

Climate Change Disclosure Report

Risk and opportunities in the growth portfolio

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Award Winner in the Category: Best Overall Reporting

CIO's statement

Welcome to TPT Retirement Solutions' disclosure report focussed on the investment risks and opportunities related to climate change. The report is published as part of our update on activities related to Responsible Investment, providing a more in depth review of an issue which is of growing relevance to long-term investors like TPT.

Since we first adopted our Climate Change policy three years ago the policy and regulatory landscape has changed significantly. The UN Paris Agreement on climate change has entered into force, setting out a framework for containing global warming to below two degrees, and the G20's Taskforce on Climate-related Financial Disclosures has been asked to prepare reporting guidelines for both corporates and investors that are due to be published in early 2017.

For asset owners with diversified portfolios climate change disclosure is not straightforward. The range of asset classes and strategies we have exposure to makes analysis of carbon risk at the aggregate level challenging, not least because there is insufficient robust and timely data but also because standardized methodologies to quantify this risk do not exist.

In the last couple of years, however, new tools have become available for investors wanting to analyse the financial impact of climate change on their portfolio. TPT has been one of a number of leading pension funds trialling these tools, working closely with its investment consultant, asset managers and other specialist advisors. We are sharing the findings of our work in this report in order to promote transparency and to support development of best practice within the industry.

The report is in three sections, the first section sets out our work on climate change in the context of our overall investment strategy, the second section looks at the extent to which our portfolio is aligned with a two degrees pathway set out in the Paris Agreement, and the third part summarises our future priorities related to climate change from both an investment risk and opportunity perspective. We have also included an overview of our engagement activities related to climate change.

We recognise that there are limitations to this analysis, but we will continue to work with our partners in advancing thinking in this area. We hope that you enjoy reading this report and welcome your feedback.



Cliff Speed

Chief Investment Officer, TPT Retirement Solutions

December 2016

Introduction

Since adopting its Climate Change policy in 2013, TPT has actively been working to understand the materiality of climate change risk for its investments in the growth portfolio. For the first time this year we undertook climate-risk analysis at the portfolio level to assess the implications for asset allocation. The findings from this analysis are summarised in this report, followed by a discussion on the extent to which our portfolio is aligned with the two degrees pathway set out in the Paris Agreement.

The report concludes with a synopsis of the work we are doing to address our top three climate-related risks and opportunities, based on our analysis to date. These are:

1. To reduce climate risk in equities
2. To quantify climate risk in alternatives
3. To capture new opportunities in real assets

Please note that this report should be read with the wider context of TPT's investment decision making process in mind. Climate change is not the only long-term, macro-economic risk that TPT considers in formulating and implementing its investment strategy. It is, however a risk that is less understood by the market, and that has the potential to become of financial relevance to long-term investors like TPT.

Overview of TPT Investments

- TPT is one of the UK's leading multi-employer work-place pension providers. The total value of combined assets under management is circa £8.5bn, split between Defined Benefit (DB) and Defined Contribution (DC) schemes.
- TPT's DB assets are split between a growth and a liability matching portfolio. The growth portfolio accounts for just over two-thirds of the portfolio and is invested in global equities plus a range of alternative assets classes and strategies, which we categorise into a 'liquid' and 'illiquid' bucket.
- The liability matching assets make up the remainder of the portfolio and include gilts, Liability Driven Investment (LDI) funds and corporate bonds.

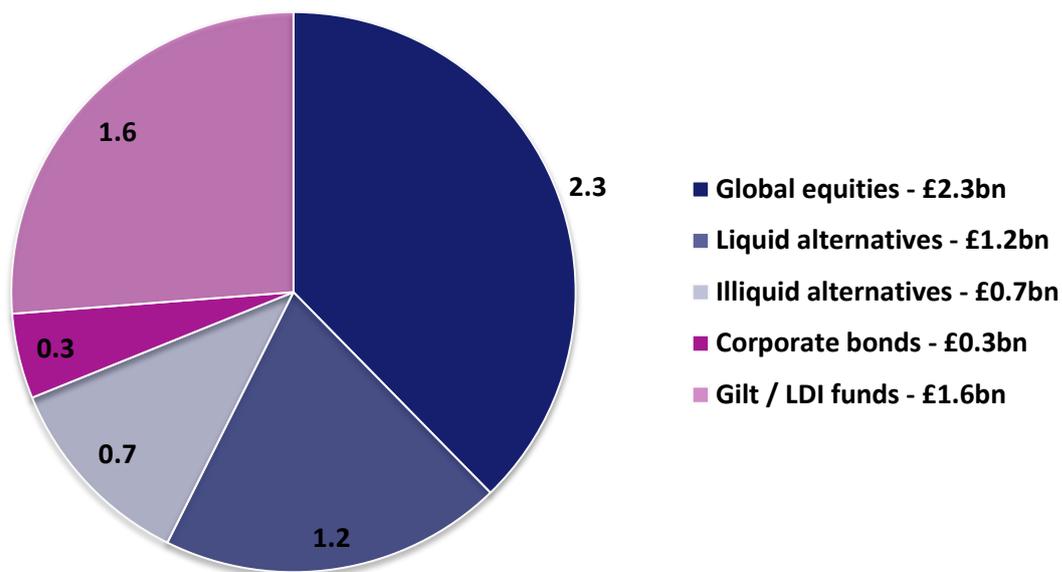


Figure 1: Chart showing the value of TPT's assets in £bn for the DB scheme

Investment Governance

The Trustee delegates responsibility for setting TPT's investment strategy to a Funding Committee (FC) and Investment Committee (IC). The FC determines the appropriate proportion of funds to be held in growth and liability assets whilst the IC agrees the composition and performance of the growth portfolio.

The CIO and Investment Team are responsible for implementing the investment strategy, with the day to day investment management activities out-sourced to third-party fund-managers. The guidelines which govern these delegations are set out in [The Trustee's Statement of Investment Principles](#).

Within the Statement of Investment Principles TPT also sets out its intention to act as a 'Responsible' asset owner and market participant across all markets and asset classes. In particular the Statement of Investment Principles refers to TPT's Climate Change Policy as a strategic part of its approach to being a 'Responsible Investor'. The Trustee has also agreed a set of ten [Investment Beliefs](#) that reflect our long-term investment philosophy.

Further information on investment governance and our policies is available on our [website](#).

