Pension
Protection
Fund

Climate Change Report 2020/21

About the PPF

Our purpose is to protect the future of millions of people throughout the UK who belong to defined benefit pension schemes. When these schemes fail, we're ready to help.

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

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

Contents

Executive summary

Climate change is one of the biggest issues on the global agenda – one that has the potential to impact economies, businesses and people everywhere. We're committed to managing these risks and opportunities across our investments on behalf of our members.

This focused climate report shows how we are active in assessing and managing climate-related risks and opportunities across our investment portfolio. It details our climate-related governance framework, strategy, risk management processes and chosen metrics, aligning with the Financial Stability Board Task Force on Climate-related Financial Disclosures (TCFD) framework.

Our climate change strategic journey

We will continue to refine our processes and set new standards

Step 1
Recognise and understand the challenge facing us.

Step 2
Build out risk management, monitoring and reporting processes.

Step 3
Evaluate results and determine action points.
Refine processes as required, incorporating new data/methods.

> We see our climate strategy as fundamental to our long-term investment goals. We can reduce risk, ensure we are sustainable and provide industry-leading transparency.

Oliver Morley
Chief Executive Officer

Our achievements

2019

- Climate change policy and strategy approved by the Board
- Independent carbon audit of our listed equity and credit portfolios
- **Minimum Environmental, Social and Governance (ESG) and carbon requirements** integrated in fund legal documents
- TCFD disclosures reported in our Annual Report and Accounts

2020

- First dedicated Responsible Investment (RI) report published
- Climate measurements embedded into our portfolio management systems (see **page 7, 9**)
- ESG and carbon reporting template mandated for external managers – **100 per cent of our Liquids managers now report this way** (see **page 9**)
- Stewardship services expanded to cover our in-house fixed income and cash books (see **page 9**)

2021

- New climate-aware equity benchmark designed to meet our investment strategy while **reducing our exposure to climate risks by at least 50 per cent**[1] (see **page 10**)
- Innovative pilot project launched to develop an approach for assessing the Paris Agreement alignment of all our asset classes (see **page 8**)

Next steps

We believe our achievements to date significantly reduce the risks facing our portfolio, without compromising our underlying investment strategy. Now we have better access to data and insight, we will keep evaluating and determining actions we can take to mitigate these risks further.

We will continue to take a leadership role as we refine our processes further and set new standards in other asset classes where access to data and tools is still scarce.

1 When compared to FTSE All-World Index carbon emissions and reserves intensity

Progress at a glance 2020/21

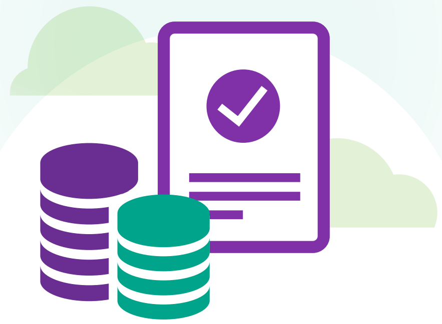
Enhanced our governance and strategy by:

Addressing ESG and climate-related risks in our investment risk register

Deepening the reporting provided to our oversight committees

Improved our portfolio and risk management processes by:

Finalising a climate-aware version of our equity benchmark



Launching an innovative project to assess how our whole portfolio aligns with the Paris Agreement

Improved our own oversight by:

Expanding our ability to produce TCFD-related metrics and analysis

Rolling out new ESG and carbon reporting requirements for our external fund managers and achieving a 100 per cent response rate across our Liquids portfolio

Continued to collaborate with the industry by:

Responding to the DWP's consultation on climate risks

Participating in the Institutional Investors Group on Climate Change (IIGCC) Paris Aligned Investment Initiative (PAII) and joining its new Net Zero Stewardship working group

Our commitment to the TCFD

The TCFD guidance was created 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've shared our progress in our Annual Reports, along with our annual RI reports, which also detail our stewardship activities and work as an active owner.

We've formally supported the TCFD framework since 2018.

TCFD | TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES

Taking action on climate change

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

We're committed to:

1. Implementing the TCFD

We're continuously applying and implementing TCFD recommendations, always looking for ways to improve risk management and transparency.

2. Assessing transition and physical risks

We're taking a phased approach to analysing how exposed our portfolio is in the global transition to a low carbon economy, as we're bound by data availability. We're also starting to consider the physical risk factors of climate change across all asset classes, although again, the data on this is nascent.

3. Engaging with our fund managers

We're working tirelessly with our fund managers across all strategies and regions to ensure they consider, manage and report to us on the climate-related risks and opportunities our investments might face.

4. Collaborate with industry

We're engaging and collaborating with industry peers and the wider investment community on climate change initiatives and furthering best practice, including support for the Paris Agreement, TCFD and Climate Action 100+.

Governance

RI governance at the PPF

Inadequate governance is often a factor in schemes entering the PPF, therefore we have a responsibility to exemplify good governance on behalf of our members and levy payers.

PPF Board	Highest governing body with oversight of RI (including climate-related) issues.
Investment Committee (IC)	Responsibility for developing and maintaining the Fund's RI principles and policies (including climate-related) is delegated to the IC.
Investment Team	Led by the Chief Investment Officer (CIO). Responsibility for ensuring adherence to the RI framework and associated policies (including the integration of climate change) across all asset classes, both internally and externally managed.
ESG Team	The ESG Team, as part of the Investment Team, provides support and expertise, oversees appropriate implementation of the RI framework, engages with portfolio managers, and monitors investments for ESG risks and opportunities (including climate-related).

Our investment committee

Overseen by our Board, the Investment Committee develops our investment principles, strategy and risk management approach, including our RI principles and policies.

As part of its oversight function, the Investment Committee requires evidence of the implementation of our RI processes. The Committee also reviews our policies annually to ensure they stay relevant and ambitious.

Our Investment and ESG teams

Our Investment team manages over half our assets internally, while we appoint external fund managers for the remainder. Every asset class is managed in line with our RI strategy and under the stewardship of the Investment Committee.

Within the Investment team, we have a dedicated group of ESG specialists. This ESG team works extensively with our internal portfolio managers and external fund managers to monitor our portfolio – in line with leading disclosure frameworks – and reports to the Board, Investment Committee, and Asset and Liability Committee on our progress.

Our climate change policy

Climate change is a systemic and non-diversifiable concern, which can significantly affect the value of our investments across the short, medium and long term.

It also presents opportunities for companies and assets that are well-positioned for the transition to a low-carbon economy.

In 2019, we finalised a specific climate change policy (see Appendix 1) that outlines our approach to these risks and opportunities.

Taking action: The Investment Committee reviewed this policy in 2020/21 as part of its annual review cycle.

New Statement of Investment Principles

This year we chose to update our Statement of Investment Principles (SIP), in line with the DWP's amended occupational pension schemes regulations, to advocate best practice. Within the new SIP, we included ESG and climate risks into our investment risk register. The updated statement also outlines our stewardship approach, taking financially material considerations – particularly climate change risks – into account across our investments. It also details how we monitor external fund managers and outlines the RI beliefs which drive our strategy.

Taking action: Including ESG and climate risks within our SIP reflects our ambition to promote industry best practice.

New internal RI reports

This year the ESG team developed a new quarterly RI update report for the Investment Committee. The report reviews our RI policies, processes and policy review schedule. It provides updates on stewardship, manager appointments and monitoring, and key quantitative metrics such as ESG scores and carbon intensity by asset class. We also provide updates on the management of our climate-related and other ESG risks monthly with the CIO and the Head of Investment Strategy. We highlight portfolio-relevant information or events in our daily investment meetings as they arise.

Taking action: New quarterly reports mean we have greater transparency than ever before.

