HM Government

Aligning your Pension Scheme with the TCFD Recommendations

Part I - Introduction

January 2021

The Pensions Climate Risk Industry Group

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Ministerial Foreword

Guy Opperman MP, Minister for Pensions and Financial Inclusion

I want pensions to be safer, better and greener. Therefore, tackling the threats posed by climate change remains a key priority for myself and the wider Government. For me in my role as Minister for Pensions and Financial Inclusion, this means ensuring that trustees identify, assess and manage the climate risk they are exposed to in order to safeguard their members' savings. That is why I secured amendments to the Pensions Schemes Bill to allow the Government to require pension scheme trustees to fully consider and disclose their climate-related financial risks and opportunities in line with recommendations by the Task Force on Climate-related Financial Disclosures (TCFD).

We are moving quickly, and the Government has already consulted on its policy to ensure occupational pension schemes have in place – and report on – effective governance, strategy, risk management and accompanying metrics and targets for the identification, assessment and management of climate risks and opportunities. We are now consulting on draft regulations. Subject to Parliamentary approval, requirements will apply to trustees of the largest schemes from 1 October this year.

That is why I am delighted that this guidance is being published ahead of Government's measures coming into force. I recognise that these measures will present a number of challenges which are relatively new and complex to trustees. In addition to our Statutory Guidance, which will set out a range of activities trustees can undertake to robustly meet such challenges, I believe the guidance will be an incredibly helpful resource for trustees working towards meeting their new duties.

It is still my expectation however that trustees should not need statutory requirements to begin meaningful action. This guidance will be of use to all trustees whether they are soon to be in scope of the new requirements or are just starting out on this journey. Government will be reviewing the impact of our climate change governance and reporting measures in 2023 with a view to extending them out further to smaller schemes. With that in mind trustees of those schemes should start looking at this guidance now and begin building their knowledge and understanding.

I have consistently espoused the need to pull together to address the scale of the challenge that climate change presents, and for industry to play their part. I would therefore like to conclude by praising industry for their work on this guidance. Thank-you to Stuart O'Brien from Sackers for leading this work and many others in the pensions industry and civil society who have given up their time in order to contribute to producing such comprehensive guidance for trustees. I would also like to offer special thanks to The Prince's Accounting for Sustainability Project (A4S) and their interviewees for providing some real-life case studies of this work being conducted. Peer-to-peer learning undoubtedly has a significant role to play in advancing this work.

I call on trustees to use this resource as Government seeks to revolutionise pension investment, making saving better, safer and greener.

Foreword by the Chair

Stuart O'Brien, Partner,
Sacker & Partners LLP

Climate change poses an existential threat to our planet and society. We all try to do our bit to reduce our impact on the environment, but the task required to avoid dangerous levels of temperature increases is a collective challenge.

Against this backdrop it might be difficult to see the role trustees of UK pension schemes have to play. Most trustees will have acknowledged the financial risk of climate-related risk on their pension schemes but this is just one of a myriad of issues that trustees need to spend time considering. With a range of potential climate scenarios and highly complex impacts reaching far into the future, few trustees will have developed concrete plans to quantify and address the risks of climate change or capitalise on the opportunities of the transition to a net zero carbon economy.

However, trustees must act. Subject to consultation and approval by Parliament, regulations pursuant to changes made by the Pension Schemes Bill will come into force in October 2021, requiring trustees of larger schemes to take specific actions to integrate the consideration of climate-related issues into their governance processes and to make annual public disclosures. Trustees not in scope for the changes in October 2021 are still required to disclose their climate policies in their statements of investment principles. In any event, trustees should not approach the regulatory requirements as a tick-box exercise. Policies and risk management processes need to be meaningful for trustees to meet their overarching fiduciary and trusts law duties, taking account of climate change as a material financial issue.

The Pensions Climate Risk Industry Group (PCRIG) was formed in 2019 to provide cross-industry guidance to help pension trustees meet their legal responsibilities. And, following consultation on draft guidance in March 2020, it is with great pleasure that we launch this final version of our guide.

This guide is designed to help trustees of all schemes by providing practical steps to help them comply with their duties to manage climate-related risks. Many schemes will be subject to specific regulatory requirements pursuant to changes made by the Pension Schemes Bill. For these schemes the guide is designed to complement those regulatory requirements and accompanying statutory guidance. For schemes not yet subject to these specific statutory requirements the guide should still provide a starting point for the integration of climate issues into existing trustee governance processes. Based upon the TCFD recommendations, the guide aims to provide a useful approach for all trustees assessing climate-related risks, enabling trustees to set a more resilient investment strategy for the benefit of their members.

Finally, over the page is a list of acknowledgments of all those members of PCRIG who have so generously given of their time to produce this guide. Without the contributions of each and every member of the group, production of the guide would not have been possible. In addition to this many more have provided their input along the way and provided their responses to the consultation in 2020 and I am grateful to all the trustees and professional advisers who have contributed and shared their wisdom and experience.

Acknowledgements

For the review of the consultation feedback, and the editing of the final draft, the members of the Pensions Climate Risk Industry Group have been:

Stuart O'Brien (Chair)	Sacker & Partners LLP
Alexander Burr	Legal and General Investment Management
Kate Brett	Mercer
Millie Brown	Department for Work and Pensions (until December 2020)
Caroline Escott	RailPen
David Farrar	Department for Work and Pensions
Andrew Harper	Sacker & Partners LLP
Paul Hewitt	Vigeo Eiris (until December 2020)
Claire Jones	LCP
Amanda Latham	Barnett Waddingham
David Page	BMO Global Asset Management
Kerry Perkins	Accounting For Sustainability
Tom Rhodes	Department for Work and Pensions
Phoebe Wright	Department for Work and Pensions (until November 2020)

Part I - Introduction

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1. How to use this guide

Key considerations

- This guide aims to help trustees evaluate the way in which climate-related risks and opportunities may affect their strategies by making use of the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD).
- Subject to consultation and approval by Parliament, regulations pursuant to changes made by the Pension Schemes Bill 2019-21 will come into force in October 2021, requiring trustees of larger schemes and authorised master trusts – and, when established, authorised Collective DC schemes – to take specific actions to integrate the consideration of climate-related issues into their governance processes and to make annual public disclosures. The guide is designed to complement those statutory requirements for schemes in scope as well as providing a starting point for the integration of climate issues into existing trustee governance processes for schemes of all sizes.
- Trustees should familiarise themselves with the framework of this guide and the separate “Quick Start Guides”.
- Part II of the guide sets out a suggested approach for the integration and disclosure of climate risk within the typical governance and decision-making processes of pension trustee boards. This focuses on how trustees might usefully consider climate-related risks and opportunities.
- Whilst the guide covers disclosure (as recommended by the TCFD), it is recognised that for many pension schemes this will be a new exercise, which may require new processes and information. Trustees may wish to use this guide to prioritise the adoption of robust governance procedures as a first step, with public disclosure as a second step. Where trustees do disclose, this guide seeks to align trustee governance and decision-making processes with the TCFD recommended disclosures, and references anticipated regulations pursuant to changes made by the Pension Schemes Bill 2019-21.
- Part III of the guide contains technical details on recommended scenario analysis and metrics that trustees may wish to consider using to record and report their findings, including if required to by regulations made pursuant to new powers in the Pension Schemes Bill 2019-21. Whilst many trustees will ask their professional advisers to work through the detail and advise on implementation, the section contains freely available tools that trustees may use themselves.

1.1 Introduction

1. The Task Force on Climate-related Financial Disclosures (TCFD) is an independent body which has developed recommendations on how organisations can identify and disclose information about climate-related financial risks and opportunities. More detail on the TCFD's recommendations is set out in Chapter 4.
2. This guide provides a useful framework, based on the TCFD's recommendations, to help trustees of occupational pension schemes evaluate the way in which climate-related risks may affect the strategies and plans of the pension schemes they are responsible for, and then report on this activity to their stakeholders in a consistent and transparent manner.
3. The guidance is aimed at trustees of private sector schemes, but sections of the guidance may be of interest to others, including managers of funded public sector schemes.

1.2 Intended audience

4. Government has set the expectation that all listed companies and large asset owners, including occupational pension schemes, will disclose in line with TCFD recommendations by 2022.
5. The Government is expected to use new regulation making powers in the Pension Schemes Act 1995 (inserted by provisions in the Pension Schemes Bill 2019-21) to introduce new climate change governance and reporting requirements for trustees of schemes with over £1billion in net assets (as well as authorised master trusts and authorised collective DC schemes (once established). It is expected the requirements will implement the TCFD recommendations on disclosure of governance, strategy, risk management and accompanying metrics and targets as well as requiring trustees to carry out underlying activities for the identification, assessment and management of climate risks and opportunities, which will enable them to make those disclosures.
6. Whilst smaller schemes may not yet be caught by these requirements most trustees are subject to statutory requirements to specify and disclose their policies on climate change and to carry out risk assessments (see Chapter 3) for further detail). This guide provides a suggested framework that all trust-based occupational pension schemes may find useful in order to develop such policies and integrate them into trustee decision-making. The framework may further assist trustees in demonstrating compliance with their fiduciary and trusts law duties to take account of financially material factors and to act prudently.
7. Part III of this guide contains technical detail on the climate change scenario analysis that trustees may wish to consider and the decision-useful metrics that trustees can measure, as well as referencing anticipated requirements pursuant to the Government's proposed regulations on climate change governance and reporting. Whilst some of this may be of greatest use to professional advisers and pension scheme providers, it is recognised that the resources available to each

pension scheme will vary by scheme size, budget, type of benefits provided and the maturity of the scheme. Part III in particular, suggests some freely available tools that trustees can use for basic scenario analysis.

1.3 Structure of this guide

8. This guide is structured sequentially based on the way a pension trustee board might typically approach decision-making. Part I sets out the legal requirements for pension scheme trustees to consider climate-related risk in their decision-making and more detail on the recommendations made by the TCFD.
9. Part II sets out a suggested approach for the integration and disclosure of climate risk assessment in the typical governance and decision-making framework of pension trustee boards, indicating (where applicable) how these align with the TCFD recommended disclosures. Guidance is also provided on how trustees should approach stewardship on climate-related issues, including exercising voting rights, reviewing progress and communicating with members about the actions taken. It also provides some additional points for defined benefit schemes to consider, including the incorporation of climate-related risks into the employer covenant assessment.
10. In Part III, the guide sets out how trustees can analyse the resilience of their scheme to different climate-related scenarios, including the transition to a lower-carbon economy. Models are provided for trustees to assess resilience both qualitatively and quantitatively.
11. In Part IV, recommendations are made as to the metrics and target which trustees can use to help to measure and manage climate-related risk exposure.
12. Trustees can choose which set of recommendations best suits your scheme's circumstances and take account of this guide accordingly.

2. Introduction - Understanding climate change as a financial risk to pension schemes

Key considerations

- All pension schemes, regardless of size, investments or their time horizons, are exposed to climate-related risks. When considering the financial implications of climate change, trustees should understand the different implications of **transition risks** and **physical risks** on their investments.
- As investors, most schemes have capital at risk as a result of the low carbon transition. In addition, many defined benefit schemes are supported by employers or sponsors whose financial positions and prospects are dependent on current and future developments in relation to climate change.
- The Paris Agreement aims to ensure that the increase in average temperatures above pre-industrial levels is kept to 'well below' 2°C by 2100 and to pursue efforts to limit the temperature increase to 1.5°C. The longer the delay in climate policy action, the more forceful and urgent any regulatory policy intervention will inevitably be and the more severe the likely impact will be on companies and investors.