Portfolio Analysis & Climate Change Risk

Over the past five years TPT has been diversifying its sources of investment returns away from equities, moving into alternatives, such as infrastructure and insurance-linked securities. This has resulted in a well-diversified portfolio of growth assets that is designed to meet our performance target and improve TPT's overall funding status.

At its Investment Strategy Away Day in 2016, the IC assessed the probability and impact of a range of macro-existential risks that have the potential to adversely impact the long-term funding status of TPT. The four risks that were agreed as being the most material were deflation, geopolitical, climate change and longevity.

Deflation and geo-political risks were considered to be of most concern due to the potential impacts on both the asset and liability matching side. Although climate change risk was ranked third out of the macro-existential risks, the IC agreed that this is the risk that is least understood and hardest to quantify. TPT has spent more time working with its investment advisor, Mercer, to quantify the financial impact of climate change on the growth portfolio. The results from this analysis are summarised in the sections below.

Introduction to Mercer's Model

Mercer's proprietary model analyses portfolios under four different climate change scenarios (from a two degrees to four degrees scenario) and makes quantitative estimates about the impact on returns according to a set of investment related risk factors.

The four climate-related risk factors, termed by Mercer as the 'TRIP' factors (Technology, Resource Availability, Impact of Physical Damages and Policy) aim to broadly capture the key risks driven by climate change that could have a positive or negative impact on investment returns. Further information about Mercer's model and TPT's asset allocation is available on request.

Key Findings

The circle charts below show the results of Mercer's analysis for both the current strategy and also a 'Best Ideas' portfolio under a two degrees scenario.

Three results stand out from the analysis.

1. **The negative impact on equities** - The blue shading inside the circle which shows the negative impact on developed market global equities under a two degrees scenario (0.82% negative annual impact on returns) is potentially material.
2. **Enhanced returns in real assets** - The green shading (both light and dark green) shows the positive impact on returns from infrastructure and real estate, with potential additional returns of 0.76%p.a. and 0.45%p.a. respectively over 10 years to 2025.
3. **Lower risk in The 'Best Ideas' portfolio** - This is due to its reduced exposure to developed market equities and higher allocation to real assets (both real estate and infrastructure.)

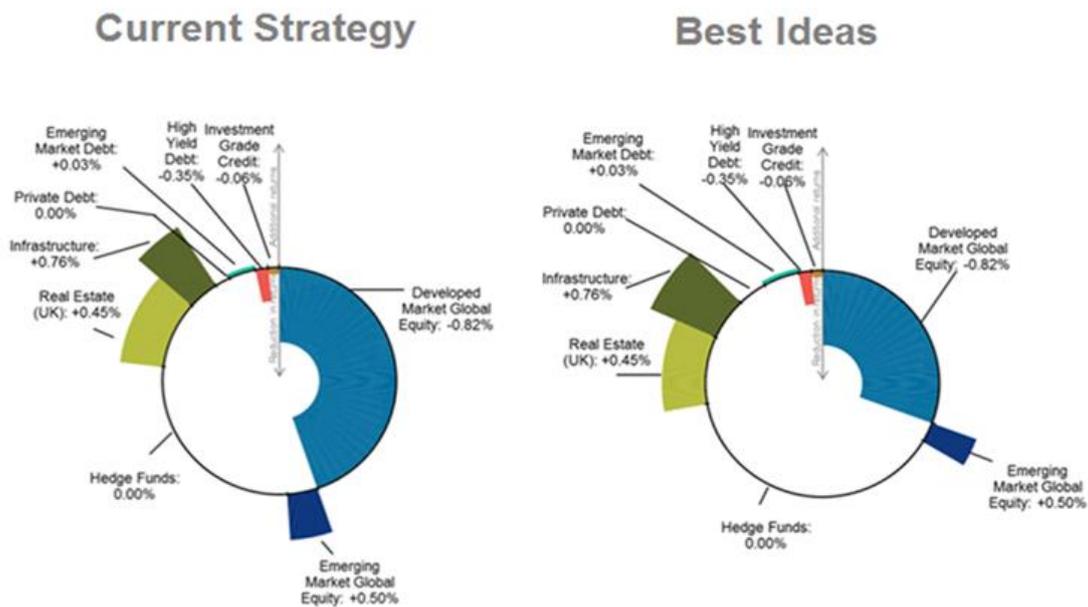


Figure 2: Median annual return impact over 10 years for TPT's Current Strategy and Best Ideas. Source: Mercer

Portfolio Construction and Climate Change Risk

Since the Investment Away Day and as a wider piece of strategy work, the IC has formalised a set of principles to guide portfolio construction. These principles include the intention to reduce exposure to equities and to take more illiquidity risk. The principles reflect the IC's analysis regarding existential risks and are also supported by the findings of Mercer's climate change portfolio analysis. In particular:

- The intention to reduce reliance on equity markets could potentially reduce climate risk in the portfolio (subject to sector allocations)
- The intention to increase illiquidity and exposure to real assets may protect against 'existential risks' and help identify additional sources of return.

Limitations of the model

We believe that Mercer's proprietary model is currently the only commercially available tool that enables investors to quantify the financial impact of climate change at the portfolio level, but there are a number of limitations associated with its use. We see some of the key limitations as:

- **Portfolio coverage** - Thirty percent of our portfolio is not covered by the model. Mercer has not been able to assign sensitivities for climate change risk factors to TPT's absolute return and hedge fund strategies. The heterogeneous nature of these strategies and their disparate risk/return profiles makes it difficult to apply uniform assumptions that allow them to be modelled for this purpose.
- **Coverage of likely risks** - It is unlikely that the model captures all risks related to asset class returns from climate change. Investors should assess whether there are material risks (and opportunities) that have been missed by the model.

- **Time horizon** - The time frame within this model, which extends to ten years, is beyond the typical time frame that most investors make strategic asset allocation decisions.
- **Top down versus bottom up analysis** - The top-down nature of the model may hide bottom-up risks. The model should be complemented by more granular analysis, asset class by asset class, to help inform strategies within asset classes.

Alignment with a Two Degrees Pathway

As well as understanding the financial impact from climate change, corporates and investors are increasingly being asked to use scenario analysis to quantify the extent to which their portfolios are aligned with a two degrees pathway.

As part of our commitment to understand climate change impacts within our portfolio we have been working with the 2° Investing Initiative (2°ii) to measure the alignment of our portfolio in this way.