Developing a new stewardship policy

A new stewardship policy was developed during the year and approved by the Investment Committee in March 2021.

This policy outlines our approach to stewardship – including how we engage with our fund managers and underlying issuers around the management of climate-related risks – as part of managing the Fund, in line with the new SIP.

Taking action: The new stewardship policy guides how we engage with managers and issuers on climate-related risks.

Upholding our RI strategy

Our RI strategy and framework incorporates ESG risks and opportunities across our entire investment portfolio, with an essential focus on risk management. It's implemented by the Investment and ESG teams and overseen by the CIO.

Identifying our exposure and determining appropriate management of climate-related risks in our investments is a strategic priority for the PPF, as a specific area of focus within our Strategic Plan.

It is vital to our RI approach that we engage with and advance the ESG practices of our external fund managers, bringing them on the journey with us. We continuously review all existing and potential managers' policies, ESG integration processes and reporting to ensure they meet our evolving minimum standards. We will not allocate more capital to managers that fall short of these standards. This year, we carried this out with an increasing focus on climate, including in the more challenging private markets assets.

For more detail on this, see **page 9.**

Strategy and risk management

Our climate-related risks and opportunities

We've embarked upon identifying the types of climate-related risks and opportunities that could impact our investments.

Most of our material exposure to climate-related risks exists in downstream 'financed emissions' in our investment value chain. As a result, we're focusing our strategy and risk management on these financed emissions, as recommended by the Greenhouse Gas Protocol Scope 3 Calculation Guidance.

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

Some examples of the risks 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.

The impact of climate on our strategy

It's extremely complex to identify and assess climate-related impacts on our business plans, strategy and financial planning. To overcome the barriers, we have chosen to use a wide range of metrics and techniques. We also remain adaptable to using the most advanced and relevant analytical tools currently available.

Our scenarios

Although the DWP's climate risk proposals guided that two scenarios should be included as a minimum, we have chosen to select three scenarios under which to carry out stress testing of our assets.

We believe that a disorderly transition to net zero is likely to have a different impact on assets than an orderly transition. We also feel it is prudent to consider a failed transition scenario too.

For our listed corporates, we've decided to assess the risks posed by global warming across the three different climate exploratory scenarios recommended by the Bank of England's 2019 Stress Test Methodology and its subsequent 2021 Climate Biennial Exploratory Scenarios.

Although 2100 is further out than our expected liabilities, we acknowledge that the transition and physical risks under different scenarios are likely to impact our assets much sooner, depending on whether – or when – policy action is taken.

Scenario A, or Late Action:
A sudden disorderly transition to a temperature rise of below 2°C by 2100.

Scenario B, 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.

Scenario C, 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.

How we assess the risks

We have started to monitor the risks within our investment portfolios using a number of different ESG tools and carbon-specific datasets. Although we still have a way to go, we have worked hard this year to access more data on ESG and climate metrics.

As a result, we have ESG data available through our portfolio management system for 70 per cent of the Fund's net asset value. Within this coverage, we also have carbon emissions data for approximately 30 per cent of the total – the lower carbon coverage reflects the difficulty in assigning sovereign carbon emissions. To drive further visibility, we've chosen to focus on each asset class in turn and in a way that works best for each.

We also expect our external fund managers to understand and integrate material climate-related risks into their analysis and investment process. Where possible, we ask them to provide carbon footprinting and scenario analysis of transition risks, consider exposure to physical risks and engage with issuers, if feasible. We discuss how we have worked with our managers on this on **page 9.**

Taking action: We have worked hard this year to access more ESG, carbon emissions and other climate data.

Assessing transition risks

As they are most widely available to us, we're currently using the following modelling tools, methodologies and forecasts to consider transition risks:

- International Energy Agency (IEA) scenarios (from its Energy Technology Perspectives report) available through the Transition Pathway Initiative (TPI) and the Paris Agreement Capital Transition Assessment (PACTA) tools
- The PRI's Forecast Policy Scenario under its Inevitable Policy Response
- MSCI ESG's Portfolio Climate Value-at-Risk (VaR)

For more detail on these methods, see **page 15.**

Strategy and risk management – continued

Assessing physical risks

Most modelling tools, such as those mentioned on the previous page, largely consider transition risks rather than physical risks. To better assess physical risk, we've started to explore the different data and analytical provider options. However, these tend to focus on listed companies' headquartered locations rather than asset-level locations.

While we continue to explore options, we're also using analysis provided in our MSCI Climate VaR reports, as this also incorporates some physical risks. We also continue to challenge our fund managers to assess physical and adaptation risks across our portfolios, especially in our real assets.

Taking action: We're driving a deeper understanding of physical risks by challenging our managers, by using Climate VaR reports and by exploring new analytical tools.

Assessing opportunities

We believe that there are opportunities for some of our real assets in a decarbonising economy, and have identified forestry, infrastructure and property assets as a logical part of the solution.

Whilst sectors such as renewable energy are clearly likely to benefit from a transitioning economy, we also recognise that alternative technologies or materials present growing opportunities in other sectors.

- **Forestry**
  Forestry has a strong potential to contribute to the mitigation of CO_2 emissions through carbon storage, and sustainable forestry assets are one of a few viable nature-based solutions. Well-managed forests can also provide additional benefits in terms of biodiversity and be more resilient to physical impacts arising from climate change. Over the year we have increased our investment in forestry by 20 per cent and we continually review the proportion of our timberland assets that are FSC and/or PEFC certified.
- **Infrastructure**
  We see sustainable infrastructure as an attractive opportunity, and within this have identified urban resilience as a key trend.
- **Property**
  Real estate is a critical component of the energy transition, not only through addressing energy efficiency but also in design and construction. As part of our portfolio alignment project, we have recently started using the Carbon Risk Real Estate Monitor (CRREM) tool to review our property portfolios. CRREM is an EU Horizon 2020 research project, the outputs of which indicate the percentage of a property portfolio that might become stranded by 2030 or 2050 under a specific scenario. This can also help to define those assets more likely to be resilient under net zero pathways.

Analysing portfolio temperature alignment

Following our involvement in the IIGCC's PAII, we're currently undergoing a project to assess how the Fund aligns with a particular global warming trajectory.

We've found the PAII outputs a useful starting point, but the current framework only offers coverage for less than 25 per cent of our portfolio. As we could not identify an alternative solution to give us what we needed, we've appointed an external consultant to help us design one. Over the coming year, we'll be working together to assess our entire portfolio and acquire an independent, objective measurement.

In line with our overall strategy, we're taking a phased approach, with phase one addressing 70 per cent of our portfolio's assets. The results of this project should help us set robust and credible climate-related objectives. We hope it will also be useful to other investors with similar exposure to more complex asset classes.

Managing climate-related risks across the PPF

As ESG and climate-related risks can significantly impact the long-term performance of assets, we've now chosen to identify this as a specific risk category in the investment risk register of our SIP. This means they're monitored by the Investment Committee, which in turn reports to the Board.

On a day-to-day basis, we're continually improving access to risk data across our portfolio. We're also active owners and stewards. Our stewardship provider and fund managers engage on our behalf with the companies or issuers we invest in to ensure climate-related risks and opportunities are being managed appropriately.

In the absence of an existing solution, we've launched a unique pilot project to assess how our entire portfolio aligns with the Paris Agreement.

Strategy and risk management – continued

Summary of our progress across all asset classes

The following table summarises the progress we've made in each asset class on striving to manage our climate-related risks over the year.

We continue to face challenges with a large portion of our portfolio, particularly when trying to carbon footprint our Liability Driven investment (LDI) and Hybrid assets, as agreed methodologies and underlying data for these assets are still extremely scarce.