2.1 The financial risk of climate change

13. The world's climate is already 1°C warmer today[1], on average, than relative to pre-industrial times and the rate of increase is roughly ten times faster than the average rate of ice-age-recovery warming. The dominant cause for this is extremely likely to be the rapid increase in anthropogenic emissions of greenhouse gases which are now at concentration levels unprecedented in at least 800,000 years.[2]

14. The average temperature rise conceals more dramatic changes at the extremes and is already having disruptive effects. It is a risk multiplier, exacerbating existing issues with energy, resource and food security and increasing the frequency and intensity of extreme weather events. This is made worse by the size of, and inertia in, the climate system which creates a multi-decadal lag between carbon dioxide emitted today and its full impact, meaning that further warming is already "locked-in" and climate-related risk will grow over time.

[1] https://www.metoffice.gov.uk/weather/climate-change/what-is-climate-change
[2] IPCC, Fifth Assessment Report of the Intergovernmental Panel on Climate Change, 2014 available at http://www.ipcc.ch/report/ar5/syr/
See also: https://climate.nasa.gov/

> "Climate change poses unprecedented challenges... The increase in the frequency and intensity of extreme weather events could trigger non-linear and irreversible financial losses. In turn, the immediate and system-wide transition required to fight climate change could have far reaching effects potentially affecting every single agent in the economy and every single asset price."
>
> *François Villeroy de Galhau Governor of the Banque de France*
>
> Bank for International Settlements report: Central banking and financial stability in the age of climate change (2020)[3]

15. All pension schemes are exposed to climate-related risks, whether investment strategies and mandates are active or passive, pooled or segregated, growth or matching, or have long or short time horizons. Many schemes are also supported by employers or sponsors whose financial positions and prospects are dependent on current and future developments in relation to climate change.

Figure 2: Distinct characteristics of climate change that require a different approach[4]

[3] Bank for International Settlements report: Central banking and financial stability in the age of climate change 2020 https://www.bis.org/publ/othp31.pdf
[4] HM Government: Green Finance Strategy – Transforming Finance for a Greener Future (July 2019) - https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/820284/190716_BEIS_Green_Finance_Strategy_Accessible_Final.pdf

16. The potential severity of the physical impacts of climate change and its direct correlation with the concentration of greenhouse gases motivated the international community to commit to reducing emissions in Paris in December 2015. The Paris Agreement[5], an international treaty negotiated by 197 parties, aims to ensure that the increase in average temperatures above pre-industrial levels is kept to 'well below' 2°C by 2100 and to pursue efforts to limit the temperature increase to 1.5°C (Article 2.1(a) UNFCCC, 2015). Restricting global average temperature increases to these levels will require a significant change in the fundamental structure of the economy at national and international levels.

> "This Agreement […] aims to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by […] making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development."
>
> Paris Agreement, Article 2.1(c) UNFCCC, 2015

17. This is likely to affect all parts of the economy, especially energy, manufacturing, construction, transport and agriculture. These transformations and the transition to the low-carbon economy create risks for companies that do not plan and adapt adequately and to the pension funds that hold their equity and debt. It may result in 'stranded assets', where the value of certain assets is significantly reduced because they are rendered obsolete or non-performing from a financial perspective.

18. This will be particularly relevant to energy intensive sectors, the fossil fuel-based industries and the wide range of companies and sectors whose current business models are predicated on significant energy use and/or greenhouse gas emissions, most commonly through burning fossil fuels. These companies will be subject to hardening regulatory limits or financial penalties imposed on their activities, replacement by climate-friendly competitors, decarbonisation of the power supply, legal challenges and other non-conventional challenges such as reputational issues resulting from their impact on the climate. Investors will have capital at risk as a result of the low carbon transition.

19. The impact on pension schemes as investors may not be immediately obvious or uniform. For example, whilst the utility sector is one of the most strongly exposed to climate policy risk, it may contribute a relatively small proportion of a typical pension scheme's investment portfolio. On the other hand, manufacturing may have a lower sectoral risk but may constitute a larger part of a pension scheme's portfolio and may therefore have a greater overall effect. Trustees need to consider the impacts across their portfolios as a whole.

[5] https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement

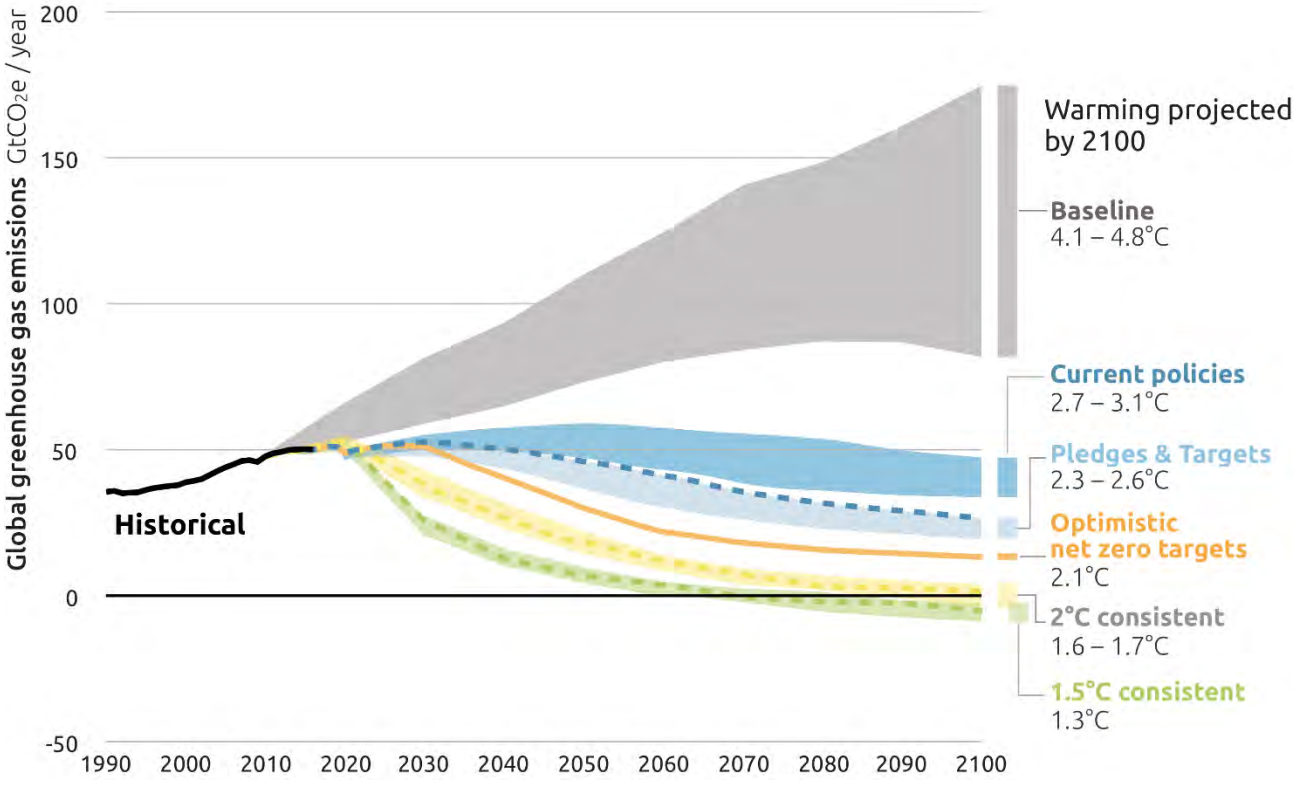
2.2 Types of climate-related risks

20. When considering the financial implications of climate change, a distinction can be drawn between **transition risks** and **physical risks**. The former relates to the risks (and opportunities) from the realignment of our economic system towards low-carbon, climate-resilient and carbon-positive solutions (e.g. via regulations or market forces). The latter relates to the physical impacts of climate change (e.g. rising temperatures, changing precipitation patterns, increased risk to coastal systems and low-lying areas from rising sea levels and increased frequency and severity of extreme weather events).

21. Perhaps of greatest concern is the significant risk that policy achievement falls short of the Paris Agreement goal, leading to global average temperature increases well in excess of 2°C. Current policies fail to get even close to 2˚C let alone the Paris Agreement ambition of well-below 2°C.

22. Temperature rises based on current policies (with estimates varying from 2.8 to 3.2°C relative to pre-industrial levels based on the current trajectory) would have large and detrimental impacts on global economies, society and investment portfolios.

Figure 3: 2100 Warming projections - emissions and expected warming based on pledges and current policies



Source: Climate Action Tracker, Dec 2020 update[6]

[6] https://climateactiontracker.org/global/temperatures/

Stranded asset risk

Various research reports have studied the risk of fossil fuel assets becoming 'stranded' assets[7] which 'at some point prior to the end of their economic life (…) are no longer able to earn an economic return'. This can occur due to a change in policy/legislation, a change in relative costs/prices, or circumstances in the physical environment (e.g. impact of floods or droughts).

Fossil fuels are the most obvious example of assets at risk of stranding and there are already examples of coal mines, coal and gas power plants, and hydrocarbon reserves which have become stranded by the low carbon transition. However, other assets may be affected such as gas pipelines and agricultural assets.

Reports have produced varying estimates of the financial impact based on different future scenarios, some of which could have materially detrimental impacts on investment portfolios. It is therefore in the interest of trustees and boards to explore stranded asset risks in the context of their own portfolios, defining their beliefs and assessing current portfolio exposure.

2.3 The impact of the inevitable policy response

23. With current policies anticipated to lead to temperature increases of around 3°C, the longer the delay in climate policy action, the more forceful and urgent any regulatory policy intervention will inevitably be in order to limit global average temperature increases to a level that's more likely to allow for economic and social stability. This would have a more severe impact on companies and pension schemes as investors.

24. We know now that annual global emissions must start to reduce with a significant annual rate of reduction thereafter[8]. Without this, companies face increased cost and uncertainty from a disorderly low-carbon transition and increased physical risks, and investors face increased risk compared to a scenario where climate policy is enacted smoothly and steadily.[9]

[7] https://carbontracker.org/terms/stranded-assets/

[8] Nature (2017) "Three years to safeguard our climate" 28th June 2017 - https://www.nature.com/news/three-years-to-safeguard-our-climate-1.22201

[9] See United Nations Environment Programme Finance Initiative - Investor Pilot (May 2019), capturing the analysis, evaluation and testing of 1.5°C, 2°C, and 3°C scenario-based analysis on the investment portfolios of institutional investors.

2.4 Why trustees cannot assume climate-related risks are already "priced-in"

25. An investor might expect financial market prices – at least in an efficient market – to already reflect the risks presented by a transition to a lower carbon economy and there is some evidence that markets are now partly pricing in climate change risks. However, asset prices may not fully reflect the financial impact of future physical risks or the transition costs associated with policy action required to limit global warming to 2˚C or less.[10] This is particularly so where "business as usual" models are based on current policies, which are anticipated to lead to temperature increases of around 3°C.

> "Climate change is striking harder and more rapidly than many expected."
>
> World Economic Forum, Global Risks Report 2020[11]

26. There are a number of reasons for this. The future of climate policy is highly uncertain given the extended time horizons and political economy considerations, while forecasting requires very long-term projections. There are also challenges in differentiating between long-term economic effects, what the markets are currently pricing, and the potential market shocks if and when the market re-prices climate risks.

