number of these companies achieved a TPIMQ level of three or above (78 per cent vs. 66 per cent last year). Lastly, the allocation to companies that have set targets which align with the Paris Agreement / 2 Degrees or below, or that have made other pledges, has remained steady at 4.4 per cent (compared to four per cent last year). However, we have observed that many companies have improved their alignment from the less ambitious Paris pledges to the more ambitious below two degrees.

TPI levels for companies in our Equities portfolio





> "TPIMQ coverage for our Equities portfolio has increased to 14 per cent of market value from 12 per cent last year."

Credit

This year, we extended the TPI analysis to both of our Credit portfolios for the first time. We found:

Credit

Less than 5 per cent of the Credit portfolio is covered by the TPI tool. But of these holdings, the majority have a TPIMQ level of three or above. In addition, 60 per cent of companies covered have made a pledge (Paris Alignment / 2°C or below) and the companies that are misaligned are currently under review for engagement.

UK Credit

We achieved almost 20 per cent TPI coverage for the UK Credit portfolio. The allocation to issuers with better management quality (i.e., with a TPIMQ level of three or above) is almost 17 per cent – out of 20 per cent achieved (i.e. 85 per cent of the covered portfolio) – and there is no allocation to extreme laggards (TPIMQ level of 0). Five out of seven companies have pledged to 2°C or below and only one is misaligned.

METRICS AND TARGETS CONTINUED

3. The Science-Based Targets initiative (SBTi)

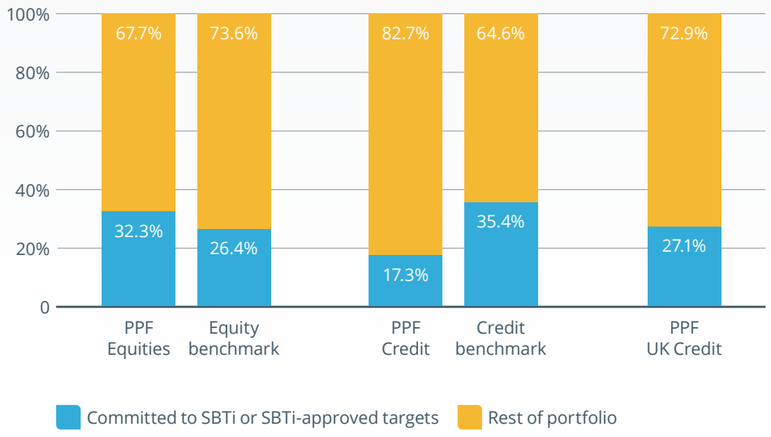
The Science-Based Targets initiative (SBTi) is a partnership between CDP, the United Nations Global Compact, World Resources Institute (WRI) and the World Wide Fund for Nature (WWF). It aims to provide companies with a clearly-defined path to reduce emissions in line with the Paris Agreement goals by setting ambitious, science-based emissions reduction targets.

This year we used a new dataset within the MSCI ESG platform to analyse what proportion of our portfolios have exposure to companies that have either committed to SBTi targets or had targets approved by the initiative. We are pleased to see that currently around a third of our Equities book by market value comprises companies with SBTi commitments, which is ahead of our equity benchmark.

Through engagement with companies directly and with our external fund managers we will target an increase in this proportion. Currently our Credit book is lagging its benchmark, with less than a fifth of market value exposure to issuers with SBTi commitments or approved targets which is likely due to the higher allocation to the Financials sector.

Outside of this analysis, three of our Private Equity managers have also committed to science-based targets for private equity companies, as part of the recently launched SBTi Private Equity sector initiative.

Percentage of portfolio committed to SBTi or SBTi-approved targets (by market value)



Other asset classes

We are committed to considering the impacts of climate change across all our investments. We have focused first on analysing 'Liquids', such as Equities and Credit, as these asset classes are the most measurable, have the greatest depth of data (in the case of Equities) and are where action is most expedient. However, we are striving to improve the reporting of other assets, especially in the real assets space.