We continuously search for better ways to address this. In the meantime, we're applying qualitative measures where possible and focusing on engaging with public policymakers where we see a benefit to the market.

	Asset class	Progress in 2020/21	Next steps
Direct	Liability Driven Investment	Started alignment assessment; engaged on green gilts	Start counterparty exposure assessments
	UK Public credit	Extended engagement services to cover listed corporate holdings; measured carbon footprint	Start alignment assessment
	UK Private credit	Climate-related questions in due diligence and ongoing monitoring	Start alignment assessment
	Cash	Extended engagement services to cover listed corporate holdings; measured carbon footprint	Start alignment assessment
Indirect	Equities	Measured carbon footprint; started alignment assessment; started scenario analysis; finalised new climate aware benchmark	Transition to low carbon benchmark; additional TCFD metrics required from managers
	Investment Grade (IG) and Emerging Markets (EM) credit	Measured carbon footprint; started alignment assessment; started scenario analysis	Additional TCFD metrics required from managers
	Absolute Return	Measured carbon footprint; started alignment assessment	Additional TCFD metrics required from managers
	Alternatives	Climate-related questions in due diligence and ongoing monitoring; started alignment assessment on Property	Specific asset class reporting templates on ESG and TCFD metrics; start alignment assessment beyond Property

Working with managers to drive transparency across our portfolio

We expect our external fund managers to integrate material climate-related risks into their analysis and investment process and update us accordingly. This includes carbon footprinting and scenario analysis along with assessing physical risks, where possible. We regularly monitor and carry out in-depth reviews of their activities to assess how they're voting and engaging with issuers on climate-related issues, as well as how they report their actions, both publicly and to us.

However, more can be done, so we're continuing to drive transparency across our portfolio by focusing on each asset class in turn. This year we worked extensively with our Liquids managers to develop dedicated reporting templates that will give us insight into essential ESG, climate and stewardship data across our Liquid portfolios.

We believe that this engagement with our fund managers has increased their awareness of potential climate risks. We also believe that it has already led to a significant impact on the risk profile of our managers.

Our Liquids managers are now preparing to share additional metrics in early 2022, particularly in the area of TCFD climate metrics and analysis. We're also rolling out the same process to our Alternatives fund managers, and we aspire to have appropriate templates in place across the book by 2022.

Taking action: By actively working with our Liquids managers, we've achieved new levels of climate-related insight. Insight that has already significantly impacted their risk profile.

We're pleased to report that 100 per cent of our managers of publicly traded assets are now reporting under this new framework, so we have oversight over:

- ESG policy compliance during the quarter, including identifying and managing material ESG risks
- Stewardship activities during the quarter, including engagement and voting
- ESG portfolio profile
- TCFD climate assessment of the portfolio

Strategy and risk management – continued

New equity benchmark

When we reviewed the results of our first carbon audit of our Equities portfolio in 2019/20, it was clear that our equity benchmark's fundamental characteristics were leading to a relatively high weighting in carbon-intensive companies.

We decided to address this by developing a new climate-aware version of our equity benchmark, in partnership with our index provider FTSE Russell. We wanted to find a balance where we remain engaged with companies that are critical to the transition while also identifying companies that we feel are no longer participating or whose industries are in terminal decline.

In March 2021, we finalised the Custom FTSE All-World Climate Minimum Variance Index. We're spending the first few months of the 2021/22 financial year ensuring a smooth transition to the new index with our external fund managers and service providers.

We anticipate that the new index will result in a carbon reduction of nearly two thirds compared with the original benchmark. This will immediately feed through into our passive equity mandates. However, we also expect this to help drive a reduction in our footprint in the active equity mandates in time.

Taking action: Our new climate-aware equity benchmark will help us to differentiate between companies that are part of the low carbon transition and those whose risks we're not comfortable being exposed to.

Engaging with issuers

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

50%

Our new equity benchmark targets a reduction of at least 50 per cent from the FTSE All-World Index's carbon emissions and reserves intensity.

Collaborating with industry

- We've been a signatory to the Principles for Responsible Investment (PRI) since 2007 and our Head of ESG currently sits on the PRI's Infrastructure Advisory Committee
- We're also an investor member of the IIGCC
- During the year, we supported the UK 'Green+ Gilt Proposal' for a sovereign bond combining social with environmental impact, developed by Impact Investing Institute, Green Finance Institute and Grantham Research Institute. We contributed to discussions around developing robust and measurable metrics for reporting on these co-benefits.
- We encourage greater climate disclosure through supporting initiatives such as the CDP and the TCFD
- We also engage with companies identified by Climate Action 100+ and the TPI to improve their transparency and management of climate-related issues

Metrics and targets

How we've reported

We've shared the metrics we can currently generate – based on available data – to assess our climate-related risks and opportunities. Alongside each metric, we've outlined our considerations of the outputs and where we want to improve data access. Although our year end is 31 March, we've opted to review our climate exposure metrics at the end of each calendar year, 31 December. This allows for the greatest coverage of climate data at a point in time when, for example, the annual corporate CDP responses are made available to investors each autumn.

Carbon footprint metrics

We've chosen to 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 have also been guided by the DWP's recent climate risk consultation around proposed metrics for pension funds. Appendix 2 includes metrics that will also be included in the 2020/21 PPF Annual Report.

We don't mandate to our fund managers that our portfolios are invested according to a specific carbon emissions or intensity target. However, as part of our oversight and monitoring of our managers, we use the findings from carbon footprinting to inform and steer our dialogue with them. We want to ensure that material risks have been identified and considered within their investment decision-making.

Our preferred metric for assessing carbon risk exposure on a day-to-day basis is the **Weighted Average Carbon Intensity** (WACI), as outlined on **page 12**. 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.

We decided to expand the coverage of our global credit portfolio to include the corporate bonds held within our EM debt mandates this year. We expected this would increase our overall credit carbon footprint over the year because EM companies often have a higher carbon footprint, especially in the more intensive sectors.

16%

Our Equities portfolio has seen its carbon footprint reduce by 16 per cent over the year.

Absolute carbon emissions

We measured the total operational Scope 1 + Scope 2[1] carbon emissions associated with our liquid investments in global equity (Equities), global investment grade (IG) and EM corporates (Credit), and the publicly traded UK credit within our hybrid assets (UK Credit), as of 31 December 2020. This accounted for approximately one quarter of our overall assets under management (AUM). In time, we'll look to extend this out to other asset classes, but we're currently limited by data availability.

We've used Enterprise Value Including Cash (EVIC) to calculate our apportioned 'ownership' of each investment, as recommended by the PCAF. The PCAF method is currently one of the most widely accepted approaches for determining an investor's financed emissions.

Therefore, our total financed emissions across our Equities, Credit and UK Credit holdings was 1,220,456 tonnes of CO_2 equivalent (tCO_2e) for assets representing $14.8 billion. We will monitor this figure annually. In doing so, we'll need to consider balancing an anticipated increase in our AUM with a preference not to increase the financed emissions associated with these assets.

We are also reviewing Scope 3[1] emissions in some sectors where they are more material (e.g. Transportation and Oil & Gas), but we feel the data is not robust enough to formally report on currently.