27. Finally, the market pricing of assets will say little about a given investor's own attitude or tolerance to risk, or the implications of different climate scenarios. Trustees should therefore be wary about relying on marked to market pricing of assets as a measure of climate-related financial risks.

[10] BNY Mellon report, Future 2024: Future proofing your asset allocation in the age of mega trends (September 2019) https://im.bnymellon.com/us/en/documents/manual/brochures/future-2024-abridged-us-final.pdf
[11] https://www.weforum.org/reports/the-global-risks-report-2020

3.The legal requirements on trustees to consider climate-related risks and opportunities

Key considerations

- Trustees have a legal duty to consider matters which are financially material to their investment decision-making. The climate crisis poses a financial risk to all asset owners, but also presents opportunities for investors. Trustees should consider how, and to what extent, it could impact their investments and the necessary actions that arise from that assessment. This will depend on the investments held and the duration of the scheme. In the case of defined benefit schemes, trustees should also consider potential impacts on their sponsor covenant.
- All trustees have additional statutory obligations to document their policies on material financial factors within their statements of investment principles and to consider and document their approach to risk. These statutory obligations specifically require consideration of climate change.
- Specific requirements to integrate the consideration of climate-related risks and opportunities into trustee governance processes and to make annual public disclosures will, subject to consultation and approval by Parliament, apply to trustees of the largest schemes, authorised master trusts and authorised Collective DC schemes from October 2021 under the Government's proposed climate change governance and reporting regulations.
- The Pensions Regulator considers climate change to be systemically significant to its regulatory regime, including protecting member benefits and reducing calls on the PPF.

3.1 Fiduciary and trusts law duties

28. Trustees should take advice on their legal duties in the context of specific exercises of investment powers, but may wish to think in terms of three core duties when making investment decisions, as outlined below.
29. In practice day-to-day investment decisions will almost always be delegated to a third party (and in most cases trustees will act on professional advice from investment consultants). However, trustees should be mindful that they retain

overall responsibility for securing members' benefits and are required to provide proper oversight of their delegates (including fiduciary managers[12]).

(A) Exercise investment powers for their proper purpose

30. Pension scheme trustees must exercise their investment powers for the purposes for which they were given.[13] The consideration of climate-related risks and opportunities should take place in this context. Trustees should consider how properly taking into account climate-related risks and opportunities will assist in delivering on the purpose of the trust (namely for the provision of pension benefits).

31. In a defined contribution scheme trustees must not relegate the consideration of climate change to members via self-select funds. Rather, trustees must consider its relevance as part of their duty to provide both a default fund and self-select funds appropriate to the needs of the membership.

(B)Take account of material financial factors

32. Trustees should always take into account any relevant matters which are financially material to their investment decision-making. These are frequently referred to as "financial factors".[14] This may well be about whether a particular factor is likely to contribute positively or negatively to anticipated returns. But it may equally be about whether a factor will increase or reduce risk.

33. A wide range of factors may impact the long-term sustainability of an investment, including poor governance or environmental degradation. These can all properly be considered by pension trustees to the extent that they are financially material.

34. Chapter 2 explains in further detail the financial risks of climate change and the low carbon transition. Whenever trustees consider that such factors are financially material to their scheme, they should take them into account in their investment decision-making.[15]

35. When considering the financial implications of climate change, trustees should consider the financial implications of both transition risks and physical risks and determine the extent to which they are financially material to:

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[12] See: https://www.thepensionsregulator.gov.uk/en/document-library/regulatory-guidance/tender-and-set-objectives-for-investment-service-providers/choose-an-investment-governance-model

[13] Trustees should be mindful of the different duties applying to defined benefit pension schemes (where the trustee duty is to invest the scheme's assets appropriately to pay the scheme's promised benefits) and to defined contribution schemes (where the purpose of the investment power is to provide a "pot" of money to be used by each member to provide for his or her retirement).

[14] For further detail see the Law Commission's report on the Fiduciary Duties of Investment Intermediaries (July 2014) https://www.lawcom.gov.uk/project/fiduciary-duties-of-investment-intermediaries/

[15] Keith Bryant QC and James Rickards, The legal duties of pension fund trustees in relation to climate change (November 2016) https://www.documents.clientearth.org/wp-content/uploads/library/2016-12-02-the-legal-duties-of-pension-fund-trustees-qc-opinion-ext-en.pdf

- in a defined benefit scheme: the scheme's assets, liabilities and the covenant of the sponsoring employer(s); and
- in a defined contribution scheme: the investment risk and returns of the default fund and any applicable member self-select funds (see below).

36. Where appropriate, trustees should take advice and implement processes to build climate resilience across pension scheme assets and to take advantage of growing industries or other climate-related investment opportunities available to them.

37. Trustees of schemes providing defined contribution benefits must consider the implications of climate-related risks on any default fund and may also need to consider the extent to which they are taken into account in any member self-select funds (including AVCs). The nature of the funds may dictate which factors are taken into account in the investment processes of those funds. However, trustees should ensure that the funds remain suitable for their members and the materials in relation to them are sufficiently clear, including as to climate-related risks.

(C) Act in accordance with the "prudent person" principle

38. Trustee investment powers must be exercised with the "care, skill and diligence" that "a prudent person would exercise when dealing with investments for someone else for whom they feel morally bound to provide".[16]

39. Prudence will always be context specific and will evolve over time. In a defined benefit scheme prudence should be assessed by reference to funding levels and employer covenant and the likely time horizon over which members' benefits will be paid. In a defined contribution scheme trustees should consider what is appropriate to the membership demographic and the investment objectives of the investment options, including the scheme's default fund. Trustees should also bear in mind that many members' pension savings will be invested for a long time (including in drawdown/annuity policies) and will be exposed to longer-term risks and be capable of taking advantage of long-term shifts in sentiment and markets.

40. The financial risks from climate change have a number of distinctive elements which present unique challenges and require a strategic approach to financial risk management[17]. In line with the prudent person principle, trustees must consider likely future scenarios, how these may impact their investments and what a prudent course of action might be as part of their scheme's risk management framework. Past data may not be a good indicator of future risks.

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[16] Re Whiteley (1896) 33 Ch D 347 at 355

[17] Bank of England Prudential Regulation Authority, Supervisory Statement 3/19: 'Enhancing banks' and insurers' approaches to managing the financial risks from climate change' (April 2019) https://www.bankofengland.co.uk/prudential-regulation/publication/2019/enhancing-banks-and-insurers-approaches-to-managing-the-financial-risks-from-climate-change-ss

41. Trustees should also recognise that market standards are evolving in this area and that what may be considered "prudent" in relation to climate-related risks today might no longer meet that standard in the future, given developing understanding of these risks. Trustees should keep matters under review.

3.2 Pensions Legislation

42. Statutory requirements apply to pension trustees in addition to their fiduciary and trusts law duties. Again, trustees should take advice on their legal obligations but should take note of the following regulatory requirements in particular[18]:

(A) Effective system of governance including internal controls

43. Section 249A of the Pensions Act 2004 requires that the trustees or managers of pension schemes in scope should have "an effective system of governance including internal controls", on which The Pensions Regulator must issue a Code of Practice covering matters such as how that effective system of governance:

- provides for sound and prudent management of their activities;
- includes consideration of environmental, social and governance factors related to investment assets in investment decisions; and
- is subject to regular internal review.

44. The Code of Practice must also cover key functions including an effective risk-management function, and the need for trustees to carry out and document their own-risk assessment. Where environmental, social and governance factors are considered in investment decisions, the Code of Practice will also cover how such risk assessment must include an assessment of new or emerging risks, including risks related to climate change, use of resources and the environment (physical risks), social risks and risks related to the depreciation of assets due to regulatory change (transition risks).

NOTE – At the time of writing the Code of Practice[19], has not yet been published.

(B) Disclosure of policies in Statement of Investment Principles

45. For pension schemes to which section 35 of the Pensions Act 1995 applies (broadly, trust-based schemes with at least 100 members), the trustees must

[18] This guidance is aimed at occupational pension schemes in both Great Britain and Northern Ireland. For schemes in Northern Ireland, corresponding Northern Ireland legislation applies.
[19] https://www.thepensionsregulator.gov.uk/en/document-library/statements/single-code-of-practice-statement

prepare a Statement of Investment Principles (SIP). The purpose of a SIP is to set out the trustees' investment strategy, including their investment objectives and the investment policies they adopt.

46. Trustees must include in their SIPs their policies in relation to risks, including the ways in which risks are measured and managed[20].

47. Further requirements in relation to the required content of the SIP are included in the Occupational Pension Schemes (Investment) Regulations 2005.[21] Specific requirements pertinent to climate change include:

- Trustees must include their policies in relation to:
    - "financially material considerations" over the appropriate time horizon of the investments, including how those considerations are taken into account in the selection, retention and realisation of investments[22]. Financially material considerations are defined to include "environmental, social and governance considerations (including but not limited to climate change), which the trustees consider financially material";
    - the exercise of the rights, including voting rights attaching to the investments, and on engagement activities in respect of the investments, including when and how the trustees would engage with issuers, asset managers, stakeholders and co-investors on matters including the issuer's strategy, risks, social and environmental impact and corporate governance.
- Trustees were required, by 1 October 2020, to include their policies in relation to the trustees' arrangements with their asset manager(s), setting out how they incentivise each manager to align its investment strategy and decisions with the trustees' policies mentioned above and to make decisions based on assessments about medium to long-term performance.

(C) Annual Report and Accounts

48. Trustees are required to prepare an annual report and accounts within seven months of the end of each scheme year. Further requirements in relation to the required content of the annual report and accounts are included in the Occupational and Personal Pension Schemes (Disclosure of Information) Regulations 2013.[23]

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[20] Occupational Pension Schemes (Investment) Regulations 2005, regulation 2(3)(b)(iii)
[21] as amended by the Pension Protection Fund (Pensionable Service) and Occupational Pension Schemes (Investment and Disclosure) (Amendment and Modification) Regulations 2018 and by the Occupational Pension Schemes (Investment and Disclosure) (Amendment) Regulations 2019
[22] Occupational Pension Schemes (Investment) Regulations 2005, Regulation 2(3)(b)(vi)
[23] as amended by the Pension Protection Fund (Pensionable Service) and Occupational Pension Schemes (Investment and Disclosure) (Amendment and Modification) Regulations 2018 and by the Occupational Pension Schemes (Investment and Disclosure) (Amendment) Regulations 2019

49. Trustees should take advice on the timing and content required in relation to their particular scheme, although, broadly in each annual report prepared after 1 October 2020:

- Trustees of defined benefit schemes must include a statement on how their voting and engagement policies have been implemented.
- Trustees of schemes providing defined contribution benefits are required to include a statement setting out how, and the extent to which, all policies have been implemented during the year.

(D) Pension Schemes Bill 2021

50. Subject to Royal Assent the [Pension Schemes Bill 2019-21] will introduce new powers under sections 41A to 41C of the Pensions Act 1995 for the Secretary of State to make regulations:

- imposing requirements on scheme trustees with a view to securing that there is effective governance of the scheme with respect to the effects of climate change;
- requiring information relating to the effects of climate change on the scheme to be published;
- with a view to ensuring compliance with the requirements above.