2°ii's model allows investors to understand the deviation of their portfolio from an optimally diversified portfolio in terms of energy and technologies under the two degrees pathway as defined by the International Energy Agency (IEA).

Key Findings

The analysis from 2°ii looks at the key technologies and energy sectors that will be critical in delivering the two degrees pathway and concludes that our existing equity portfolio (Global Equity Fund - GEF) is aligned and/or misaligned in the following ways:

Fossil Fuels:

- **Underweight coal production** - TPT's global equity portfolio is underweight the production of coal, the most carbon intensive fossil fuel and the fuel most likely to be impacted by tightening environmental and climate regulation.
- **Overweight oil and gas production** – The global equity portfolio is overweight oil and gas production against a two degrees scenario. This is a reflection of companies held in the passive index tracking and smart beta funds, which in total account for two-thirds of TPT's equity exposure.

Power Production:

- **Underweight renewables** – TPT's global equity portfolio is underweight renewables. This is a reflection of the companies listed on the public markets. Utilities companies are gradually building capacity in renewables but this still typically accounts for a small proportion of the overall generation mix.
- **Overweight coal power production** - The equity portfolio is overweight coal in power production. Again this is due to TPT's allocation to passive index tracking funds and its smart beta funds that account for two-thirds of its equity exposure. Previous carbon-foot-printing analysis for TPT's equity funds has indicated that the RAFI index (TPT's smart beta fund) is particularly carbon intensive due to its overweight position in energy and utilities companies.

Automobile

- **Underweight low-carbon technologies** – The global equity portfolio underweights low carbon technologies (hybrid, electric) and over-weights high carbon technologies (internal combustion engine (ICE) e.g. petrol / diesel car).

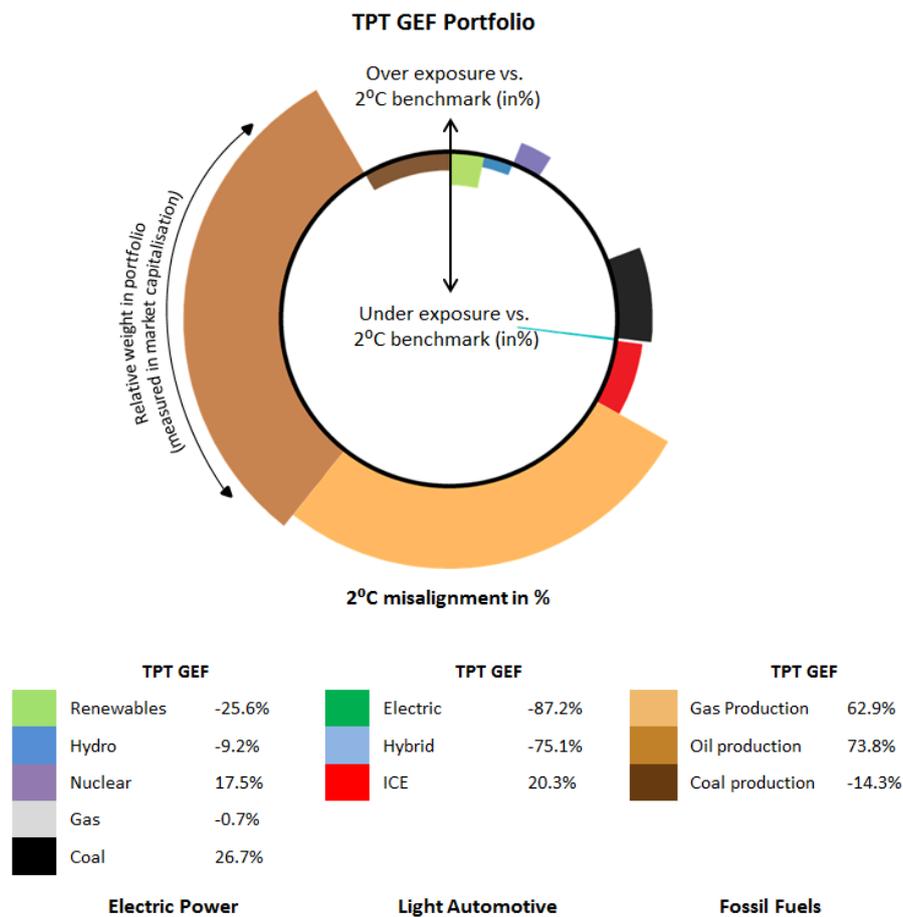


Figure 3: Chart to show the Global Equity Fund (GEF) portfolio alignment with a two degrees scenario
Source: 2°ii¹

Technology specific exposure

2°ii's analysis also provides investors with additional insight into the alignment of their portfolios with the two degrees scenario for each of the specific technologies that are expected to contribute to the successful transition to a low carbon economy.

We have included two examples for the purposes of this report. The first chart shows TPT's equity portfolio against a two degrees benchmark and the MSCI World from the perspective of investment in electric vehicles.

¹ 2°ii methodology uses third-party data, inc. Bloomberg, WardsAuto/AutoForecast Solutions & Global Data.

Figure 4 shows both TPT’s equity portfolio and the MSCI World index are significantly underweight hybrid vehicles and overweight internal combustion engines (ICEs). This is a reflection of the current level of under-investment in these technologies by companies in the automobile sector. Investors wanting to increase their exposure to electric and hybrid technologies (and their supply chains) can better align their portfolios by allocating to thematic equity funds or through alternative asset classes, including private equity.