PPF	Scope 1+2 emissions[1] (tCO_2e)	PPF AUM assessed ($m)	Carbon data coverage (Scope 1+2)
Equities	796,972	6,528	98%
Credit	329,106	6,214	86%
UK Credit	94,378	2,012	60%
Total financed emissions December 2020	**1,220,456**	**14,754**	**88%**

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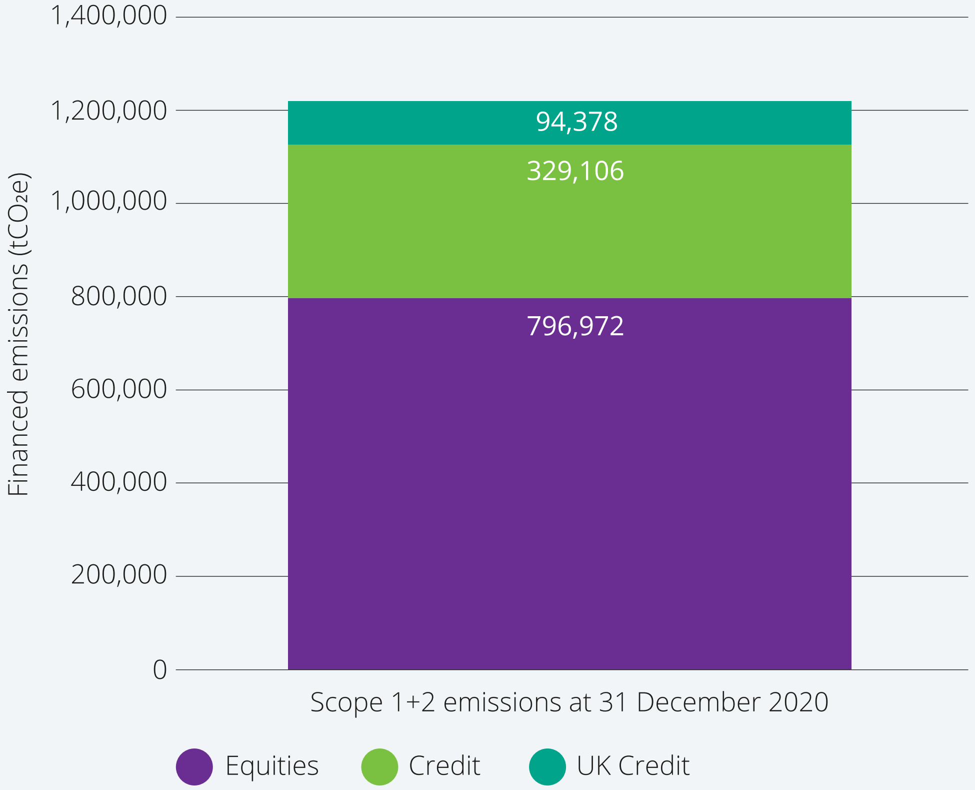
PPF financed emissions (at 31 December 2020)



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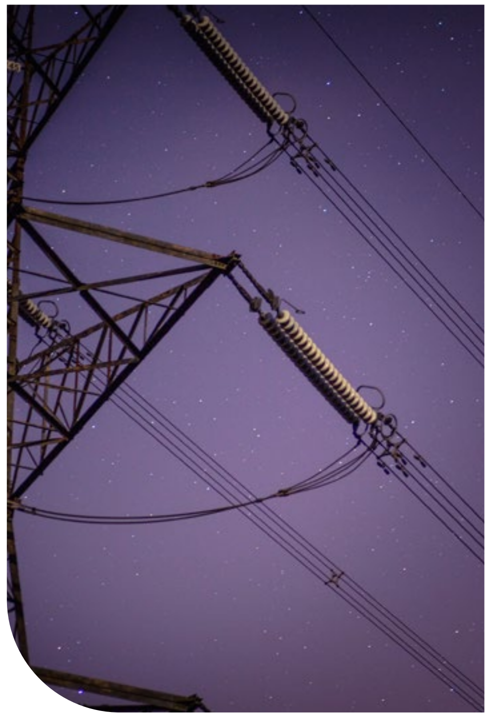
1 Based on the definition set by the Greenhouse Gas (GHG) Protocol

Metrics and targets – continued

Relative carbon intensity

We see merit in looking at climate risks through different lenses, so we've used a variety of approaches for measuring emissions-based carbon intensity of our portfolios.



How we measure carbon intensity

- **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 emissions 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.

See Appendix 3 for more detail.

Global Equities portfolio: carbon intensity metrics

Our Equities portfolio is less carbon-intensive than its benchmark across all carbon intensity metrics. Using the WACI metric to compare carbon performance, it is 19 per cent less carbon-intensive than the equity benchmark. Year-on-year, it has reduced by 16 per cent from 2019 to 2020. However, we note that the equity benchmark saw a reduction of 30 per cent over the same period.

We expect to report lower carbon intensity figures next year, after the equity benchmark transition is completed.

PPF Equities carbon metrics

Global Credit portfolio: carbon intensity metrics

As mentioned, we included our EM corporate holdings in this year's Credit assessment, whereas we only covered the global developed IG credit holdings in 2019. That means these figures aren't truly directly comparable year-on-year, and, unsurprisingly, we've seen an increase in the portfolio's WACI metric due to the EM companies having a higher carbon intensity on average.

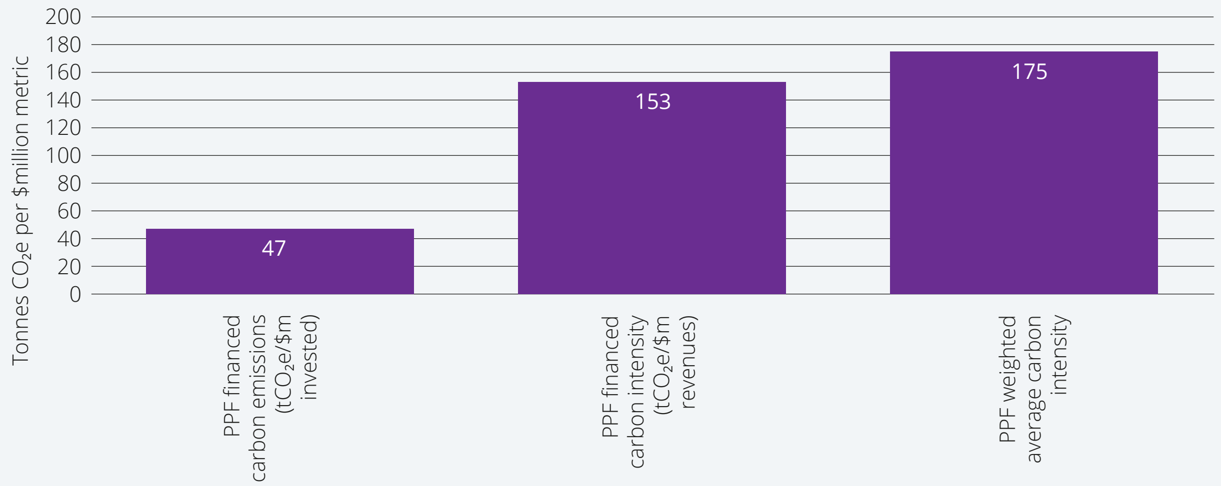
Furthermore, we're still comparing the Credit portfolio against an IG credit benchmark – we recognise that this benchmark is likely to have a lower carbon intensity due to having less EM exposure. Although we expected this outcome, we'll consider what actions we might wish to take to address this in the coming year.

PPF Credit carbon metrics

UK Credit portfolio: Carbon intensity metrics

We're reporting on these metrics for our internally managed public UK Credit portfolio for the first time this year, giving us a baseline for reporting our progress next year. The availability of carbon data for our holdings is lower than our other reported portfolios (60 per cent) but we feel it's important to start measuring what we can. This portfolio is not managed against a specific credit benchmark, so we've measured it on an absolute basis.

PPF UK Credit carbon metrics (2020 only)



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Metrics and targets – continued

High carbon-impact sectors

The TCFD recommendations steer investors towards paying particular attention to the sectors that have a higher contribution to global carbon emissions and consider their exposure to these.[1] Guided by this, we focused on the Utilities, Materials and Energy sectors, using the Global Industry Classification Standard (GICS) classification.