51. A consultation was held by the Government from 26 August to 7 October 2020 on the Government's proposals.[24]

52. Further to that consultation, draft regulations and statutory guidance have been published for further consultation on [27 January 2021].[25]

53. The circumstances and timing by which it is proposed that schemes would fall in and out of scope of the requirements under the regulations is detailed in the draft regulations. Broadly speaking:

- Trustees of schemes whose relevant assets are £5bn or more at the end of their first scheme year to end on or after 1 March 2020, authorised master trusts and authorised schemes (once established) providing collective money purchase benefits would be subject to the climate change governance requirements from 1 October 2021[26] – including for the remainder of the scheme year which is underway on this date - and all must produce a TCFD report in line with the reporting requirements within 7 months of their scheme year end date.

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[24] See Government consultation: "Taking action on climate risk: improving governance and reporting by occupational pension schemes" (August 2020) https://www.gov.uk/government/consultations/taking-action-on-climate-risk-improving-governance-and-reporting-by-occupational-pension-schemes

[25] The draft Occupational Pension Schemes (Climate Change Governance and Reporting) Regulations 2021 and the draft Occupational Pension Schemes (Climate Change Governance and Reporting) (Miscellaneous Provisions and Amendments) Regulations 2021 https://www.gov.uk/government/consultations/taking-action-on-climate-risk-improving-governance-and-reporting-by-occupational-pension-schemes

[26] Or the date they obtain their audited accounts, if later.

- Trustees of schemes whose relevant assets are £1bn or more on the next scheme year end date on or after 1 March 2021 would be subject to the governance requirements from 1 October 2022 and all must produce a TCFD report in line with the governance requirements within 7 months of their scheme year end date.

54. The draft regulations would require the trustees of schemes in scope to, among other things:

- implement climate change governance measures and produce a TCFD report containing associated disclosures; and
- publish their TCFD report on a publicly available website, accessible free of charge.

55. The draft regulations also contain amendments to the Occupational and Personal Pension Schemes (Disclosure of Information) Regulations 2013, which would require the trustees of schemes in scope to, among other things:

- tell members that the TCFD report has been published and where they can locate it, via the annual benefit statement and, for DB schemes, the annual funding statement.

Voluntary obligations

Trustees who have agreed to become signatories to voluntary initiatives may have already accepted additional climate reporting obligations.

PRI signatories: the PRI is making some climate indicators mandatory to report to PRI itself but voluntary to disclose publicly. The remaining PRI climate-related risks indicators will stay voluntary with a view to becoming mandatory as good practice develops.

Stewardship Code signatories[27]: signatories must (principle 4) report on how they have identified and responded to market-wide and systemic risks including climate change, and how they have (principle 7) ensured tenders have included a requirement to integrate climate change to align with the time horizons of clients and beneficiaries.]

[27] https://www.frc.org.uk/investors/uk-stewardship-code

4. The TCFD recommendations

Key considerations

- The TCFD has established a set of eleven clear, comparable and consistent recommended disclosures about the risks and opportunities presented by climate change. The increased transparency encouraged through the TCFD recommendations is intended to lead to decision-useful information and therefore better informed decision-making on climate-related financial risks.
- By applying the TCFD recommendations and making the recommended disclosures, pension trustees will be better placed to properly assess and understand what climate change actually means for their particular scheme – and will be better equipped to make decisions that ensure the best outcomes for pension scheme members.

4.1 A lens for understanding climate-related financial risks

56. The Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD) was established as an industry-led initiative in December 2015 to develop recommendations for clear, comparable and consistent disclosures of climate-related risks and opportunities in mainstream financial reports. The TCFD aimed to improve the quality of climate-related financial disclosures thereby "support[ing] more appropriate pricing of risks and allocation of capital in the global economy"[28].

57. The TCFD recommendations (issued in June 2017) establish a set of recommended disclosures through which organisations can identify and disclose decision-useful information about material climate-related financial risks and opportunities.[29] The recommendations are also applicable to asset owners and asset managers. As of February 2020, 1027 organisations globally had declared their support for the TCFD, representing a market capitalisation of over $12 trillion[30] and extensive work is ongoing across a number of industry and

[28] Final Report. Recommendations of the Task Force on Climate-related Financial Disclosures. June 2017, p.v. - https://www.fsb-tcfd.org/publications/
[29] See Appendix [6] (further reading/links) for details of TCFD Report and materials, including the TCFD Knowledge Hub.
[30] TCFD Supporters https://www.fsb-tcfd.org/tcfd-supporters/

regulatory groups to support widespread implementation of the TCFD's recommendations.[31]

58. The TCFD recommendations are structured around four thematic areas that represent core elements of how organisations operate: governance, strategy, risk management, and metrics and targets. These might be considered to apply to pension trustees (as asset owners) as follows:

Figure 4: The TCFD recommendations

Governance - Disclose the trustees' governance around climate-related risks and opportunities

Strategy - Disclose the actual and potential impacts of climate-related risks and opportunities on the pension scheme where such information is material

Risk Management - Disclose how the trustees identify, assess, and manage climate-related risks

Metrics and Targets - Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material

59. The four core elements of the TCFD recommendations are supported by eleven recommended disclosures set out in the table below.

[31] See, for example, FCA consultation CP20/3: Proposals to enhance climate-related disclosures by listed issuers and clarification of existing disclosure obligations - https://www.fca.org.uk/publications/consultation-papers/cp20-3-proposals-enhance-climate-related-disclosures-listed-issuers-and-clarification-existing

TCFD Recommended Disclosures

Governance	Strategy	Risk Management	Metrics and Targets
a) Describe the board's oversight of climate-related risks and opportunities	a) Describe the climate-related risks and opportunities the organisation has identified over the short, medium, and long-term.	a) Describe the organisation's processes for identifying and assessing climate-related risks.	a) Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process.
b) Describe management's role in assessing and managing climate-related risks and opportunities.	b) Describe the impact of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning.	b) Describe the organisation's processes for managing climate-related risks.	b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas emissions, and the related risks.[32]
	c) Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organisation's overall risk management.	c) Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets.

4.2 Why the TCFD recommendations may be helpful for pension scheme trustees

60. As set out in Chapter 3, pension scheme trustees are already subject to a number of statutory requirements to specify and disclose their policies on climate change, alongside other policies relating to environmental, social and governance (ESG) considerations. Several of the TCFD disclosures align to these existing statutory requirements, including disclosure of trustees' strategy via their policies on climate change, and their governance, via the requirement for an effective system of governance that includes "consideration of environmental, social and governance factors related to investment assets in investment decisions".

[32] Scope 1 GHG emissions are direct emissions from sources that are owned or controlled by an entity. Scope 2 GHG emissions are indirect emissions from sources that are owned or controlled by an entity (e.g. electricity, heat, or steam purchased from a utility provider). Scope 3 GHG emissions are from sources not owned or directly controlled by an entity but related to the entity's activities (e.g. employee commutes).

61. All the TCFD disclosures are likely to assist trustees demonstrate compliance with their fiduciary duties to take account of relevant factors which are financially material to their investment decision-making and to act prudently.

62. Although the TCFD recommendations focus on "disclosures" by organisations, the framework is fundamentally a useful tool for pension trustees in assessing the relevance of climate change and managing any consequences. This may assist trustees in meeting the legal requirements on considering climate-related risks. It will also be a useful lens for trustees of DC and hybrid schemes as they compile the relevant statement on how they have implemented policies in the SIP, as required from 1 October 2020. In particular, the TCFD's Strategy (c) recommendation to assess the resilience of their strategies (and by extension portfolio) using scenario-based analysis (see Part III) encourages forward-looking, long-term assessment of the financial implications of climate change.

4.3 Disclosure

63. The increased transparency encouraged under the TCFD recommendations and 11 recommended disclosures is intended to lead to better informed decision-making. More broadly, better quality information contributes towards more efficient and sustainable markets.

64. The Government has stated (in its 2019 Green Finance Strategy) that all listed companies and large asset owners, including occupational pension schemes, are expected to disclose in line with the TCFD recommendations by 2022.[33] However, not all pension scheme trustees will be subject to statutory requirements under the Government's proposed climate change governance and reporting regulations.

65. Regardless of whether a scheme is required by regulations to make public TCFD disclosures, chooses to do so on a voluntary basis or has chosen to prioritise the adoption of robust governance procedures as a first step (with public disclosure as a second step), this guide is intended to help all trustees to lay the groundwork and develop good practice.

66. To promote disclosure of "decision-useful" information, the TCFD has outlined seven Principles for Effective Disclosures, which should: 1) represent relevant information; 2) be specific and complete; 3) be clear, balanced, and understandable; 4) be consistent over time; 5) be comparable among companies within a sector, industry, or portfolio; 6) be reliable, verifiable, and objective; 7) be

[33] See Government Green Finance Strategy – Transforming Finance for a Greener Future (July 2019), although note that "large asset owner" has yet to be defined.

provided on a timely basis. Further information on these principles and guidance on disclosure can be found in Part II, Chapter 5.

67. The UK Government has also now announced its intention to make TCFD-aligned disclosures mandatory across the economy by 2025, with a significant portion of mandatory requirements in place by 2023. The UK Taskforce's Interim Report, and accompanying Roadmap[34], sets out a pathway to achieving that ambition.

[34] UK joint regulator and government TCFD Taskforce: Interim Report and Roadmap - Published 9 Nov 2020

Appendix - Further reading/links

Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD):

Final Report: Recommendations of the Task Force on Climate-related Financial Disclosures (June 2017) - https://www.fsb-tcfd.org/publications/final-recommendations-report/

Annex: Implementing the Recommendations of the TCFD (June 2017) - https://www.fsb-tcfd.org/publications/final-implementing-tcfd-recommendations/

Technical Supplement: The Use of Scenario Analysis in Disclosure of Climate-related Risks and Opportunities (June 2017) - https://www.fsb-tcfd.org/publications/final-technical-supplement/

TCFD: 2019 Status Report (June 2019) - https://www.fsb-tcfd.org/publications/tcfd-2019-status-report/

TCFD Knowledge Hub - https://www.tcfdhub.org/

Principles for Responsible Investment (PRI):

TCFD-based reporting to become mandatory for PRI signatories in 2020 (February 2019) - https://www.unpri.org/news-and-press/tcfd-based-reporting-to-become-mandatory-for-pri-signatories-in-2020/4116.article

Implementing the TCFD recommendations: a guide for asset owners (May 2018) - https://www.unpri.org/climate-change/an-asset-owners-guide-to-the-tcfd-recommendations/3109.article

Preparing investors for the Inevitable Policy Response to climate change (September 2019) - https://www.unpri.org/esg-issues/environmental-issues/climate-change/inevitable-policy-response

PRI Reporting Framework 2019: Strategy and Governance (Climate-related indicators only) (July 2019) - https://d8g8t13e9vf2o.cloudfront.net/Uploads/o/k/j/03.climatechangereportingsgcc2019_432791.pdf

see also: Climate-related disclosure - https://www.unpri.org/climate-change/climate-related-disclosure-/3971.article

Climate Disclosure Standards Board (CDSB):

TCFD Implementation Guide (May 2019) - https://www.cdsb.net/tcfd-implementation-guide

TCFD Good Practice Handbook (September 2019) - https://www.cdsb.net/tcfd-good-practice-handbook

Institutional Investors Group on Climate Change (IIGCC):

Addressing climate-related risks and opportunities in the investment process: a practical guide for trustees and boards of asset owner organisations (November 2018) - https://www.iigcc.org/resource/addressing-climate-related risks-and-opportunities-in-the-investment-process/