Real estate

As discussed earlier in this report, construction and buildings/real estate account for nearly 40 per cent of energy and process-related carbon emissions, and therefore play a critical role in global efforts to decarbonise. The consideration and assessment of transition risks and physical risks in our Real Estate portfolio is therefore a vital part of our RI approach.

Working with our real estate managers

Our real estate investments are predominantly managed externally so we focus on robust appointment, monitoring and oversight processes of our managers' ESG and climate capabilities. All of our real estate managers now report to us annually on the ESG and TCFD profile of their portfolios. We also use external tools such as GRESB and CRREM (Carbon Risk Real Estate Monitor) to measure and benchmark the performance of real assets and assess the risk of stranded property assets. Two of our managers have made substantial progress in their disclosure and data management, with one performing a complete climate assessment (see US case study right).

In 2021, after repeated engagement from us, we also saw these managers become PRI signatories. We continue to encourage all our managers to further elevate their ability to measure, collect and report data. We are pleased to see, for example, that physical risk assessment is a priority for all our real estate managers, with progress on performing assessments and developing tangible plans for action.

Measuring our real estate carbon footprint

We aspire to be able to measure the energy and carbon footprint of our real estate assets. We have started collecting data and have look-through on the energy and carbon profiles of individual funds.

However, we are not yet in a position to report a credible aggregated number for the overall portfolio. This is primarily due to challenges around tenant data transparency. Our external managers are working with data providers and consultants to establish a benchmark, track meaningful reductions in energy and develop tangible plans for action. We welcome targeted engagement and the introduction of lease clause changes (wherever jurisdictions allow) to enable greater transparency around tenants' energy use.

Our Real Estate AUM in numbers

100%

is under transition and physical climate risk assessment by our managers

95%

is managed by PRI signatories

77%

is managed by signatories to the Net Zero Asset Managers Initiative[19]

61%

is managed with specific ESG targets in place

60%

are funds under the GRESB survey assessment

19 87 per cent is managed under a specific strategy for Net Zero management.

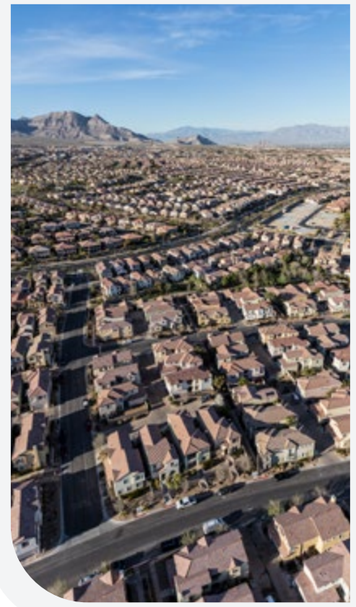
CASE STUDY

Climate action plan for US real estate assets

While Europe has been generally ahead of the US in terms of climate awareness, as well as availability of data and tools for climate management, we are delighted to see the work performed on our US real estate assets.

Our US manager has conducted a robust assessment of risks, measuring the carbon footprint and thus the risk to assets being stranded, as well as in-depth, location-based risk assessments of physical risk, quantifying the value at risk.

On the basis of this assessment, the manager has developed a comprehensive climate action plan that commits it to reducing landlord carbon emissions by 70 per cent by 2025 and targeting a more resilient portfolio with reduced climate risk exposure.



METRICS AND TARGETS CONTINUED

Forestry

Sustainable forestry is a key element of our RI strategy as it can help mitigate CO_2 emissions by storing carbon. This makes sustainable forestry assets one of the few viable nature-based investment solutions in the journey towards a Net Zero world. Well-managed forests can also increase biodiversity and are more resilient to the effects of climate change.

We currently invest in soft and hardwood forestry assets globally, with investments in Australia, New Zealand, the US, the UK, Ireland, the Baltics and the Nordics. We work closely with our managers and are glad to see continuous progress in their practices and consideration of climate risks. All of our managers have now started measuring the carbon sequestration of their forestry assets.