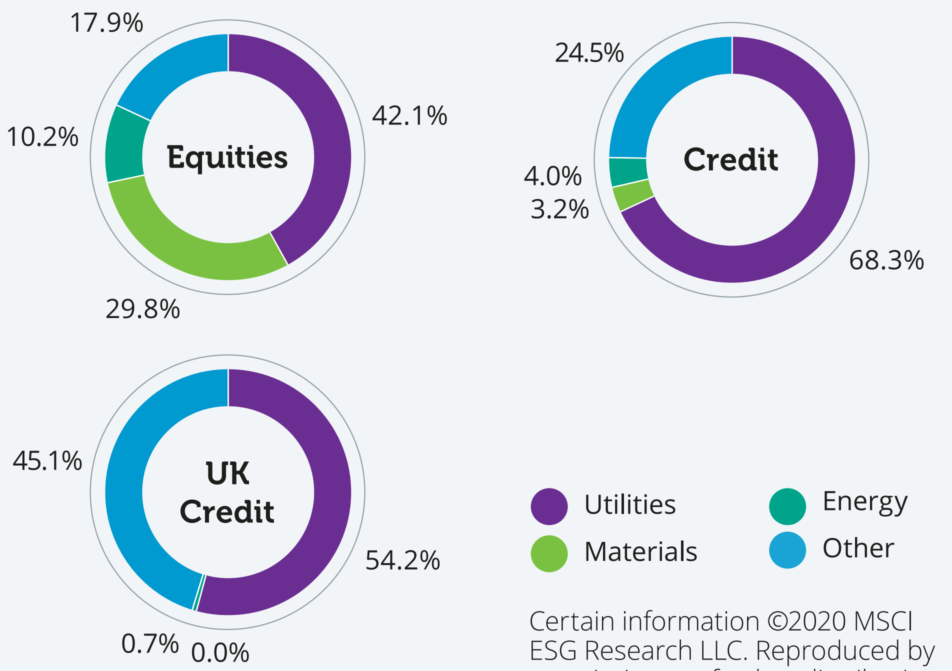
The Utilities sector contributes the most to carbon emissions across all three portfolios, to a higher degree than the portfolio's market value in these sectors; five per cent, 39 per cent and 19 per cent of the Equities, Credit and UK Credit portfolios respectively.

In the Equities book, Materials and Energy companies also represent a significant portion of the overall emissions. We are mitigating this by moving to our new climate-aware equity index in the coming year.

More generally, we see engagement as the preferred way to manage the need for decarbonisation across the economy. Therefore, we continue to push these sectors to transition through our engagement activities with equity and credit issuers, including via Climate Action 100+ and other initiatives.

Taking action: Our new climate-aware equity benchmark aims to mitigate risks in being overly exposed within the higher impact sectors.

Contribution to overall portfolio carbon emissions by high-impact sector



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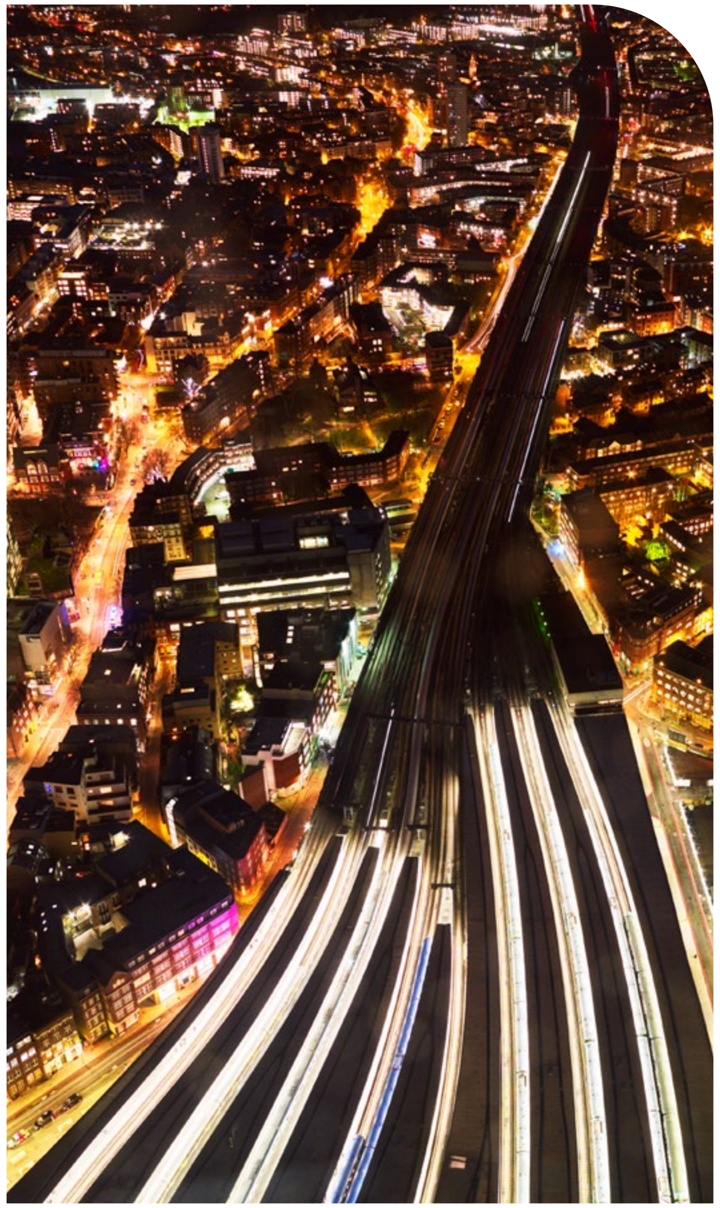
1 Energy, Materials and Buildings, Transportation and Agriculture, Food and Forest Products are identified by the TCFD as accounting for the largest proportion of GHG emissions, energy usage and water usage.



Disclosure rates and data quality

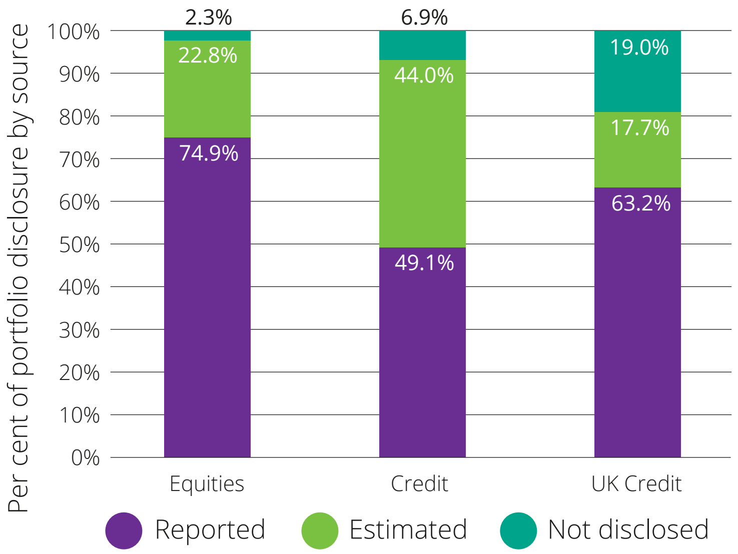
Getting good quality, self-reported carbon data from corporates continues to be a challenge, particularly for fixed income issuers that don't also issue public equity. Due to listing requirements, listed equity markets are by far the most transparent.

Three quarters of the carbon data for our Equities portfolio is reported by the companies, based on market value. The remainder is modelled by our ESG data provider. Although the global and UK credit portfolios have lower reported coverage overall, in terms of materiality, the reporting issuers do account for approximately 90 per cent of the associated carbon emissions.