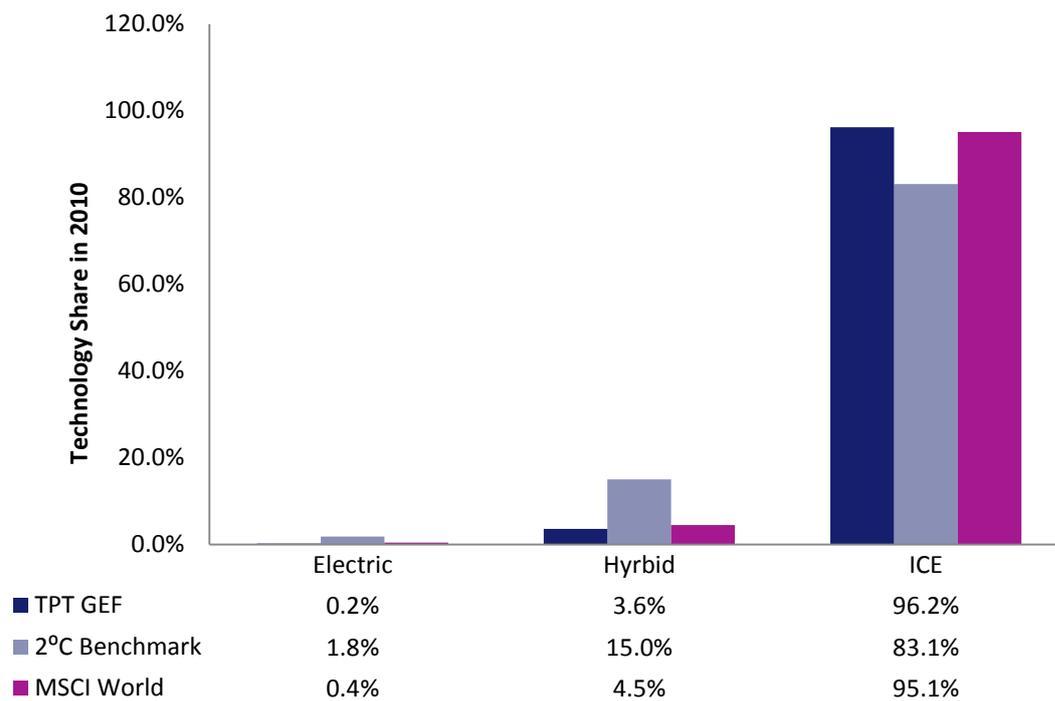


Figure 4: Chart to show exposure to vehicle technologies against the two degrees benchmark Source: 2°ii

Figure 5 below quantifies in MW, the extent to which TPT's equity portfolio is under exposed to investments in renewable power over a ten year time period.

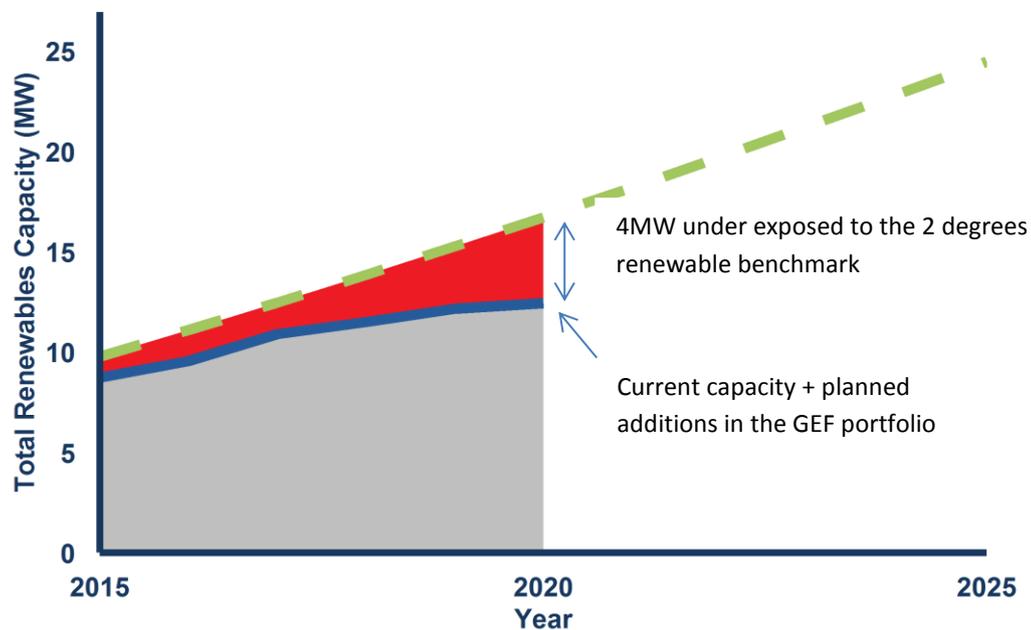


Figure 5: Chart to show exposure to renewable energy Source: 2°ii

Limitations of the model

This is one of the first tools available for investors that provides two degrees scenario analysis, taking the capacity and production plans of the underlying companies into account using asset level data. For a technical summary on the methodology please see the Appendix.

The model is being developed by 2°ii to cover a broader range of asset classes and sectors. As with any model we recognise that the model has some limitations including:

- **Sector Coverage** – The model covers the key sectors most likely to be materially impacted by the transition to a two degrees pathway. A wide range of technologies across sectors will need to be scaled and some of these are missing from the analysis (energy efficiency indicators, carbon capture and storage, biofuels etc.)

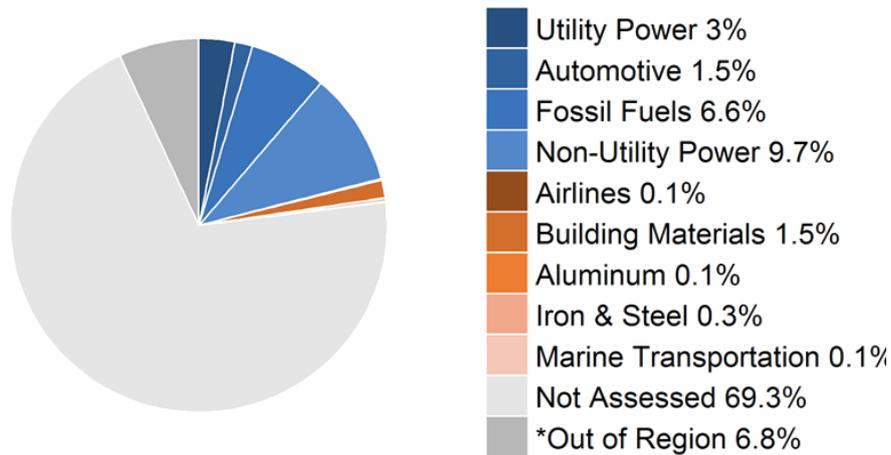


Figure 6: Coverage of the key sectors in the equity portfolio by AUM (%) Source: 2°ii

- **Time Period** – The model looks at technology exposure over five year period, with many of these trends likely to be more long-term.
- **Links to risk not yet well defined** – The model doesn't take into account risk-relevant indicators (e.g. cost curves of oil and gas companies). While this is intentional, given its emphasis on climate goal alignment, it raises questions around action-ability of the model for investment decision making purposes.
- **Which Scenario to use** – The model is based on the IEA 2°C scenario, which is just one of a number of models that attempt to map out future projections for industries and sectors under a two degrees scenario. It is built using a wide range of assumptions that may prove to be incorrect over longer time periods.