Forestry certification is vital to ensuring good management practices, preserving high conservation-value forests and combating deforestation. It is a metric that we comprehensively track – see panel below to see the level of certification in our portfolio. Fluctuations over the years are primarily driven by new acquisitions of land, especially for afforestation projects.

Certification of the PPF's share of timberland

	2019	2020	2021
Certified timberland in accordance with the FSC and/or PEFC	98.2%	93.1%	98.4%
Timberland in the process of certification in accordance with the FSC and/or PEFC	0.2%	5.8%	1.6%
Land that is sustainably managed in accordance with the FSC and/or PEFC, but that cannot be certified	0.2%	0.0%	0.0%
Other	1.4%	0.3%	0.0%

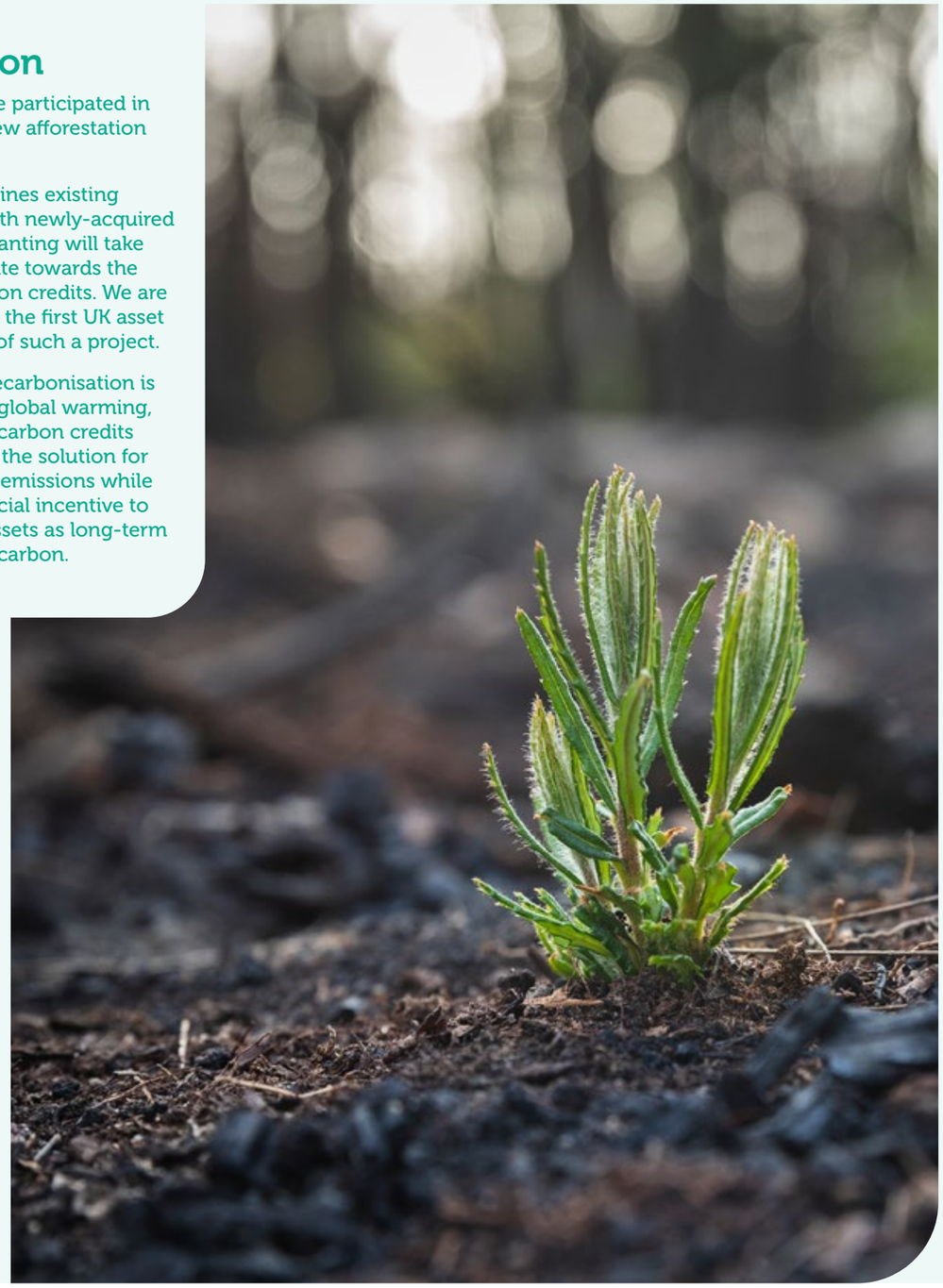
CASE STUDY

Funding afforestation

In the past year, we participated in the seeding of a new afforestation fund in Scotland.

The strategy combines existing productive land with newly-acquired land where new planting will take place and contribute towards the generation of carbon credits. We are proud to be one of the first UK asset owners to be part of such a project.

Although global decarbonisation is critical to tackling global warming, we recognise that carbon credits will remain part of the solution for any hard-to-abate emissions while also creating a crucial incentive to develop forestry assets as long-term sinks to sequester carbon.



Our aspirations for the coming year

We will continue to work on expanding and deepening our climate-related risk coverage, to align our portfolio to be resilient to (and supportive of) plans to keep global warming within 1.5°C. We will engage with our investment managers, issuers and other stakeholders to keep advancing standards so that we can all fully understand and manage the risks we face.

Continue to work with our managers to improve their climate disclosures in line with our own evolving reporting requirements and industry-led standardisation initiatives and science-based targets