Navigating climate scenario analysis – a guide for institutional investors (February 2019) - https://www.iigcc.org/resource/navigating-climate-scenario-analysis-a-guide-for-institutional-investors/

See also various sector level reports (utilities, oil and gas, property and construction, industrials manufacturing and materials) that examine the climate-related risks and opportunities from an investor perspective in the transition to a 2ºC or less outcome - https://www.iigcc.org/resources/

Institute and Faculty of Actuaries (IFoA):

Climate Change for Actuaries: An Introduction (March 2019)

R&E Issues: A Practical Guide for Defined Benefit Pensions Actuaries (April 2017)

Climate Risk: A Practical Guide for Actuaries working in Defined Contribution Pensions (March 2018)

All available at: https://www.actuaries.org.uk/practice-areas/resource-and-environment/resource-and-environment-practice-area-practical-guides

Miscellaneous:

HM Government: Green Finance Strategy – Transforming Finance for a Greener Future (July 2019) - https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/820284/190716_BEIS_Green_Finance_Strategy_Accessible_Final.pdf

House of Commons Environmental Audit Committee (EAC): Greening Finance: embedding sustainability in financial decision making: Seventh Report of Session 2017-2019 (May 2018) - https://publications.parliament.uk/pa/cm201719/cmselect/cmenvaud/1063/1063.pdf

Bank of England Supervisory Statement 3/19: Enhancing banks' and insurers' approaches to managing the financial risks from climate change (April 2019) - https://www.bankofengland.co.uk/prudential-regulation/publication/2019/enhancing-banks-and-insurers-approaches-to-managing-the-financial-risks-from-climate-change-ss

The 2° Investing Initiative: Assessing the Alignment of Portfolios with Climate Goals (October 2015) - https://2degrees-investing.org/

Accounting for Sustainability Project (A4S): Supporting the TCFD Recommendations - https://www.accountingforsustainability.org/en/activities/tcfd.html

AODP Winning Climate Strategies: Practical Solutions and Building Blocks for Asset Owners from Beginner to Best Practice (2018) - https://aodproject.net/

Aon, Climate change challenges: Climate change scenarios and their impact on funding risk and asset allocation (2018) - www.aon.com/getmedia/8ddb2a56-c1a9-4689-81e6-f3b7c178e57c/Climate-Change-Challenges.aspx

Aon, Climate change challenges: Some case studies (2018) - www.aon.com/getmedia/e8648ded-3146-4a81-9887-65a02d8f49fe/Climate-Change-Challenges-Case-Studies.aspx

Australian Centre for Policy Development, Climate Horizons Report: Scenarios and strategies for managing climate risk (2018) - https://cpd.org.au/wp-content/uploads/2018/06/Climate-Horizons-report-2018.pdf

Cambridge Institute for Sustainability Leadership, Unhedgeable risk: How climate change sentiment impacts investment (November 2015) - https://www.cisl.cam.ac.uk/resources/sustainable-finance-publications/unhedgeable-risk

CICERO, Climate Scenarios demystified: A climate scenario guide for investors - https://cicero.oslo.no/en/publications/internal/2867

Club Vita, Hot and Bothered? Climate change and resource constraint scenarios affecting UK longevity (July 2018) - https://www.clubvita.co.uk/collaborative-research/hot-and-bothered

ClientEarth and Sustineri – Report on market standards on climate-related risks by asset owners (August 2018) - https://www.documents.clientearth.org/library/download-info/market-standards-on-climate-related-risks-by-asset-owners-report-by-clientearth-and-sustineri/

LCP, A guide to climate-related risks: Climate change and the implications for pension schemes (August 2017) - https://insight.lcp.uk.com/acton/attachment/20628/f-060a/1/-/-/-/-/LCP%20guide%20to%20climate%20risk%20for%20pension%20schemes.pdf

Local Authority Pension Fund Form: Climate Change Investment Policy Framework (2017) - http://www.lapfforumorg/wp-content/uploads/2017/11/Climate_Change_Investment_Policy_Framework.pdf

Mercer, Investing in a Time of Climate Change, the Sequel (2019) - https://www.mercer.com/our-thinking/wealth/climate-change-the-sequel.html

Pensions and Lifetime Savings Association (PLSA) - ESG & Stewardship: A Practical Guide to Trustee Duties - https://www.plsa.co.uk/Policy-and-Research/Document-library/Responsible-Investment-Guide-2019

Pensions and Lifetime Savings Association (PLSA) – “More Light Less Heat” report (December 2017) - https://www.plsa.co.uk/Policy-and-Research-Document-library-More-light-less-heat

Pensions and Lifetime Savings Association (PLSA) – Stewardship Guidance and Voting Guidelines 2020 (February 2020) – includes a section specifically on climate stewardship and good corporate behaviour https://www.plsa.co.uk/Policy-and-Research/Document-library/PLSA-Stewardship-Guide-and-Voting-Guidelines-2020

The Pensions Policy Institute - ESG: past, present and future (October 2018) - https://www.pensionspolicyinstitute.org.uk/research/research-reports/2018/2018-10-02-ppi-esg-past-present-and-future/

Schroders, Climate Progress Dashboard – navigating risks and opportunities - https://www.schroders.com/en/us/institutional/insights/climate-progress-dashboard/

Smith School of Enterprise and the Environment (SSEE) - Investment consultants and green investment: risking stranded advice? Working Paper (August 2015) https://www.smithschool.ox.ac.uk/research/sustainable-finance/publications/wp-investment-consultants.pdf

The Transition Pathway Initiative (TPI): How can investors use the TPI? (January 2017) - http://www.lse.ac.uk/GranthamInstitute/tpi/wp-content/uploads/2017/01/Using-TPI.pdf

The Transition Pathway Initiative (TPI): TPI State of Transition Report (2019) - http://www.lse.ac.uk/GranthamInstitute/tpi/wp-content/uploads/2019/07/TPI-State-of-Transition-Report-2019-1.pdf

UK Sustainable Investment and Finance Association (UKSIF): A Checklist for Pension Trustees - https://uksif.org/resources/a-checklist-for-pension-trustees/

United Nations Environment Programme Finance Initiative (UNEP FI): “Changing Course” A comprehensive investor guide to scenario-based methods for climate-related risks assessment, in response to the TCFD (May 2019) - https://www.unepfi.org/wordpress/wp-content/uploads/2019/05/TCFD-Changing-Course-Oct-19.pdf

WWF Climate Guide for Asset Owners: Aligning Investment Portfolios with the Paris Agreement (December 2017) - https://www.wwf.org.uk/updates/climate-guide-asset-owners-aligning-investment-portfolios-paris-agreement

HM Government

Aligning your Pension Scheme with the TCFD Recommendations

Part II - Trustee governance, strategy and risk management: how to integrate and disclose climate related risks

January 2021

The Pensions Climate Risk Industry Group

Pensions Climate Risk Industry Group

Aligning your pension scheme with the TCFD recommendations

Part II - Trustee governance, strategy and risk management: how to integrate and disclose climate-related risks

January 2021

The Pension Climate Risk Industry Group

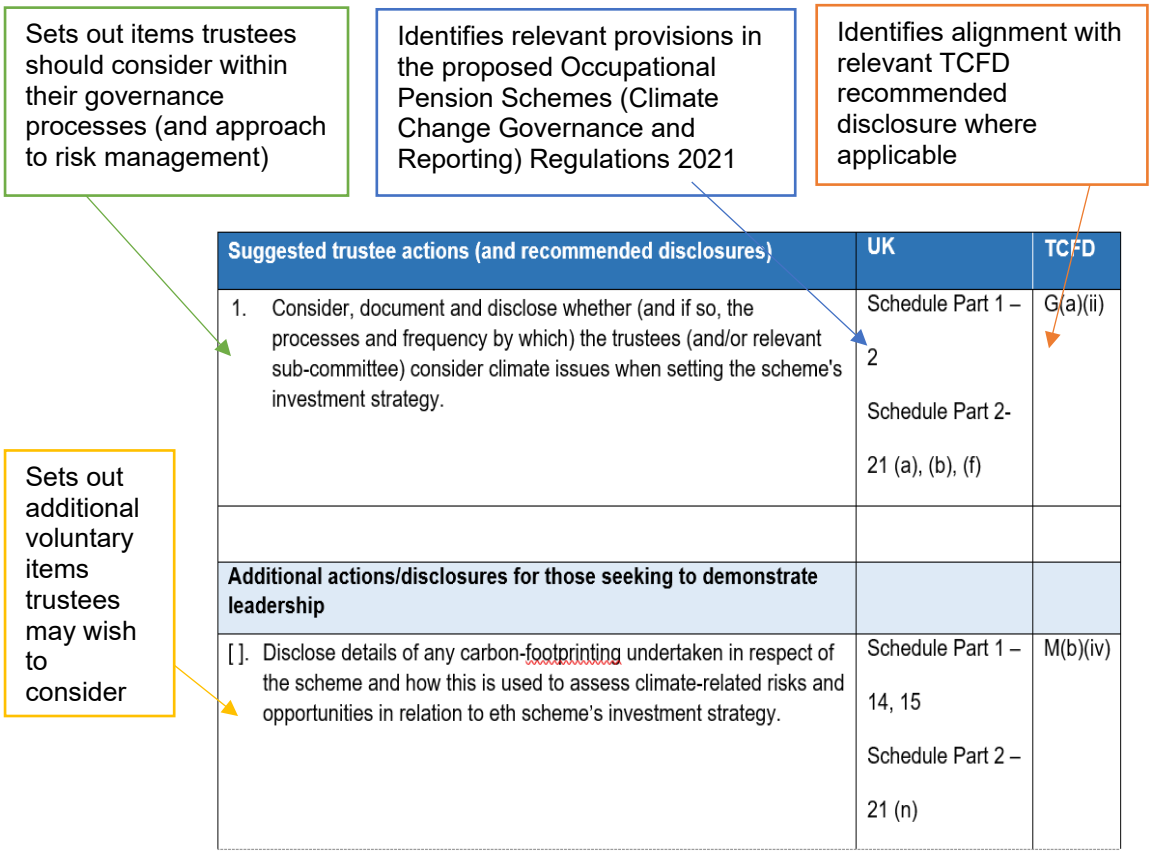
Contents

This section covers:

- How to define investment beliefs in relation to climate change
- Identifying climate risks and integrating them into the investment strategy and wider risk management processes
- Asset manager selection, review and monitoring
- Ensuring climate risk management processes influence:
    - investment mandates
    - portfolio construction
    - strategic asset allocation
- Ensuring climate risk is used to influence the selection of asset managers and investment consultants, ultimately shaping fiduciary management
- Trustees' role in terms of climate stewardship including steps smaller schemes can take.
- Supplementary information for DB schemes
    - Implications for sponsor covenant
    - DB funding issues
- Approaches to member communication and disclosures

Each Chapter in Part II includes a summary table showing the suggested actions and disclosures for that chapter and the relevant TCFD disclosure recommendation. A guide to interpreting these table is below:

Figure 1: Guide to Summary Tables



Suggested trustee actions (and recommended disclosures)	UK	TCFD
1. Consider, document and disclose whether (and if so, the processes and frequency by which) the trustees (and/or relevant sub-committee) consider climate issues when setting the scheme's investment strategy.	Schedule Part 1 – 2 Schedule Part 2- 21 (a), (b), (f)	G(a)(ii)
Additional actions/disclosures for those seeking to demonstrate leadership		
[ ]. Disclose details of any carbon-footprinting undertaken in respect of the scheme and how this is used to assess climate-related risks and opportunities in relation to eth scheme's investment strategy.	Schedule Part 1 – 14, 15 Schedule Part 2 – 21 (n)	M(b)(iv)

1. Defining climate-related investment beliefs

Key considerations

- Investment beliefs can help focus trustees' investment decision-making and make it more effective. Climate change should be considered as part of these beliefs.
- Trustees should allow appropriate time and ongoing training to ensure that they have a sufficient understanding of climate change to define their investment beliefs.
- Trustees should consider the roles and responsibilities within the trustee board (and, where applicable, any sub-committees and/or individuals/organisations providing executive support to the trustees) for climate-related issues.