How might TPT improve portfolio alignment with the two degrees pathway?

TPT may seek to better align its portfolio with the two degrees scenario as part of its longer-term strategy on climate change but at this stage it has not set a defined target to align its portfolio with this type of benchmark.

Investment Risks & Opportunities

The key findings from the portfolio analysis lead us to conclude that we should prioritise the following objectives as part of our commitment to manage the risks and opportunities related to climate change:

1. Continue to monitor and manage climate risk in equities
2. Try to quantify climate risk in alternatives
3. Identify & allocate to sustainable investments

This section of the report summarizes our progress with each of the key priorities and sets out some of our intended actions to address them.

1. Manage climate risk in equities

Mercer’s portfolio analysis shows that returns from global equities could be materially impacted under a two degrees scenario. Mercer suggests that within equities, investors should examine sector exposures to better understand this risk. Mercer has therefore quantified the potential financial impact on returns by sector for our equity portfolio versus the MSCI ACWI.

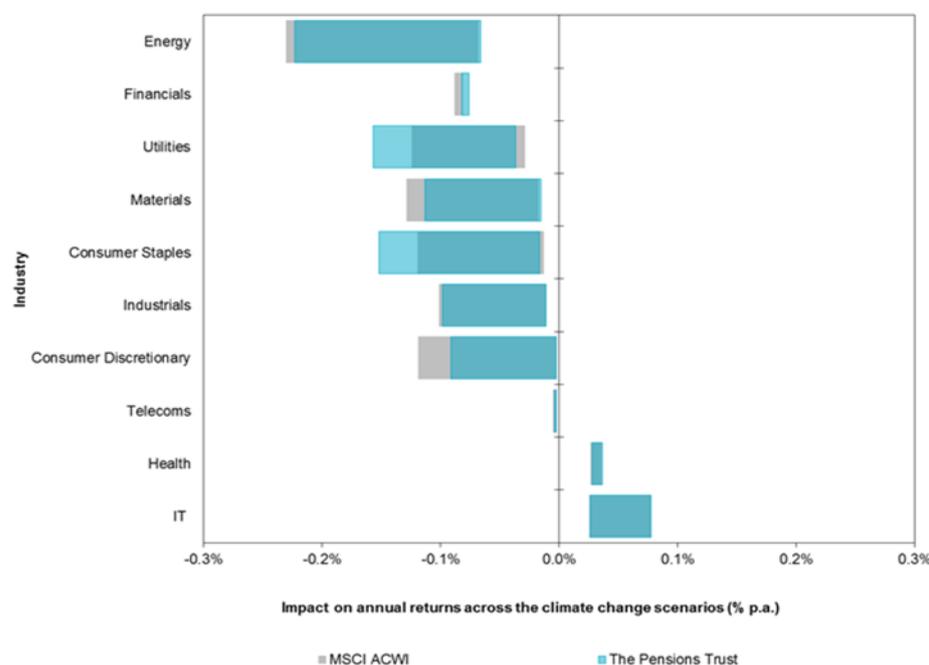


Figure 7: Impact on global equity returns by sector v MSCI AWI Source: Mercer

Looking at the TPT’s sector exposure energy presents the most material risk. We estimate that approximately 13% of our global equity portfolio is currently invested in sectors most exposed to carbon risk with around 8% specifically related to oil and gas.

Active versus passive

In order to manage sector exposures TPT also analyses the relative sector weightings within its active and passive strategies. TPT believes that active managers can better manage carbon risk through stock picking and sector allocation.

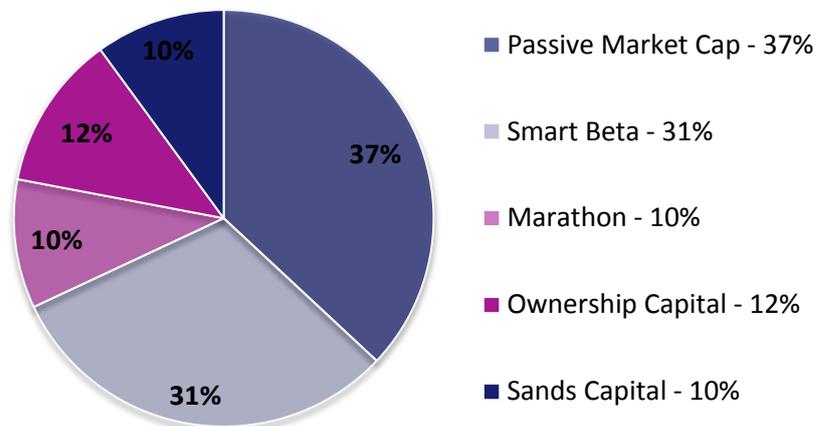


Figure 8: TPT Allocation to passive and active equity managers as at 30.06.16

Ownership Capital, a boutique asset manager based in The Netherlands, manages the largest active global equity mandate for TPT. It is an example of how we have reduced carbon risk through active manager selection.

Case Study: Active Global Equities – Ownership Capital

Ownership Capital is a listed equity manager that combines long-term fundamental stock selection, ESG integration and active company engagement. Over the long term, the firm believes that ESG factors are major determinants of a company's financial performance. Specifically, companies that are pro-active about managing ESG and climate-change risks will make better long-term investments with lower risk profiles. Therefore, ESG integration is at the heart of the investment process and crucial to the firm's ability to uncover attractive investments that provide strong, sustainable returns for pension funds and foundations.

This philosophy has resulted in a portfolio which favours exposure to companies that have pro-active, long-term ESG strategies over companies and industries that have high levels of uncertain and uncontrollable ESG risk. In practice, this has led to an avoidance of carbon-heavy, high-risk sectors such as Energy and an overweight tilt towards sectors such as Technology and Health Care. With no fossil fuel exposure, the Ownership Capital portfolio is 47% less carbon intensive than the benchmark (as measured by Trucost) and is thus significantly less exposed to climate-change risks.