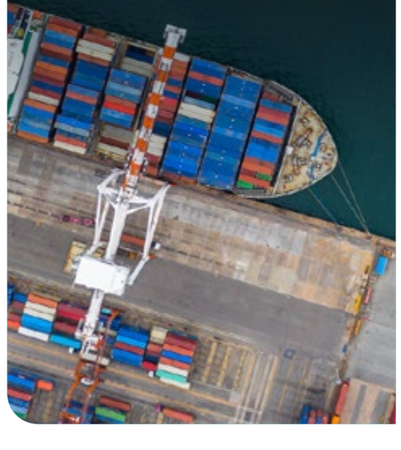
Continue to integrate our focus on 1.5°C global warming limits across all our investment, analysis and reporting activities, including pre-investment due diligence

Continue to work to report on and reduce the PPF's own operational environmental impact

Engage with our managers, issuers and public policy-makers to explore ways to improve level and quality of climate risk data disclosure for sovereigns and credit

Using the findings from our Portfolio Paris Alignment Project, develop a strategy to engage with the subset of portfolios, sectors and companies identified as our highest priority engagement targets

Continue to work with industry initiatives including Climate Action 100+, IIGCC, the CDP Non-Disclosure Campaign and others to drive action among major carbon emitters



Work with our managers, especially in real assets, to explore how to improve physical and adaptation risk analysis

Develop a holistic sustainability strategy as part of the PPF's three-year Strategic Plan

Continue to work with our Alternatives managers and support the eFront Outreach project to improve climate data disclosure in unlisted markets

Appendices

Appendix A

Our commitment to the TCFD

The Taskforce for Climate-related Financial Disclosures (TCFD) guidance was created by the Financial Stability Board to help companies and investors voluntarily disclose climate-related financial risks clearly, consistently and reliably to help lenders, insurers and investors make informed decisions.

We've formally supported the TCFD framework since 2018 and have continually implemented it across our investment process. We share our progress in our annual RI reports, which also detail our stewardship activities and work as an active owner of securities and real assets.

Considering the impacts of climate change on our investments is one of the three priorities within our RI strategy.