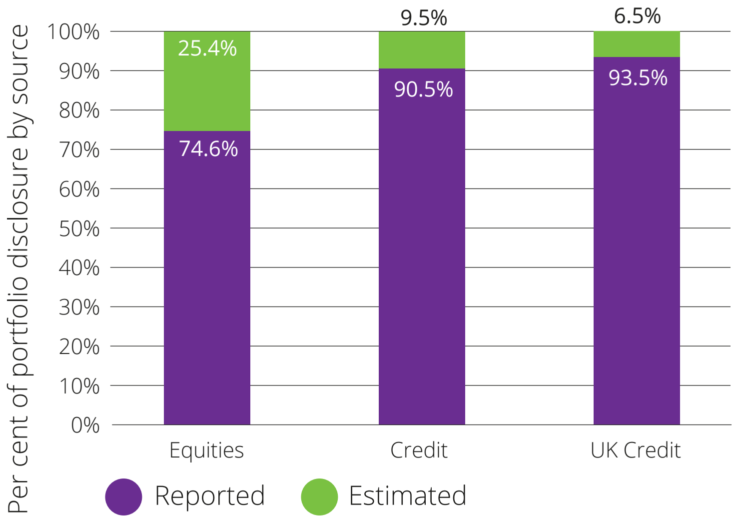
We are supportive of disclosure measures that are driving more reporting from corporates, both listed and unlisted. We are pleased to see increasing momentum from the regulatory side across many jurisdictions for TCFD adoption. Our stewardship provider communicates our expectation that companies adopt the full TCFD framework through engagement and voting. We also ask our fund managers to push their portfolio companies to report on material climate risks, using frameworks such as the TCFD, even in private markets.

Taking action: We are considering setting a disclosure-based target for our portfolios.

Disclosure of carbon emissions by market value (%)



Contribution to total carbon emissions by source of data



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Metrics and targets – continued

Exposure to fossil fuel activities

The risk of fossil fuel assets becoming stranded is a significant concern in both an orderly or disorderly transition towards net zero emissions by 2050.

In fact, the most carbon-intensive assets are likely to become stranded much sooner. This is due to the falling cost of renewable energy production and rising carbon prices in regions with emissions trading schemes or carbon taxes. Thermal coal is unarguably facing transition risks in the next five to ten years within the OECD regions.

As a result, we assessed our portfolios' exposure to fossil fuel reserves by overall percentage, as well as by fuel type.

The Equities portfolio has higher exposure than our equity benchmark. As this is beyond a level we're comfortable with, it was a fundamental consideration in the design of our new climate-aware equity index and we expect a significant reduction to our exposure post-transition to the new index.

The global Credit portfolio has a low exposure overall – especially in thermal coal – and when compared to its benchmark.

The UK Credit portfolio, although not measured against a benchmark, does have some exposure to companies with fossil fuel reserves. However, all of the companies with reserves, with the exception of one, have strong management quality (MQ) scores for climate-related strategy (as assessed by the TPI).

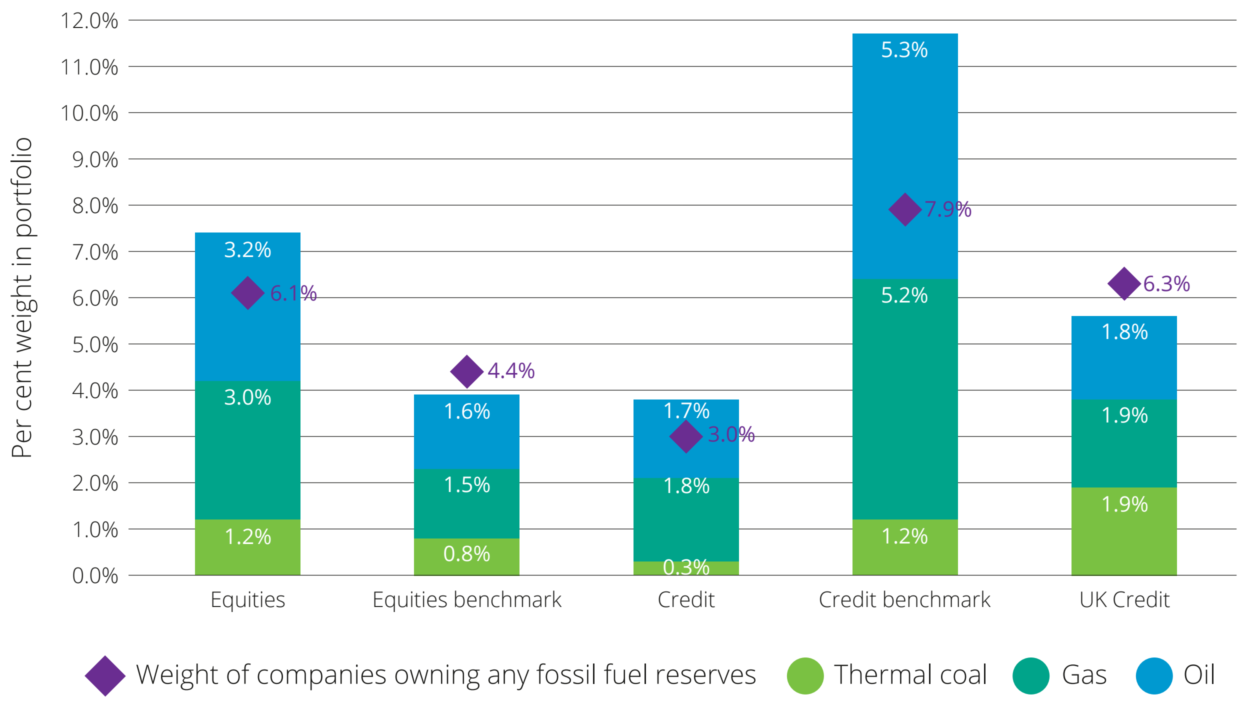
The 'weight of holdings' metric tells us what our exposure is to companies that have reserves on their balance sheet, but doesn't give insight into the magnitude of potential emissions that might be released from the burning of these reserves. Therefore, we have also assessed the potential embedded emissions and contribution by reserve type, as shown in the chart to the right.

Our Equities portfolio has approximately 40 per cent lower embedded emissions than its benchmark, and our global Credit portfolio has approximately 50 per cent lower embedded emissions.

Both the global Credit and UK Credit portfolios have minimal exposure to potential emissions from thermal coal.

Taking action: Although the Equities portfolio already has lower thermal coal embedded emissions than its benchmark, we have sought to reduce this further within the new climate-aware index.