Alex Van der Velden, CIO, Ownership Capital

2. Quantifying Carbon Risk in Alternatives

TPT has also been working with a number of its alternative asset managers to encourage disclosure on carbon risk. We have made some progress to date in the following ways:

- Increasing visibility on carbon risk across an increasing number of alternative asset classes
- Better defining expectations on carbon risk and disclosure in alternative mandates
- New climate metrics -working with managers innovating new metrics for carbon foot-printing and disclosure

Increasing visibility - We have some level of visibility on carbon risk for an additional twenty percent of the growth portfolio over and above equities. The methods of reporting carbon risk vary for illiquid assets and it is not currently possible to aggregate and report these measures in a meaningful way at the fund level.

Growth Assets	Allocation	Visibility of Carbon Risk
Global Equities	51%	Yes
Absolute Return	18%	No
Property	9%	Partial
Fund of Hedge Funds	5%	Partial
Emerging Markets Debt	4%	No
Infrastructure	4%	Partial
Insurance-Linked Securities	3%	No
Inflation-Linked Growth Fund	3%	Partial
Distressed Opportunities	2%	No

Figure 9: Visibility of carbon risk for each asset class

Defining expectations in reporting - We write our expectations on climate change disclosure (and ESG more broadly) into the Investment Management Agreements (IMAs) that we put in place with new managers (please see Appendix for examples).

We also monitor the on-going activities of our managers using a Responsible Investment Manager Ratings system. For more information on this ratings system please see our [Annual Report](#).

New climate metrics for alternatives - We have been working with existing property and infrastructure managers that are trialling new methodologies to quantify carbon risk. For example, Meridiam Infrastructure Partners has developed a carbon foot-printing tool and has estimated the carbon footprint for approximately half of the assets in TPT's portfolio. The methodology used is described in the case study below.

Case Study: Meridiam

Our carbon footprint analysis aims at estimating the Greenhouse Gas Emissions (GHG) emissions over the lifetime of the infrastructure, taking into account direct as well as indirect emissions, from the construction phase and the operation phase. To do this, Meridiam uses a methodology developed with Carbone 4 to evaluate the carbon footprint for funded projects. It provides an order-of-magnitude accounting for the GHG emissions that a project will create or abate through its construction and over its lifetime.

The tool considers these elements:

1. The project's carbon footprint, by estimating the GHG emissions associated with construction and operation.
2. It compares the difference in emissions between the project and a reference situation; this so-called baseline is an estimation of the amount and type of emissions that would most likely occur if the project were not implemented.
3. The net difference in emissions between the two scenarios, i.e doing the project or not doing the project which allows us to assess the net impact of projects on greenhouse gas emissions.

The key metric produced is a net Carbon Footprint in tons of CO₂e per year for the construction and operation phase. This provides additional context regarding the long-term implications of a project on GHG emissions.

3. Identifying Sustainable Investments

TPT monitors its exposure to assets which are delivering positive social, environmental and economic returns. We are at the early stages of developing an in-house methodology to track this but to date have categorised these investments in the following buckets:

- **Sustainable Equities** –Public equity funds that explicitly use ESG research in the selection of stocks.
- **Social and Environmental Infrastructure** –The fair value of assets within the fund that have a positive social or environmental benefit, including water and waste management, clean energy, health and education.
- **Environmental Finance** –Including green bonds, catastrophe bonds and insurance linked securities

What sustainable assets do we currently own?

The chart below shows TPT’s allocation to investments which can be considered low carbon and sustainable. We estimate that these investments account for around 15% of the total value of the growth portfolio. This is from a combination of the following:

- TPT’s increased allocation to equity managers employing ESG strategies such as Ownership Capital
- An increasing exposure to environmental and social infrastructure through our existing infrastructure funds.
- An allocation to insurance linked securities

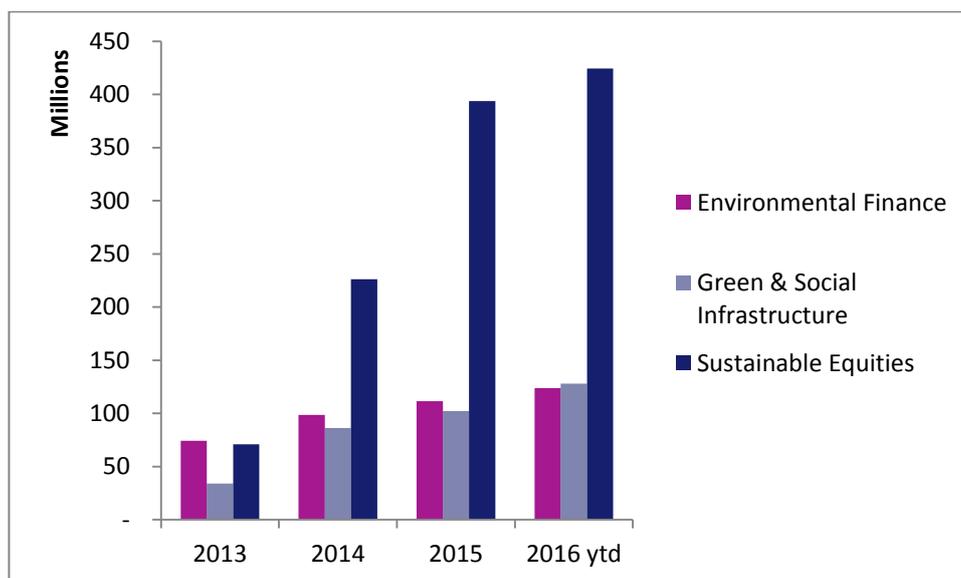


Figure 10: Graph showing allocation to sustainable investments in the growth portfolio²

At this stage we are unable to quantify the extent to which these investments deliver environmental and social benefits. We are encouraging our managers to report the type of information that would allow us to complete this analysis in the future and thereby allow us to better understand how our portfolio is contributing towards the two degrees pathway.

Increasing exposure to low carbon assets

One of TPT’s Guiding Principles for Portfolio Construction is to increase the allocation to real assets. The IC recognises that there will be a range of investment opportunities available as capital is required to finance the transition to a lower carbon economy. We think that some of the most attractive opportunities are likely to come through private markets, including infrastructure and other real assets.

² 2016 YTD includes up until 30th September 2016. TPT will provide full year information by updating this report in 2017

Conclusions and Next Steps for 2017

Since TPT first introduced its Climate Change policy a number of tools have become available which have allowed us to analyse how climate change could impact our portfolio, leading to both risks and opportunities.