We're committed to:

- **Implementing the TCFD**
  We're continuously applying and implementing TCFD recommendations – and are always looking for ways to improve transparency and management of climate risks in our portfolio.
- **Assessing transition risks and physical risks**
  We take a phased approach to analysing how exposed our portfolio is to risk in the global transition to a low-carbon economy, optimising relevant data as and when it becomes available. We are also starting to assess the physical risks that climate change presents to our portfolio, while recognising that data on this is at a very early stage.
- **Engaging with our fund managers**
  We work tirelessly with our fund managers across all strategies, asset classes and markets to ensure they consider, manage and report to us the climate-related risks and opportunities our investments might face.
- **Collaborating with industry**
  We are committed to engaging with our industry peers, policy-makers, regulators and the wider investor community to further best practice in climate-related risk disclosure – supporting not only the TCFD but also Climate Action 100+, the PAII and the CDP Non-Disclosure campaign.

TCFD Pillars	TCFD recommended climate disclosure	Climate disclosure references
Governance Disclose the organisation's governance around climate-related issues and opportunities	a. Describe the board's oversight of climate-related risks and opportunities.	Pages 07–09
	b. Describe management's role in assessing and managing climate-related risks and opportunities	Pages 07–09
Strategy Disclose the actual and potential impacts of climate-related risks and opportunities on the organisation's business, strategy and financial planning where such information is material	a. Describe the climate-related risks and opportunities the organisation has identified over the short, medium and long-term	Pages 10, 13
	b. Describe the impact of climate-related risks and opportunities on the organisation's businesses, strategy and financial planning	Pages 10, 13
	c. Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2 degree or lower scenario	Pages 12–13, 23–25
Risk Management Disclose how the organisation identifies, assesses and manages climate-related risks	a. Describe the organisation's processes for identifying and assessing climate-related risks	Pages 10–13
	b. Describe the organisation's processes for managing climate-related risks	Pages 15–16
	c. Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organisation's overall risk management	Pages 07–11
Metrics and Targets Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material	a. Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process	Pages 14, 17
	b. Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 GHG emissions, and the related risks	Pages 18–19
	c. Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets	Pages 20, 22, 26

APPENDICES CONTINUED

Appendix B

PPF climate change policy

Beliefs

As a long-term investor, we have a duty to consider all financially material risk factors in our investment decisions, including climate-related factors. We believe climate change can materially impact businesses, markets and economies globally in a number of ways, from a societal perspective as well as environmental.

We've developed a specific climate change policy, as we see climate change as a systemic and non-diversifiable concern that has the potential to significantly affect the value of our investments across the short, medium and long-term, throughout the global economy. We also believe that opportunities can exist and be exploited for companies and assets well-positioned for the transition to a low-carbon economy.

Assessment

We recognise the complexity and barriers to identifying and assessing the forward-looking financial materiality of climate-related impacts on our investments. However, we seek to assess their exposure to climate-related risks and opportunities through a range of metrics and analysis, as the tools available to measure these evolve.

Consideration will be given to the potential impacts on asset prices and return expectations across both short and longer time horizons, and how this could inform our decisions around strategic asset allocation and portfolio construction.

We will seek to oversee all new and existing investment arrangements in a way that takes account of climate transition and adaptation risks, as well as resilience, opportunities and inclusivity, in line with the 2015 Paris Agreement commitment to keep global temperature rise this century to well below 2°C and aim to limit the increase to 1.5°C.

Manager expectations

We expect our external managers to understand and integrate material climate-related risks into their analysis and investment process. This includes undertaking carbon footprinting and scenario analysis, assessing asset exposure to physical risks, and engaging with issuers, where relevant for their asset class.

In monitoring the exposure and performance of our external managers, we'll review how they're managing climate-related risks and opportunities, including voting and engaging with issuers on climate-related issues, and how they're reporting to us on their actions.

Collaboration

We also collaborate with the wider investment community on climate change issues, as a signatory to the Principles for Responsible Investment (PRI) and as a member of the Institutional Investor Group on Climate Change (IIGCC). We seek to encourage greater climate disclosure through supporting initiatives such as the CDP and the Task Force on Climate-related Financial Disclosures (TCFD), and through engaging with companies identified by Climate Action 100+, so that exposure to climate risks (and opportunities) can be better understood.