1.1 Investment beliefs

1. Trustee boards may find it helpful to develop and maintain a set of beliefs about how investment markets function and which factors lead to good investment outcomes.[1] Investment beliefs, developed by reference to research and experience, can help focus trustees' investment decision-making and make it more effective. Viewed as a statement of intent, investment beliefs should be reviewed regularly in order to maintain relevance. Climate change should be considered as part of these beliefs and, when documented, be integrated within them. Trustees' investment beliefs should not be confused with their personal (i.e. ethical or moral) beliefs.
2. Trustees should define their climate-related investment beliefs (e.g. about potential future climate change scenarios, how to manage their impacts, both through the integration into the investment process and through acting as effective stewards, and take climate-related opportunities). Beliefs should take into account practical circumstances (e.g. scheme size/resources, internally/externally managed assets and preference for an active/passive investment approach).
3. Trustees may wish to consider including the following in their investment beliefs:
    - Trustees should consider how their overarching strategic aims and investment objectives will influence incorporation of climate change into their frameworks
    - Trustees should consider the balance between engagement, voting and/or divestment as appropriate tools to manage climate-related risks

[1] See TPR Investment Guidance for DB and DC Schemes - https://www.thepensionsregulator.gov.uk/en/trustees/managing-db-benefits/funding/investment ; and https://www.thepensionsregulator.gov.uk/en/trustees/managing-dc-benefits/investment-guide-for-dc-pension-schemes-

- Trustees should understand what their collective investment beliefs mean for the portfolio and how they will shape member engagement
- Trustees should ensure that their beliefs are actionable and they should consider any potential consequences that they could result in, as well as impacts to the investment budget

4. Trustees should consider the internal consistency of their investment beliefs. For example, trustees of defined contribution schemes who believe in the efficacy for the scheme's default fund of a pure passive market-cap weighted fund with no flexibility to reduce allocations selectively should consider how this will reconcile with strong beliefs in relation to the impact of climate change on markets during the time horizon of the scheme's members. Likewise, trustees who believe in the ability of asset managers to identify and exploit asset mispricing should consider how this reconciles with a view that climate-related risks alone have been adequately "priced in" to company valuations.

1.2 Trustee climate competence: knowledge and understanding required to define investment beliefs

5. Where trustees identify a lack of sufficient understanding of climate-related financial risks to define their investment beliefs on the issue with confidence (or that there has previously been insufficient time allocated on board agendas to it), they should allocate specific time at a future board meeting or an investment strategy session dedicated to climate-related risk issues.[2] Trustees should ensure that they allow adequate time to look at the issue in sufficient depth to ensure that they are meeting their legal duties. This might include more detailed sessions on:

    - The latest evidence on the investment impacts of climate change and views from investment consultants, asset managers, independent experts and other advisers on how climate-related risks and opportunities have the potential to affect different investment portfolios.
    - The trustees' legal obligations to consider and act on climate-related issues (and the extent to which the trustees' policies need to be disclosed or reported on).
    - In a defined benefit scheme, the potential impact of climate-related risks on the scheme sponsor's covenant.
    - The range of possible actions that might be taken to help manage climate-related risks (and capture the opportunities), including case studies of good practice actions across the investment community. Trustees may also wish to consider the potential impacts if there is an active decision to 'do nothing'.

[2] See World Economic Forum (in collaboration with PWC), How to Set Up Effective Climate Governance on Corporate Boards; Guiding principles and questions (January 2019) http://www3.weforum.org/docs/WEF_Creating_effective_climate_governance_on_corporate_boards.pdf.

Investment beliefs - Suggested trustee actions (and recommended disclosures)	Proposed requirements in the draft Occupational Pension Schemes (Climate Change Governance and Reporting) Regulations	TCFD
1. Identify, document and disclose the relevant climate-related investment beliefs and policies of the trustee board, whether these are set by the trustees or a sub-committee (e.g. investment sub-committee) and the frequency of their review.		
2. Consider, document and disclose the processes and frequency by which the trustee board (and, where applicable, any sub-committees and/or individuals/organisations providing executive support to the trustees) are informed about, assess and monitor climate-related risks and opportunities (including any training received) and how these influence the setting of the trustees' investment beliefs.	Schedule Part 1 – Paras 1, 2 Schedule Part 2 – Para 21 (a), (b), (c)	G(a)(i) G(b)(iv)
3. Identify, define and disclose the roles within the trustee board (and, where applicable, any sub-committees and/or individuals/organisations providing executive support to the trustees) that have oversight, accountability and/or manage responsibilities for climate-related issues.	Schedule Part 1 – Paras 1, 2 Schedule Part 2 – Para 21 (a), (b), (c)	G(b)(i)
Additional actions/disclosures for those seeking to demonstrate leadership		
4. Disclose details of commitments or involvements in wider initiatives, such as UN-backed PRI, IIGCC, Climate Action 100+, Transition Pathway Initiative etc.	n/a	n/a

2. Setting scheme investment strategy and manager selection, review and monitoring

Key Considerations

- Trustees should consider how different investments and investment strategies could be affected by the transition to a low carbon, climate-resilient economy and under different future climate scenarios.

- Scenario analysis and modelling are helpful tools to use in considering climate risks in setting the scheme's investment strategy.
- Trustees should consider their risk appetite and time horizons in the context of their scheme and their current investment strategy, noting the need for well-defined risk management processes to ensure climate related-risks are effectively measured and managed.
- Trustees should consider how climate risks may affect different asset classes and sectors in which the scheme has invested and the investment approaches in each portfolio.
- Having determined their overall strategic asset allocation, trustees should consider the mandates set for each asset class and the method by which investments are made; and they should identify strategic actions to reduce exposure to climate-related risks, as well as options for investment in climate-related opportunities.
- Climate competence should be factored into both manager selection, review and monitoring to execute agreed mandates for each asset class and method of investment.
- Trustees must be able to assess the potential size and scope of risks, which pose the most significant potential loss and which are the most likely to occur. This process of assessing risk can be multi-tiered, taking place at various levels of risk at the scheme, portfolio or asset-level
- Trustees should make use of the expertise of their investment consultants and advisers but should not be overly reliant on them to set the agenda. Trustees should challenge advisers and set objectives for them to factor climate-related risks into their advice. Climate competence should be considered when reviewing advisers.

2.1 Investment (and investment adviser) objectives

6. Trustees should set clear investment objectives for their scheme (and their advisers) and identify how and when they should be achieved. A scheme's investment strategy (and any adviser objectives to support that strategy) should support and be consistent with the trustees' objectives, taking account of the trustees' view of climate-related risks in the circumstances of the scheme and allowing for the fact that the objectives may evolve over time.
7. Trustees should distinguish between strategies for defined benefit and defined contribution schemes. In a defined benefit scheme, this will involve considering the scheme's funding levels and employer covenant as part of an integrated risk management (IRM) approach.[3] In a defined contribution scheme, trustees should

[3] See Pension Regulator's DB code of practice and IRM guidance, including guidance on assessing and monitoring employer covenant - https://www.thepensionsregulator.gov.uk/-

consider the risk/return profile appropriate to the membership and in particular the design of the default investment strategy. This will involve consideration of the needs of the scheme's members, and how these might change in the future.[4]

2.2 Considering risk appetite

8. Considering risk appetite can help trustees determine whether their current investment strategy is appropriate. Trustees should consider how different investments and investment strategies could be affected by the transition to a low-carbon economy and/or the physical impacts of climate change under different scenarios and whether implementing an alternative strategy may be more likely to achieve the scheme's objectives. Trustees should also consider their risk appetite for capitalising on investment opportunities connected with the transition to a low-carbon economy and, if applicable, their belief that they should help to fund investments that are needed to achieve the low carbon transition.

9. Adequate risk management depends on having the right processes and the right metrics in place. However, it is worth reiterating that climate change represents a negative externality that carries potentially very high and costly market-wide risks which may be largely unpriced or mispriced. The scale and complexity of climate change and its resulting impacts requires strong and well-defined risk management processes to ensure that the risks are being measured and managed.

2.3 Considering time horizons

10. Trustees need to understand how climate-related issues may affect the scheme's investment strategy and, where relevant, funding strategy over the short, medium and long term. They should set out what they consider to be the relevant short, medium and long term time horizons for their scheme.

    - Trustees should describe the relevant short and medium term time horizons; longest horizons.
    - In DB schemes, the longest time horizon to be considered will be the time over which the benefits will be paid to their members from the scheme.
    - In DC schemes, the longest time horizon to be considered will be the time over which members' money will be invested via the scheme.

11. It is up to trustees how they determine their time horizons, but trustees could approach this by thinking about their shorter horizons relative to their longest horizon. For example, If the longest time horizon is less than 10 years, trustees may decide to only have a short and a long time horizon. Trustees should

/media/thepensionsregulator/files/import/pdf/guidance-assessing-monitoring-employer-covenant.ashx?la=en&hash=62D096BB6BEB41B17ACA8F6CFE2EF450F669D045

[4] see Chapter 4 of TPR DC Code: Designing investment arrangements (including default arrangements) - Understanding your membership - https://www.thepensionsregulator.gov.uk/en/trustees/managing-dc-benefits/investment-guide-for-dc-pension-schemes-

consider the time horizons which would be most suitable based on the range of climate-related risks and opportunities that the scheme may face.

2.4 Use of scenario analysis

12. Trustees should:

- undertake climate scenario analysis and/or modelling, considering the scenarios to be used, how the impacts are calculated and the output of the analysis (by asset class, sector, strategic asset allocation etc.)
- consider how they use scenario analysis (including the impact of different scenarios on different types of assets, sectors and investment approaches within each portfolio) to manage climate related risks and opportunities, including how the analysis has been interpreted and acted on and any future plans.

13. See Part III of this guidance for further details on scenario analysis.

2.5 Considering climate-related risks as part of strategic asset allocation

14. Trustees should consider how climate-related risks may affect the different asset classes the pension scheme is invested in over time.

15. The proportion of different types of growth, matching and other assets held will vary by scheme (depending in a defined benefit scheme on the maturity of the scheme, its funding levels and employer covenant). In a defined contribution scheme a default fund may have a pre-determined process by which assets are transitioned from higher growth to lower volatility as a member approaches retirement age.

16. Growth assets are generally expected to be more sensitive to climate-related risks than matching assets[5] but trustees should consider the impact of different climate change scenarios on all asset classes (see Part III of this guidance). This should be factored into investment decision-making as part of a scheme's strategic asset allocation – i.e. a top-down integration instead of employing a case-by-case bottom-up approach to climate change.