Based on this analysis TPT will prioritise the following in 2017:

1. **Continue to manage and monitor carbon risk within its global equity portfolio**, and in particular consider how it might address carbon risk in passive equities by creating an index or smart beta fund that incorporates the carbon factor.
2. **Continue to work with investment managers and specialist advisors** to understand climate risk within alternative asset classes.
3. **Seek to find ways that will better align our portfolio with the two degrees pathway**. This may be from increasing our allocation to real assets that specifically deliver positive social and environmental benefits.

Engagement

As part of its Climate Change Policy, TPT recognises the importance of supporting industry initiatives and collaborative engagements which further the aim of its Responsible Investment and Climate Change policy.

The figure below charts some of TPT's key milestones and initiatives since 2012 when the IC first considered climate change as an investment issue.

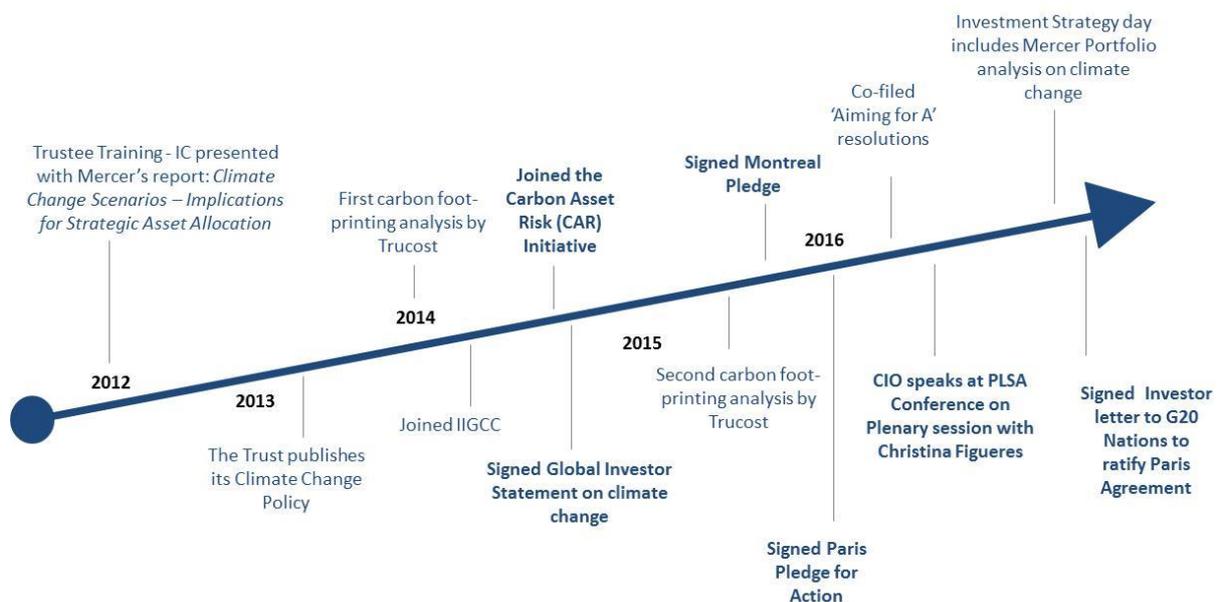


Figure 11: TPT's progress with implementing its Climate Change Policy

Industry Engagement

As an asset owner with relatively limited resources available for engagement we focus our efforts on engaging at the industry/investor level rather than at the investee/corporate level. These are some of the highlights of our activities in 2016:

- In March 2016, the CIO of TPT spoke on a plenary session with Christiana Figueres at the PLSA Investment Conference to provide perspectives on how asset owners can embed climate change risks and opportunities into investment beliefs and long-term investment strategy.
- TPT is an active member of the Institutional Investors Group on Climate Change (IIGCC). It has a representative on the Board of Directors who actively contributes to the Climate Solutions work-stream supporting industry education, event and initiatives.
- TPT signed an investor letter to G20 Leaders calling on them to ratify the Paris agreement.

Collaborative Engagement

TPT delegates day to day responsibility for its corporate engagement activities to its investment managers but it participates in a selective number of collaborative engagements which are well aligned with its priorities on climate change.

In 2016 TPT:

- Co-filed Resolutions at Glencore and Rio Tinto on the strategic management of climate change under a two degrees scenario. These shareholder resolutions were filed with management support and achieved almost 100% shareholder approval.
- Attended both the Rio Tinto and National Grid 2016 AGMs to ask questions to the board on the management of climate change risks and opportunities.
- Publically declared and voted its shares in support of shareholder proposals at nine US companies focused on business plans under a 2 degrees scenario.

Member Engagement

The Chair of the Board of Trustees meets on at least an annual basis with members to discuss topics related to Responsible Investment including climate change. TPT responds to all letters and emails from members related to climate change and sustainability.

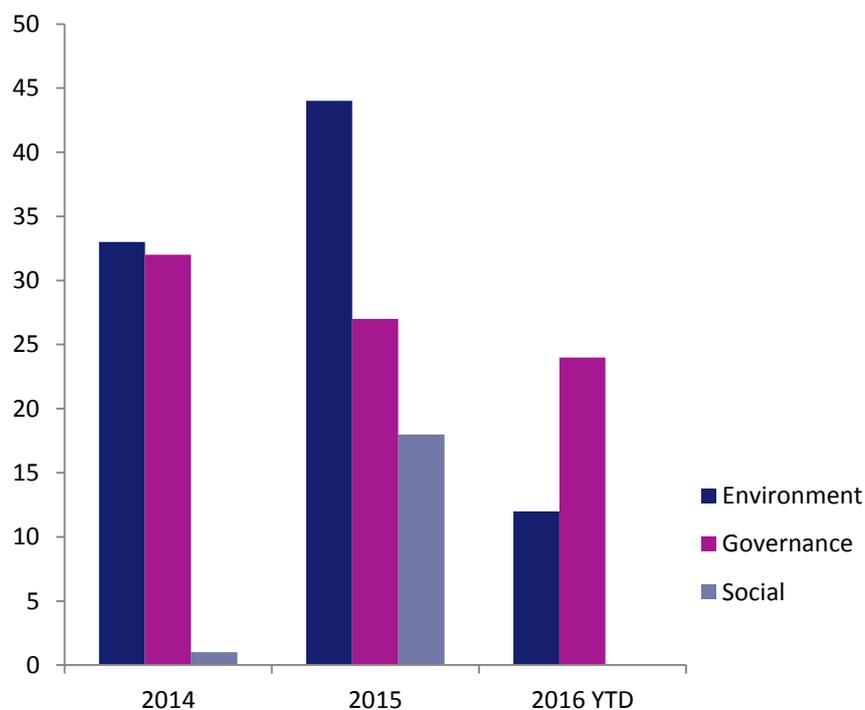


Figure 12: Graph showing number of letters received and sent to beneficiaries on ESG³

³ 2016 YTD includes up until 30th September 2016. TPT will provide full year information by updating this report in 2017

Appendix

Two Degrees Investing Initiative Model

The following provides a brief summary of the key methodological features used in the analysis.