Reporting and engagement

We'll communicate and engage on the actions and progress that have been taken around our climate change strategy to relevant beneficiaries and stakeholders, reporting in line with TCFD guidance for asset owners.

Appendix C

Disclosure metrics from the Annual Report and Accounts

PPF Carbon Footprint Listed Equities Scope 1 & 2 Metrics	2021	2020	Change %
Metrics based on Investor Allocation (using EVIC)			
1. Total Financed Carbon Emissions (tCO_2e)	395,353	796,972	-50%
2. Financed Carbon Emissions (tCO_2e/$m invested)	65	122	-47%
3. Financed Carbon Emissions Intensity (tCO_2e/$m revenues)	151	226	-33%
Metrics based on Portfolio Weights (WACI)			
4. Weighted Average Carbon Intensity (tCO_2e/$m revenues)	154	243	-37%
Equity benchmark* Weighted Average Carbon Intensity	83	299	-72%
Market value of the Fund's equities covered by CO_2e data (£m)	6,090	6,528	
Proportion of the Fund's equities for which data is available (%)	99%	98%	

PPF Carbon Footprint Credit Scope 1 & 2 Metrics	2021	2020	Change %
Metrics based on Investor Allocation (using EVIC)			
1. Total Financed Carbon Emissions (tCO_2e)	321,205	329,106	-2%
2. Financed Carbon Emissions (tCO_2e/$m invested)	50	53	-6%
3. Financed Carbon Emissions Intensity (tCO_2e/$m revenues)	204	192	6%
Metrics based on Portfolio Weights (WACI)			
4. Weighted Average Carbon Intensity (tCO_2e/$m revenues)	133	318	-58%
Credit benchmark Weighted Average Carbon Intensity	279	255	9%
Market value of the Fund's credit covered by CO_2e data (£m)	6,451	6,214	
Proportion of the Fund's credit for which data is available (%)	89%	93%	

Source: Certain information ©2022 MSCI ESG Research LLC. Reproduced by permission; no further distribution (PPF holdings as of 31/12/2021). Equity benchmark = FTSE Custom All-World Climate Minimum Variance Index. Credit benchmark = Bloomberg Barclays Global Aggregate Credit Index.

* Equity benchmark changed from FTSE All-World Minimum Variance Index to FTSE Custom All-World Climate Minimum Variance Index on 1 August 2021.

Metric definitions:

- Total Financed Carbon Emissions: Measures the Scope 1 + Scope 2 tonnes of CO_2 equivalent emissions for which an investor is responsible by their total overall financing. Emissions are apportioned across all outstanding shares and bonds (% Enterprise Value including cash).
- Financed Carbon Emissions: Measures the Scope 1 + Scope 2 tonnes of CO_2 equivalent emissions, for which an investor is responsible, per USD million invested, by their total overall financing. Emissions are apportioned across all outstanding shares and bonds (% Enterprise Value including cash).
- Financed Carbon Intensity: Measures the carbon efficiency of a portfolio, defined as the ratio of Scope 1 + Scope 2 tonnes of CO_2 equivalent emissions for which an investor is responsible to the revenues for which an investor has a claim by their total overall financing. Emissions and sales are apportioned across all outstanding shares and bonds (% Enterprise Value including cash).
- Weighted Average Carbon Intensity (WACI): Measures a portfolio's exposure to carbon-intensive companies, defined as the portfolio weighted average of companies' Carbon Intensity (Scope 1 + Scope 2 tonnes of CO_2 equivalent emissions per million $ of revenues).
- Enterprise Value including cash (EVIC): Market capitalisation at fiscal year-end date + preferred stock + minority interest + total debt.

APPENDICES CONTINUED

Appendix D

Our carbon footprint calculations

We report a range of carbon emissions-based metrics for our listed global equity and credit investment holdings to align with both TCFD and Partnership for Carbon Accounting Financials (PCAF) guidance. We are also guided by the DWP's work around proposed metrics for pension funds.

Although our year-end is 31 March, we review our climate exposure metrics to 31 December. This allows for the greatest coverage of climate data, such as the annual corporate CDP responses made available to investors each autumn.