Weight of holdings owning fossil fuel reserves



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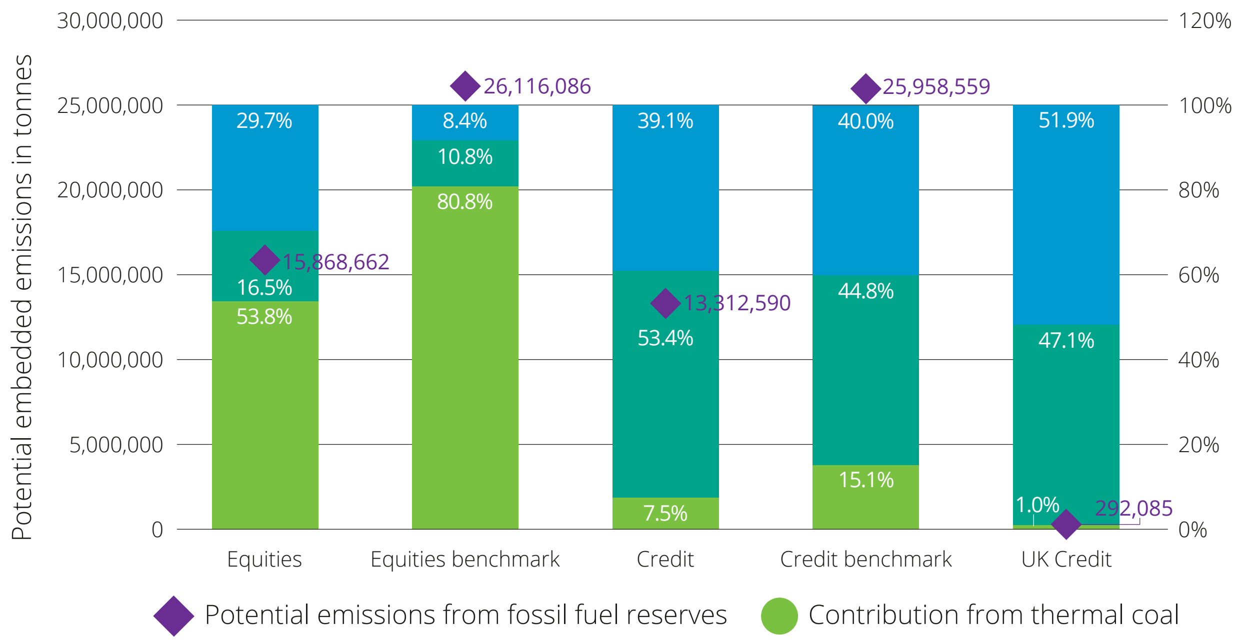
Potential emissions from reserves and contribution from reserves type



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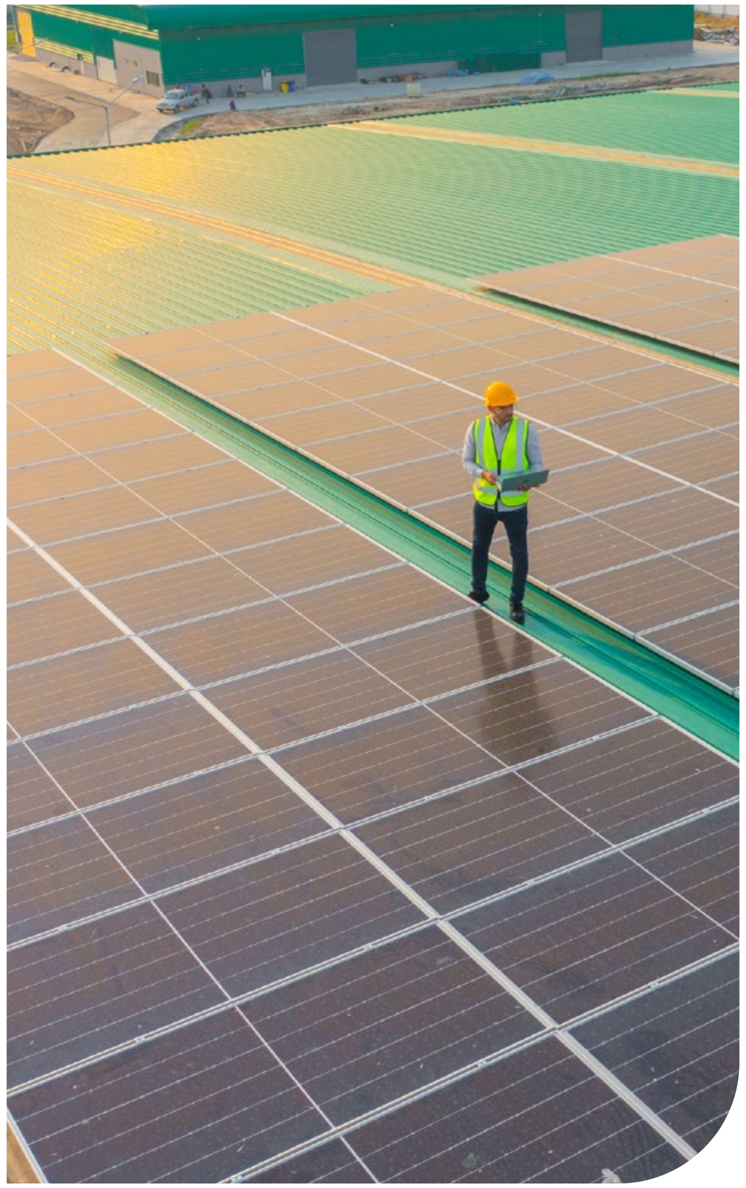


We have sought to significantly reduce our exposure to fossil fuel reserves in our new climate-aware equity index.

Metrics and targets – continued

How we calculate forward-looking scenario analysis

We use a variety of tools that offer different ways of running forward-looking analysis on our portfolios. Some tools are still in their infancy, and most only cover the listed corporate space and consider transition risks. However, even though we can't get comprehensive assessments across entire portfolios, the findings can still help inform our conversations with our fund managers.

Scenario analysis tools we're using

We introduce here some of the analysis tools we are using in our monitoring to help us understand how our portfolios might be impacted in the future, as a result of climate change.

TPI and our Equities portfolio

The TPI tool uses publicly disclosed information collected by FTSE Russell and validated by the Grantham Research Institute at the London School of Economics. The TPI database covers more than 400 of the world's highest emitting listed companies across 16 business sectors. These companies represent approximately 16 per cent of global market value and a much larger share of global greenhouse gas emissions.

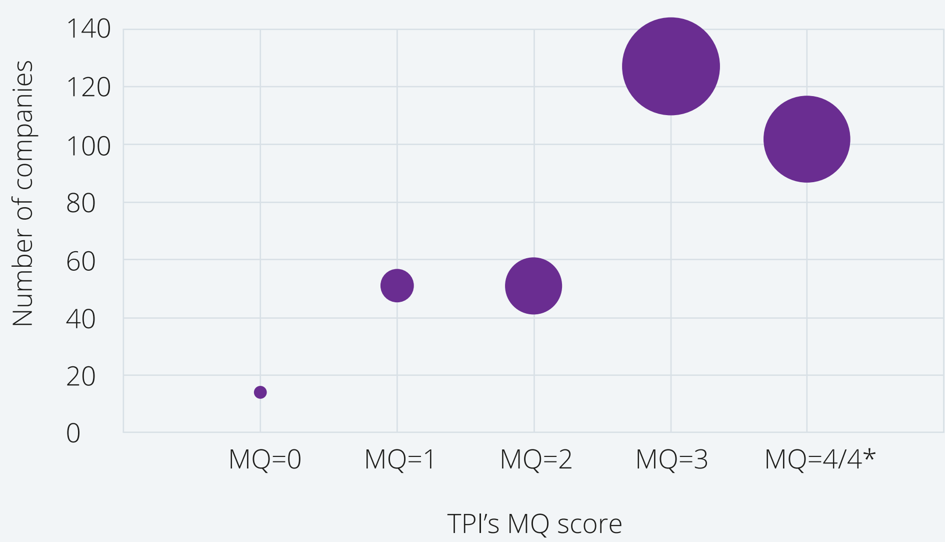
TPI ranks companies by two measures, based on their public disclosures. Firstly, it ranks how well company management deals with climate change risks from 0–4* (MQ). A score of 0 means no recognition or action, and 4/4* means climate change has been deeply integrated into business operations. It also looks at how effective they are at achieving carbon reduction in line with the Paris Agreement, compared to any emissions reduction targets they've set (Carbon Performance).

TPI MQ distribution in our Equities portfolio

We reviewed our Equities portfolio's distribution of MQ scores, and the portfolio is mainly exposed to companies with a higher MQ score of 3, 4 and 4*. We flag holdings that receive a MQ score of lower than 3 from the TPI for additional review, as it means the company may not be taking adequate action on its climate-related risks. Our stewardship provider also uses the TPI assessments when forming voting recommendations for our companies.