Roadmap

The 2°C benchmark is based on a translation of the International Energy Agency (IEA) World Energy Outlook 2015 and the Energy Technology Perspectives 2015 roadmaps into regional equity market roadmaps (developed world, Europe, US). The region was chosen based on the geography of listing of the portfolio constituents. The roadmaps use five year intervals. Data between the five year intervals is interpolated using a polynomial function. Alternative roadmaps to the IEA can be used as benchmarks on demand and will be provided as part of portfolio checks in the future. The calculation of the 2°C benchmark for each technology is based on a common methodology. The benchmark is always defined for a 5 year time horizon, focusing on technology exposure in 2020. The following briefly describes the general steps of the model, which is described more fully in the discussion paper [“Assessing the Alignment of Portfolios with Climate Goals : Climate Scenarios translated into a 2°C Benchmark”](#):

1. For the portfolio’s geography (developed world, US, European), calculate the current share of each technology / fuel (e.g. renewables, coal power) in total equity market capacity / production (e.g. % share of renewables in total power capacity). In the case of fossil fuel production, this percentage is calculated as production per 1% ownership of total market capitalization in the portfolio’s stock market. The calculated percentages can be defined as the *2°C starting point* or market average.
2. Calculate the total capacity / production “owned by” the portfolio by indicator (e.g. GW, # of vehicles) based on the relative ownership of each equity (i.e. owned shares / total free float shares). Based on this number, calculate the portfolio’s share of the total equity market and of total production/ capacity in the relevant geography, as defined by the International Energy Agency e.g. ownership share of power capacity in total regional power capacity (*‘market share’*). At the same time, calculate the individual share of each technology / fuel in the overall capacity / production of that technology / fuel in the regional market e.g. ownership share of coal power capacity in the total regional equity market coal power capacity (*‘technology share’*).
3. The 2°C benchmark is then built specific for each portfolio based on the current size of the portfolio (measured in assets under management) and the IEA 2°C scenario. The *2°C starting point* for the 2°C benchmark is calculated by scaling the IEA scenario to the size of the portfolio. In other words, if the 2°C starting point share for renewable power in the portfolio’s geography is 20% and the portfolio has 100 MW of power capacity in 2015, the 2°C starting point is defined as 20 MW. Similarly, if the fossil fuel production is 500,000 barrels of oil per day per 1% ownership of the equity market and the portfolio owns 1%, then the 2°C starting point is 500,000 barrels (illustrative figures).

4. 2°C additions / retirements as defined in the IEA 2°C roadmap are then allocated to the portfolio based on the *market share* for technologies / fuels that see additions over the next 5 years (e.g. renewables) and *technology share* for technologies / fuels that see retirements (e.g. coal power). Thus, if the portfolio owns 1% of the total power capacity in the region (based on IEA figures for 2015), 1% of renewable additions are allocated to the portfolio. On the other hand, if the portfolio owns 1% of coal power capacity in the region, 1% of the retirements are allocated to the portfolio.
5. The final 2°C benchmark figure (for year 2020) is then compared to the estimated 2020 exposure of the portfolio based on the forward-looking data of the power, automobile oil and gas industry databases and industry average assumptions (defined as NPS+, based on the Carbon Tracker Initiative research) for coal. The difference between these two figures then informs the 2°C alignment indicator (Fig. 2).
6. The total value in the regional stock market is calculated based on the published market share each regional index reports to cover in their respective fact sheet.

Databases

The analysis relies on the following data sources: GlobalData (Power plant data, including plants classified as active, announced, financed, partially active, permitting, temporarily shutdown, under construction, under rehabilitation & modernization, and Oil and Gas production data and forecast until 2015-2020), WardsAuto (light passenger duty vehicle, including BAU production forecasts 2015-2020), Bloomberg (financial data and coal production data). The index and company data through Bloomberg is current as of 29/2/2016.

Allocation rules

Power plant capacity is allocated based on the basis of equity share in the plant where multiple owners exist. Where data is available, production and capacity indicators were allocated to owners of subsidiaries based on the equity share principle. For power capacity, GlobalData's internal list of plant owners and subsidiaries were utilized, with 100% of capacity allocated from subsidiary to parent. For the automotive data there a number of joint ventures, particularly between OECD and Chinese firms. The production capacity is divided by the equity share.

Geography

Only companies within the index's geographic region are included in the analysis. However a company's production includes all production within the IEA benchmarking region closest to the index's geography. For automobile and oil and gas, this is global activity.

A list of the ISINs from the tested portfolio that have been captured by the modeling and allocated production values based on the aforementioned databases, can be provided upon request. 2ii cannot does not guarantee that all applicable ISINs within the test portfolio have been matched to their associated production values.

Integrating Climate Change/ESG expectations into IMAs

Strategy/Asset Class	IMA reference to climate change
Fund of Hedge Funds	<p>The Investment Manager uses best efforts to report 100% of the Fund's long exposure in the equity or debt of companies held that fall within the following Global Industry Classification Standards classifications (<i>TPT provides list of sub-sectors it sees as having highest carbon risk</i>).</p> <p>For commodities the Investment Manager will use best efforts to report exposure to any long (physical and derivative) positions in an underlying whose value is materially dependent on the price of coal and or oil. The Investment Manager will communicate these exposures to the shareholder through the regular quarterly reporting process.</p>
Private Debt	<p>The Partnership shall seek to adhere to the Investor's policy on Responsible Investment and Climate Change. The Partnership shall to the best of its ability research, analyse and incorporate material environmental, social and governance (ESG) factors into the credit research and lending process.</p> <p>It shall also explicitly consider how climate change regulation and the transition towards a low-carbon economy might impact the longer-term risk and return of investments. In particular the Partner shall demonstrate to the Investor how it has applied the Investors policy on Climate Change when making investment to high carbon sectors (<i>TPT provides list of sub-sectors it sees as having highest carbon risk</i>)</p>