Our preferred metric for assessing carbon risk exposure on a day-to-day basis is the Weighted Average Carbon Intensity (WACI). We feel it gives us the greatest coverage in fixed income where we have more significant exposure, and allows us to compare similar types of assets and portfolios, regardless of investment size.

Absolute financed emissions

For absolute carbon emissions, we measure the total operational Scope 1 and Scope 2 carbon emissions (based on the definition set by the Greenhouse Gas (GHG) Protocol) using data from MSCI ESG Research. To calculate our apportioned 'ownership' of each investment, we've used Enterprise Value Including Cash (EVIC) as recommended by the PCAF. We are also reviewing the inclusion of Scope 3 emissions for some sectors where they are material, but we still feel the data is not robust enough to report on formally.

Relative carbon intensity

To give the fullest picture of the carbon intensity of our portfolio and compare different portfolios on as close to a like-for-like basis as we can, we use three key measures:

- **Financed Carbon Emissions per million dollars invested metric**
  Measuring the Financed Carbon Emissions per million dollars invested helps us understand the carbon emissions being financed by the size of our investment portfolio.
- **Financed Carbon Intensity per million dollars revenue metric**
  Measuring the Financed Carbon Intensity per million dollars of revenue helps us understand the carbon efficiency of our portfolio, i.e., how efficient the companies are at generating output per tonne of carbon.
- **Weighted Average Carbon Intensity (WACI) metric**
  As recommended by the TCFD, we use the WACI footprint to monitor our portfolios' exposure to carbon-intensive companies. It's flexible enough to use across asset classes and gives us greater coverage in fixed income portfolios.

Carbon metric equations

Total Financed Carbon Emissions in tonnes CO_2e:

$$\sum_{n}^{i} \left(\frac{\textit{current value of investment in entity}}{\textit{Entity's Enterprise Value including cash}} \; \textit{X entity's GHG emissions} \right)$$

Financed Carbon Emissions per million dollars invested

metric (may be shown in other currencies too):

$$\frac{\sum_{n}^{i} \left(\frac{\textit{current value of investment in entity}}{\textit{Entity's Enterprise Value including cash}} \; \textit{X entity's GHG emissions} \right)}{\textit{current portfolio value (\$m)}}$$