Taking action: This informs our engagement and voting strategy. It will also be a consideration in the construction of our new climate-aware index for the highest risk sectors.

TPI MQ distribution in our Equities portfolio



MSCI VaR Reporting

Climate VaR portfolio analysis, available via MSCI, allow us to select from a range of transition risk scenarios and two physical risk scenarios. This gives us an idea of the transition and physical risks to which the portfolios could be exposed, under different circumstances:

- **Physical risks (Aggressive scenario)**
  The top three physical risks that our Equities, Credit and UK Credit portfolios are all estimated to be most exposed to are **coastal flooding, extreme heat** and **tropical cyclones.**
- **Risks under a 1.5°C scenario**
  Under this scenario, the Equities and Credit portfolios have roughly equal climate transition VaR and physical VaR. The UK Credit portfolio, however, has a different exposure; the physical VaR is nearly three times greater than the transition VaR.
- **Risks under a 2°C scenario**
  The UK Credit transition VaR almost doubles when moving from a 1.5°C to a 2°C scenario. There are smaller increases for Equities and Credit. This is largely driven at the Scope 1+2 level, rather than Scope 3.
- **Aggregate warming potential temperature gauge**
  The Climate VaR reports also provide an aggregate warming potential temperature gauge for the portfolios. This year's assessments indicated a lower temperature gauge for both the Equities and Credit portfolios versus their benchmarks.

Taking action: We are using these findings to inform our discussions with our managers and to understand their strategy on how best to manage these risks.

PACTA and Bank of England climate stress tests

The PACTA transition monitor tool assesses exposure to climate transition risk and has been adapted in part for TCFD scenario analysis. It analyses the portfolio's company holdings and their capacity plans in line with an economic transition limiting global warming to 2°C above pre-industrial levels. It covers the most climate-relevant sectors: power, oil & gas, automotive, steel, aviation, cement and coal.

While initially mandatory for insurance companies, the Bank of England climate stress test tool also allows other financial institutions – including asset owners – to assess the vulnerabilities of their portfolios to adverse climate change and energy transition scenarios.

We have started using the PACTA tool, but acknowledge that it only covers a relatively small 10–12 per cent of the portfolios across the subset of sectors. However, it provides helpful granularity on the current and projected technology mix of the underlying companies for the next five years and compares this with what mix is required to align with certain scenarios.

Company alignment assessments

We're also starting to monitor the carbon performance trends and target setting of companies through:

- TPI's Carbon Performance alignment assessments
- Science Based Targets initiative (SBTi) tool for financial institutions
- Our own pilot project on portfolio alignment

We have found there are still substantial limitations to using open-source tools for portfolio-level analysis. One example is the delivery of these datasets is usually a simple spreadsheet with only one company identifier provided, so mapping the dataset to our portfolios can be extremely onerous. Another is the limited scope that they often provide, either in focusing on just one asset class, or on a small subset of companies/industries.

Taking action: We will review corporate carbon performance and targets to challenge our managers on their own assessments and engagements, particularly in higher-risk sectors.

Setting targets

We're currently reviewing what targets we feel are most appropriate to set for our portfolios.

We will most likely start off with disclosure and coverage-related targets initially, as we're keen to drive better corporate reporting as a starting point for more accurate risk management.

Once we have outputs from our portfolio alignment project, we will also consider how setting alignment-based targets might be appropriate.

Our aspirations

Climate change will remain a priority for us. We're looking forward to seeing the results of our portfolio alignment project across our entire portfolio which will empower us to drive a deeper understanding of the risks we face – and take action on them. As we work our way through the results and outputs from our analyses, we'll continue to evolve our strategy and action plans, top-down and bottom-up.

We'll be transitioning to a new equity benchmark in the first half of 2021/22. We expect this to drive a significant reduction in the carbon footprint metrics for our Equities portfolio, particularly in our passive mandates.

We have worked hard to improve our access to data. Given our significant exposure to fixed income, we hope to see an expansion of coverage across the asset classes in tools addressing the Credit and Sovereign markets over the next year to help inform our strategy further. We will also continue to push our fund managers in all of our asset classes to step up their reporting to us, and encourage them to be setting standards in best-in-class reporting for their markets.

> "We're looking forward to seeing the results of our portfolio alignment project across our entire portfolio."
>
> **Barry Kenneth**
> Chief Investment Officer

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Appendices

Appendix 1: 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. 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, which 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 the exposure of our investments 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-term time horizons, and how this could inform our decisions around strategic asset allocation and portfolio construction.

We 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 2°C or lower climate-related scenarios.

Manager expectations

We expect our external fund 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 fund 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 PRI and as a member of the Institutional IIGCC. We seek to encourage greater climate disclosure through supporting initiatives such as the CDP and the 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 2: Disclosure metrics from the Annual Report and Accounts

Disclosure metrics as recommended by the TCFD

Equities

Metric	Scopes[1]	PPF Equities	Coverage	Equity benchmark[2]	Coverage
Metrics based on investor allocation (using EVIC[3]) for $6.5bn Equity portfolio:					
Total Financed Carbon Emissions (tCO_2e)	Scope 1+2	796,972	97.6%	818,760	97.3%
Financed Carbon Emissions (tCO_2e/$m invested)	Scope 1+2	122.1	97.6%	125.4	97.4%
Financed Carbon Intensity (tCO_2e/$m revenues)	Scope 1+2	225.5	97.6%	256.9	97.3%
Metrics based on weights (WACI) for Equity portfolio:					
WACI (tCO_2e/$m revenues)	Scope 1+2	242.7	97.6%	298.7	97.4%

1 Based on the definition set by the Greenhouse Gas (GHG) Protocol. The GHG Protocol has set the global standard for GHG reporting, notably the three scopes of reporting information: Scope 1: Direct GHG emissions from operations; Scope 2: Electricity indirect GHG emissions (the companies' indirect emissions from electricity, heating, or steam consumption); Scope 3: Other indirect GHG emissions. More detail is available at: https://www.ghgprotocol.org/sites/default/files/ghgp/standards_supporting/Diagram%20of%20scopes%20and%20emissions%20across%20the%20value%20chain.pdf
2 FTSE All World Minimum Variance Index
3 Enterprise value including cash = market capitalisation at fiscal year-end date + preferred stock + minority interest + total debt

Credit

Metric	Scopes	PPF Credit	Coverage	Credit benchmark[1]	Coverage
Metrics based on investor allocation (using EVIC) for $6.2bn Credit portfolio:					
Total Financed Carbon Emissions (tCO_2e)	Scope 1+2	329,106	86.2%	525,417	68.7%
Financed Carbon Emissions (tCO_2e/$m invested)	Scope 1+2	53.0	87.6%	84.6	71.8%
Financed Carbon Intensity (tCO_2e/$m revenues)	Scope 1+2	192.4	86.2%	202.8	68.7%
Metrics based on weights (WACI) for Credit portfolio:					
WACI (tCO_2e/$m revenues)	Scope 1+2	317.9	93.1%	255.3	84.3%

1 Bloomberg Barclays Global Credit Index

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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 (% EVIC).
- 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 (% EVIC).
- 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 (% EVIC).
- 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 USD of revenues).

Appendices – continued

Appendix 3: Carbon metric equations

Total Financed Carbon Emissions in tonnes CO_2e:

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

Financed Carbon Emissions per million dollars invested metric (may be shown in other currencies too):

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

Financed Carbon Intensity per million dollars revenue metric (may be shown in other currencies too):

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

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

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

Pension
Protection
Fund

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