17. The consideration of climate-related risks, using scenario analysis, may prompt trustees to make changes in their overall strategic allocations to different asset classes or the timeframe over which an agreed transition from growth to matching assets will occur. Trustees may also wish to consider whether certain asset classes and sectors may be expected to benefit from the low carbon transition and may wish to make positive allocations to these and/or make changes to the scheme's strategic allocation targets (e.g. set targets to increase exposure to

[5] Mercer, Investing in a Time of Climate Change, the Sequel (2019) - https://www.mercer.com/our-thinking/wealth/climate-change-the-sequel.html

certain types of infrastructure, real estate, private equity, etc. within a set timeframe).

18. Trustees may also wish to consider how agreed asset allocation targets and ranges may be impacted by climate change and whether it is necessary to increase ranges around existing asset class allocations to provide more leeway for significant moves towards the upper and lower boundaries during times of high volatility.

2.6 Determining how climate-related risks are incorporated within investment mandates and portfolio construction

19. Having determined their overall strategic asset allocation, trustees must consider the mandates they intend to set for each asset class and the method by which the investments will be made.

20. Because trustees generally do not choose specific investments themselves,[6] they will usually delegate this power to authorised asset managers.[7] Whilst some larger pension schemes may invest through a manager who will manage a segregated portfolio of assets on behalf of the trustees, in many cases trustees will invest via pooled funds.

- **Actively managed pooled funds -** In relation to the selection of an actively managed pooled fund (or the appointment of an active manager in relation to a segregated mandate), trustees should carefully consider the investment objectives and restrictions under which the manager will make investment decisions. Trustees should identify funds and managers which adopt an investment approach which is aligned with the trustees' investment beliefs (including engagement and, where applicable, voting policies – see chapter 3). Manager capabilities should be considered carefully (see [2.7] below).
- **Passively managed pooled funds -** In relation to passively managed funds, trustees should consider the indices that might be suitable to track. To date, market-capitalisation weighted indices have been used by the majority of pension trustees (particularly in defined contribution schemes). However, these indices usually reflect business-as-usual scenarios and as allocation guidelines for sector diversification, such indices may tend to overweight high carbon sectors (e.g. oil and gas). Trustees may wish to consider the use of alternative indices if they wish to maintain a passive approach. However, in doing so care should be taken as ESG or climate tilted indices may suffer from the same flaw by maintaining overall sector allocations (going overweight for some oil and gas firms to compensate for being underweight in another).

[6] Most day-to-day investment activities carried out on behalf of an occupational pension scheme are regulated activities: see TPR, 'Investment Guidance for Defined Benefit Pension Schemes (March 2017), 5; see further: Financial Services and Markets Act 2000, s 22 and sch 2, para 6; Financial Services and Markets Act 2000 (Regulated Activities) Order 2001 SI 2001 No 544, art 37.

[7] See Pensions Act 1995, s 34(2); under section 47(2) of the Pensions Act 1995, where an occupational pension scheme has assets including investments, an asset manager must be appointed.

21. Where applicable, trustees may consider a number of strategic actions to reduce identified exposure to risks and/or take advantage of opportunities. These might include:

    - making positive allocations to certain assets and sectors that may benefit from the low-carbon transition;
    - reducing exposure to certain assets and sectors that may be harmed by the low-carbon transition;
    - making changes to the scheme's strategic allocation targets (e.g. set targets to increase exposure to certain types of infrastructure, real estate etc. within a set timeframe);
    - changing the timeframe over which an agreed transition from growth to matching assets will occur (DB schemes);
    - a shift in passive investments to low carbon benchmarks rather than tracking a market-capitalisation weighted index (which have tended to reflect 'business as usual' scenarios);
    - making use of funds which take other "factor-based" approaches reflecting climate-related risks rather than tracking an index;
    - changes to the investment objectives and restrictions under which a manager will make investment decisions in actively managed pooled funds or a segregated mandate;
    - engagement with asset managers and investee companies on climate-related risks (more about this in chapter 2.7-2.8), collaborating with trustees of other schemes as appropriate and other managers, investors or campaign groups;
    - replacing existing asset managers to ones better aligned with trustees' concerns and ambitions on climate change;
    - collaborating with other investors as appropriate on climate-related risks e.g. through shareholder coalitions, shareholder resolutions etc.;
    - accelerating funding plans e.g. if trustees are less confident about longer-term covenant support in light of climate risks;
    - amending the assumed future investment returns due to a revised assessment in light of climate impacts;
    - putting in place contingent funding arrangements to offer protection against adverse transition developments for covenant;
    - reviewing the design of the scheme's DC Default funds; and
    - revising the range of self-select funds for DC schemes and communicating to members on this.

22. Trustees should establish their preferred approach(es) and consider and document any changes to the trustees' strategy over time. These should be embedded into the trustees' governance, investment strategy, risk management and reporting processes.

23. Trustees may also wish to consider the potential strategic options for investing in climate-related opportunities and agree priority areas for further research (including the extent to which the trustees expect their investment consultants or asset managers to investigate and present opportunities in these areas).

2.7 Factoring climate-related risk management capabilities into the selection, review and monitoring of asset managers

24. Having decided upon the mandates they intend to set for each asset class, as well as the method of investment, trustees must consider the process and requirements for the selection, review and monitoring of managers to execute these mandates. This may begin with a review of the climate policies of existing or prospective managers. However, it also requires rigorous due diligence on how these are executed. An assessment of an asset manager's governance of climate issues and the broader integration of climate impacts into their business strategy is recommended. Appendix 2 provides a number of suggestions for trustees to help them carry out due diligence of asset managers' capabilities and approach to climate-related risk management.

25. Climate competence should therefore be factored into the choice of managers. Challenging asset managers over their current practices will prevent greenwashing; engaging with them will promote better understanding of climate related issues. The fund manager should be capable of explaining underlying carbon-risk exposures, as well as demonstrating that environmental considerations have been considered during portfolio construction and engagement activities.

26. Where schemes invest through a segregated portfolio, whether active or passive, trustees should seek to ensure that their existing managers take an approach to climate which largely aligns with the trustee's investment beliefs. Where trustees carry out a tender exercise for the appointment of a new manager trustees may wish to consider in addition the prospective managers' broader investment offering and approach and potentially the expertise, capability and track record of the manager to work with the trustees to develop and deliver solutions aligned with their investment beliefs around climate change.

27. For those schemes investing via pooled funds, whether active or passive, trustees should assess the integration capabilities of managers and approach taken for that fund/strategy; these should cover a range of approaches.

28. For active (and factor-based) strategies, it is important to consider how the asset manager applies climate research, data and beliefs to enhance their fundamental analysis (or factor-based approach), and how this is reflected in and complemented by stewardship activities and voting policies (see chapter 3). Trustees should consider the extent to which the approach aligns with their investment beliefs on climate-related issues and delivers on the pension scheme's strategy. Trustees should assess manager performance against any climate-related mandates, performance benchmarks, or targets set by trustees and consider asking managers for examples of recent cases where climate factors have influenced buy/hold/sell investment decisions.

29. For passive strategies, trustees will need to have considered the suitability of market-cap based solutions, against alternative index offerings. When selecting an asset manager to provide these, trustees should in all cases rigorously assess the stewardship activities and voting policies of asset managers. When selecting climate indices, they should seek to ensure that the manager's approach to climate more broadly, and in particularly its stewardship activities, complement the index solutions on offer.

30. In their monitoring and review of existing managers, trustees may also consider the following strategic actions to hold managers to account on their management of climate-related issues:

- Assess quality of climate-related disclosure provided by managers, preferably against the TCFD recommendations.
- Assess quality of climate-related voting and engagement practices by managers (see chapter 3).
- Require managers to perform and report back on climate scenario analysis on their holdings (see Part III).
- Require managers to undergo periodic climate-related assessments (such as carbon auditing or stranded assets).

2.8 Investment consultants (and fiduciary management)

31. In practice, many trustees will rely heavily on their advisers and consultants to provide strategic advice about investment strategies, asset allocation and asset manager selection. Increasingly, trustees will rely on other consultant and adviser services, including manager research and analysis and reporting on asset manager performance. Although trustees will usually have ultimate responsibility for making decisions on these issues, investment consultants' advice will often be highly influential.[8]

32. Where trustees have legal duties to consider and address climate risk, consultants will need to have regard to these when providing their advice. However, trustees retain ultimate responsibility to effectively monitor and oversee their advisers.[9] Trustees are also required to set objectives for their investment consultants.[10]

33. Trustees should consider setting specific objectives for their investment consultants to:

[8] Financial Conduct Authority. Asset Management Market study: Interim Report (November 2016), 140–170 - https://www.fca.org.uk/publication/market-studies/ms15-2-2-interim-report.pdf
[9] TPR, 21st Century Trusteeship - https://www.thepensionsregulator.gov.uk/en/trustees/21st-century-trusteeship/2,-d-,-clear-roles-and-responsibilities See also – Managing DC benefits, Scheme management skills - https://www.thepensionsregulator.gov.uk/en/trustees/managing-dc-benefits/scheme-management-skills-guide-for-dc-pensions/#f5c80ed475614021af1eb07874c56c1d
[10] The Investment Consultancy and Fiduciary Management Market Investigation Order 2019, Article 12 - https://assets.publishing.service.gov.uk/media/5cfdfa86e5274a090f9eef8e/Order_investment_consultants.pdf

- advise so as to help trustees develop climate-related strategies (and processes to manage risk) that are aligned with trustees' investment beliefs on climate-related issues;
- address climate-related risks and opportunities material to the scheme in their investment advice, adapting their core services accordingly (including demonstrating a robust track-record that shows the adviser's capacity to assess and address the issues); and
- assess the climate-related performance (and resilience to climate related risks) of the schemes' asset managers and funds and to proactively suggest alternative approaches where these are not aligned with the trustees' investment beliefs on climate-related issues.

34. Where trustees delegate both the consultancy and implementation of investment strategy to a fiduciary manager, trustees should apply the principles relating to both asset managers and consultants as set out above. Trustees should agree with the fiduciary manager where responsibility lies in relation to each of the actions set out below, depending on the extent to which investment strategy decisions are delegated by the trustees to the fiduciary manager.

35. The Investment Consultants Sustainability Working Group (ICSWG) have a produced a helpful "Guide for assessing climate competency of Investment Consultants" which can be found in Annex 2.