Financed Carbon Intensity per million dollars revenue

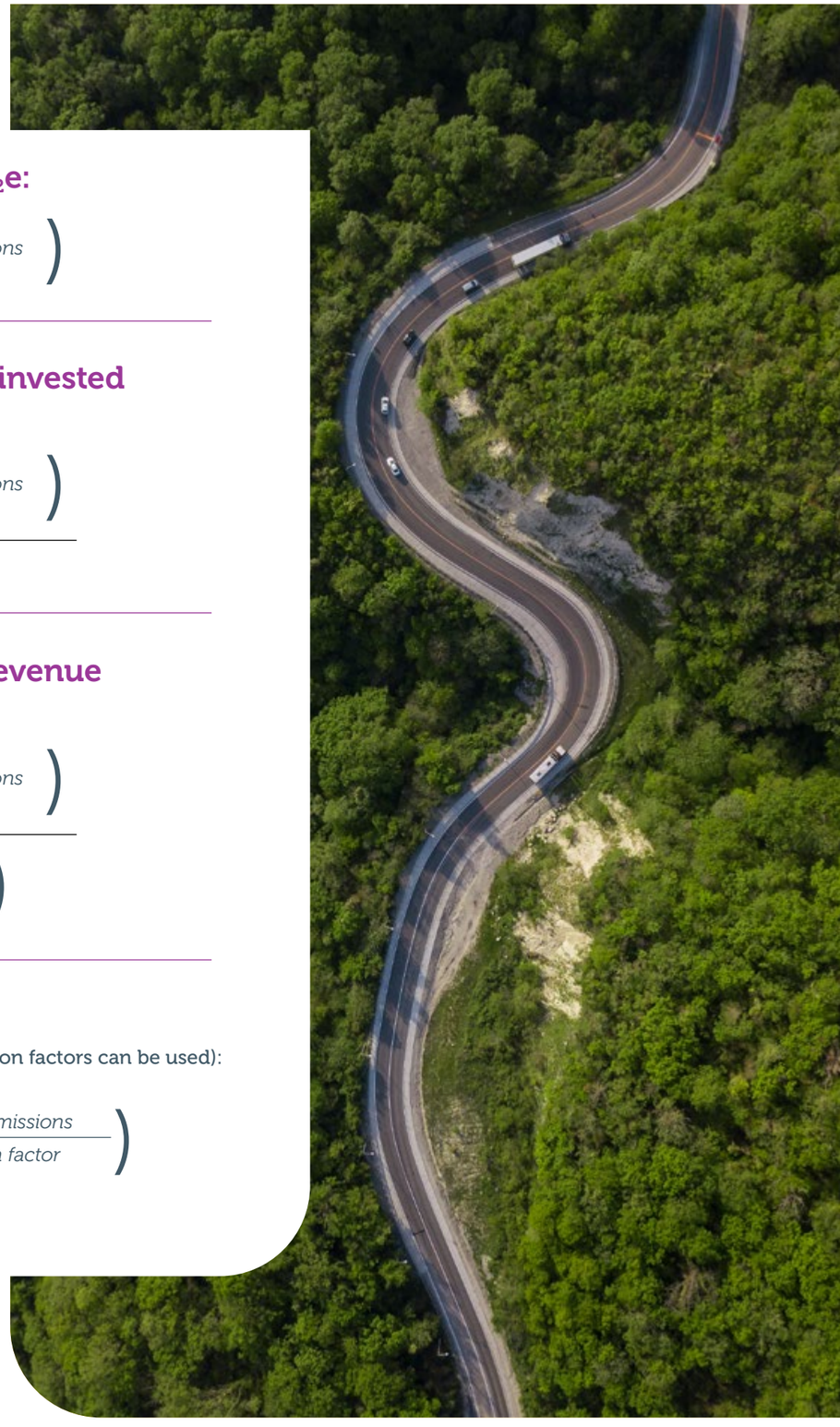
metric (may be shown in other currencies too):

$$\frac{\sum_{n}^{i} \left(\frac{\textit{current value of investment in entity}}{\textit{Entity's Enterprise Value including cash}} \; \textit{X entity's GHG emissions} \right)}{\sum_{n}^{i} \left(\frac{\textit{current value of investment in entity}}{\textit{Entity's Enterprise Value including cash}} \; \textit{X entity's revenue} \right)}$$

Weighted Average Carbon Intensity

metric (where normalisation factor is entity's revenues, but other normalisation factors can be used):

$$\sum_{n}^{i} \left(\frac{\textit{current value of investment in entity}}{\textit{current portfolio value}} \; X \; \frac{\textit{entity's GHG emissions}}{\textit{normalisation factor}} \right)$$



APPENDICES CONTINUED

Appendix E

MSCI disclaimer

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Appendix F

Our climate change voting guidelines

With a specific focus on material issues, we identify key ESG matters that are of particular importance in a specific AGM season and highlight them through targeted engagement. Where we feel that companies are consistently unreceptive to engagement on certain issues, we will consider employing escalation techniques such as voting to oppose relevant board members or resolutions.

We will consider opposing the Chair or responsible directors of companies that:

- Score below a level 4 (i.e., 3, 2, 1 or 0) in the latest Management Quality assessment by the Transition Pathway Initiative (TPIMQ level)
- Have been downgraded from a level 4 to 3 TPIMQ score over the previous assessment cycle
- Have a strategy that is materially misaligned with the goals of the Paris Agreement.

We will also consider voting against the management of a company in cases when they are not disclosing adequate climate-related information, not only to the standards of the TCFD, but to the first tier of climate disclosure such as CDP.

See the **PPF's full voting guidelines and summary of our approach to stewardship**. These guidelines are to be read in conjunction with our **Stewardship Policy**.

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