Investment strategy **Suggested trustee actions (and recommended disclosures)**	**Proposed requirements in the draft Occupational Pension Schemes (Climate Change Governance and Reporting) Regulations**	**TCFD**
Overall strategy		
1. Consider, document and disclose whether (and if so, the processes and frequency by which) the trustees (and/or relevant sub-committee) consider climate issues when setting the scheme's investment strategy.	Schedule Part 1 – Para 1 Schedule Part 2- Para 21 (a)	G(a)(ii)

2. Consider, document and disclose how the trustee board (or relevant sub-committee) will identify climate-related risks/opportunities. Trustees may wish to consider: - what information is needed to evaluate climate-related risks and opportunities, and where can it be sourced; - which risks/opportunities could be material (including existing and emerging regulatory requirements related to climate change); - what process will the trustees adopt for determining size/scope of risks/opportunities at total fund/strategy level, and individual asset class-level. Risks and opportunities should be considered in absolute terms and in relation to the risk appetite of the scheme; - how the trustees have assessed the materiality – the likelihood and impact – of climate-related risks (and opportunities) - e.g. by sector and/or geography, as appropriate; and - the role of the trustee's investment consultants in bringing climate-related risks/opportunities to the trustees' attention (and their capacity and expertise to do so).	Schedule Part 1 - Paras 3, 4, 11 Schedule Part 2 – Para 21 (d), (e), (k)	S(a)(iii) R(a)(i) R(a)(ii) R(a)(iii)
3. Identify, document and disclose the extent (consistent with the trustees' investment beliefs) to which and how the trustees intend to factor climate-related risks and opportunities into relevant investment strategies - both at total fund/strategy level, and individual asset class-level.	Schedule Part 1 – Para 5 Schedule Part 2 – Para 21 (f)	S(b)(i) S(b)(ii) S(b)(iv)
4. Identify, document and disclose what the trustees consider to be the relevant short-, medium-, and long-term horizons, taking into account: - in a defined benefit scheme, the likely time horizon over which members' benefits will be paid from the scheme; and - in a defined contribution scheme the likely time horizon over which members' monies will be invested in the scheme to and through retirement.	Schedule Part 1 – Paras 3, 4 Schedule Part 2 – Para 21 (d), (e)	S(a)(i)

5. Identify, document and disclose the climate-related issues for each time horizon (short, medium, and long-term) that could have a material financial impact - whether transition or physical risk. Examples of risks to cover may include: increased pricing of greenhouse gas emissions; substitution of existing products and services with lower emission alternatives; successful/unsuccessful investments in new technology; moves to more efficient buildings and infrastructure; litigation risk; extreme weather risk.	Schedule Part 1 – Paras 3, 4 Schedule Part 2 – Para 21 (d), (e)	S(a)(ii)
6. Consider, document and disclose the resilience of the scheme's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario and how this informs the design of strategies.	Schedule Part 1 – Paras 6-10 Schedule Part 2 – Para 21 (g)-(j)	S(c)(i)
7. Consider, document and disclose how the trustees' processes for identifying, assessing, and managing climate-related risks are integrated into the scheme's risk register and/or integrated risk management approach. Trustees may wish to consider: - their processes for managing climate-related risks, including how they make decisions to mitigate, accept, or control those risks; - their processes for prioritising climate-related risks, including how materiality determinations are made; and - the role of the trustee's investment consultants in advising on the integration of climate-related issues within an integrated risk management approach.	Schedule Part 1 – Paras 11-13 Schedule Part 2 – Para 21 (k), (l), (m)	R(b)(i) R(b)(ii) R(c)(i)
8. Identify, document and disclose the extent (if at all) to which climate-related issues are included in the trustees' investment consultant's strategic objectives.[11] Trustees may wish to consider (but need not disclose) any similar requirements incorporated into consultants' investment service agreements.	Schedule Part 1 – Para 2 Schedule Part 2 – Para 21 (c)	G(b)(i)
Asset allocation and defining asset manager / pooled fund mandates		

[11] Note that trustees are obliged to document their investment consultant's strategic objectives under Article 12 of the Investment Consultancy and Fiduciary Management Market Investigation Order 2019.

9. Identify, document and disclose how the trustees consider that climate change may impact the scheme's growth, matching and other portfolios (including the default fund in a DC scheme), taking into account the short-, medium-, and long-term horizons the trustees have identified as relevant. This should include identifying and taking account of areas where the scheme's (or default fund's) asset allocation ranges and portfolio structure are expected to evolve in the future.	Schedule Part 1 – Paras 3, 4 Schedule Part 2 – Para 21 (d), (e)	S(a)(ii)
10. Identify, document and disclose the extent (if at all) to which climate-related risks are embedded/included in strategic asset allocation decisions (and detail any changes resulting from scenario analysis into strategic asset allocation decisions).	Schedule Part 1 – Para 5 Schedule Part 2 – Para 21 (f)	S(b)(i) S(b)(iii) S(b)(iv)
11. Consider, document and disclose how scenario analysis is used as a relevant factor in informing asset allocation and decisions to invest in specific asset classes.	Schedule Part 1 – Paras (5)-(10) Schedule Part 2 – Para 21 (f)-(j)	S(b)(iii) S(c)(ii)
12. Consider, document and disclose how the scheme's growth, matching and other portfolios are positioned in relation to the transition to a lower-carbon economy. Trustees may wish to consider: - within different asset classes, the scheme's exposure to those sectors that are particularly sensitive to transition risk (energy, utilities, materials); and - in relation to passive funds, the extent to which low-carbon transition risks and opportunities are part of the index and whether the trustees have considered any reallocation to alternative index funds or factor-based funds with climate-related weightings.	Schedule Part 1 – Paras 5-10, 12 Schedule Part 2 – Para 21 (f)-(j), (l)	S(b)(i) S(c)(i) R(b)(iii)

13. Consider, document and disclose how climate-related risks may impact funds with higher exposure to economic sectors that are concerned with physical assets or natural resources, such as real estate, infrastructure, timber, agriculture and tourism (being the most vulnerable to physical risks of climate change). Trustees may wish to consider: - TCFD's focus sectors (i.e. Energy; Materials and Buildings; Transportation; and Agriculture, Food, and Forest Products); - regional and sectoral mix to identify and capture the areas where the greatest climate transition is expected to occur; and - exposure to and management of stranded assets.	Schedule Part 1 – Para 5 Schedule Part 2 – Para 21 (f)	S(b)(i)
Asset manager selection, review and monitoring		
14. Identify, document and disclose how the trustees' process for the selection, review and monitoring of the scheme's asset managers takes account of climate change issues. Trustees may wish to consider: - the role of the trustee's investment consultants in rating asset managers, how such rating process takes climate change issues into account, and how such rating process is understood and reviewed by the trustees; - how the trustees ensure that the weighting attributed to climate change issues within manager selection, review and monitoring is appropriate to the trustees' investment beliefs and the scheme's investment strategy in relation to climate issues; - how frequently the selection, review and monitoring process is reviewed in relation to climate change issues; and - if selection and monitoring of asset managers is delegated to a fiduciary manager, what oversight processes are in place on their integration of climate considerations.	Schedule Part 1 – Para 2(b) Schedule Part 2 – Para 21 (c)	G(b)(i)

15. Identify, document and disclose how the trustees evaluate the alignment of their asset managers' investment strategy (or the investment objectives of any pooled funds) with the trustees' climate-related investment beliefs and the scheme's investment strategy and objectives in relation to climate issues. Trustees may wish to consider: - the role of the trustee's investment consultants in advising the trustees on the alignment of the managers' investment strategy; - how (if at all) the manager is incentivised to align its investment strategy; and - how the method (and time horizon) of the trustees' evaluation of the asset manager's (or pooled fund's) performance and the remuneration of the manager are in line with the trustees' climate-related investment beliefs and support the scheme's investment strategy and objectives in relation to climate issues.	Regulation 2 – Investment) Regulations 2005)[12]	
Additional actions/disclosures for those seeking to demonstrate leadership		
16. Disclose details of any carbon-footprinting undertaken in respect of the scheme and how this is used to assess climate-related risks and opportunities in relation to eth scheme's investment strategy.	Schedule Part 1 – Paras 14, 15 Schedule Part 2 – Para 21 (n)	M(b)(iv)

[12] See regulation 2(3)(c) of the Occupational Pension Schemes (Investment) Regulations 2005

17. Disclose details of any specific decarbonisation target adopted by the scheme, such as alignment with specific climate objectives e.g. below 2°C / alignment with the Paris Agreement / net zero by an earlier date (including methodology used) and how the trustee board (or relevant sub-committee) monitors and oversees progress against this. Trustees may wish to consider whether such targets or objectives: - should aspire to lower greenhouse gas emissions by exclusion of sectors or companies from a scheme's portfolio over time as opposed to engagement with those sectors or companies leading to a reduction of greenhouse gas emissions by such sectors or companies; - will apply across all assets (or for example be limited to listed equities); - are absolute or intensity based; - are based on real-life vs portfolio outcomes (for example, would a scheme investment in, say, EU carbon credits, or wind farms, be allowed to reduce the associated emissions of a portfolio elsewhere?)	Schedule Part 1 – Paras 17, 18 Schedule Part 2 – Para 21 (o)	R(b)(iii) M(c)
18. Consider steps taken to reduce the pension scheme's own operational impact e.g. use of renewable energy sources, business travel and use of off-sets and adaptation measures to reduce climate impact.		

3. The trustees' approach to stewardship on climate issues

Key Considerations

- Stewardship sits alongside the integration of long-term factors into investment decision-making, governance and processes.
- It is therefore important that trustees consider how they fulfil their stewardship role (including both engagement and voting) on climate change issues to create "long-term value for…beneficiaries" and disclose their activities in this respect.

3.1 Why stewardship forms a key part of an integrated approach to climate-risk

36. The UK Stewardship Code[13] defines stewardship as "the responsible allocation, management and oversight of capital to create long-term value for clients and beneficiaries leading to sustainable benefits for the economy, the environment and society."

37. There is a growing body of evidence[14] which demonstrates the benefits of active ownership, or good stewardship, to corporate performance. Engagement activity with investee companies (including through appointed managers) can help to encourage better practices and corporate behaviours related to climate-related risks as well as improving disclosures by those companies to enable better assessment of climate-related risks by asset owners. It should therefore form a key part of the integration of climate issues into trustee investment processes.

38. Although there is only one specific TCFD recommended disclosure on stewardship or engagement, it is difficult for trustees to have a meaningful and effective governance and decision-making framework – for instance regarding investment beliefs, or use of metrics, or in disclosing their approach on climate change – without consideration of how they fulfil their stewardship role. Good Stewardship can also be an effective form of post-investment risk management.

3.2 Principles for effective climate stewardship

39. What good stewardship looks like will vary for each trustee board, depending on the scheme's resources and the trustees' investment beliefs. However, in all cases trustees should be clear on how stewardship fits within the scheme's

[13] The UK Stewardship Code 2020 - https://www.frc.org.uk/getattachment/5aae591d-d9d3-4cf4-814a-d14e156a1d87/Stewardship-Code_Dec-19-Final-Corrected.pdf

[14] This includes *Active Ownership* (Dimson, Karakas and Li, 2012) or *Does Corporate Social Responsibility Lead to Superior Financial Performance? A Regression Discontinuity Approach* (Flammer, 2013).

investment strategy and how it helps meet the trustees' climate-related investment objectives.[15]

Manager delegated approach[16]

40. In many cases, trustees will delegate stewardship activities to the scheme's asset managers. Where this is the case, trustees should:

41. Familiarise themselves with their asset manager's stewardship policies in relation to climate-related issues (seeking to influence them where appropriate). This should include talking to their advisers and asset managers about how climate-related risks and opportunities are currently built into their engagement and voting policies and, where applicable, how they sit alongside measures taken to reflect climate-related risks within investment portfolios. Trustees should have a clear understanding of what 'success' by their asset managers on climate issues looks like.

42. Ensure that asset managers' climate approaches are in line with the trustees' climate-related investment beliefs and support the scheme's investment strategy and objectives in relation to climate issues.

43. Hold their asset managers to account in relation to their engagement activities and voting record on climate issues. Agreeing a schedule for monitoring and reviewing outsourced stewardship activities would be good practice and will assist trustees comply with their own requirements to produce an annual statement in the scheme's report and accounts setting out how the trustees' voting and engagement policies have been implemented during each scheme year (see 3.2(C) above).

44. When appointing new asset managers, using due diligence and the asset manager appointment process to gain a clear understanding of how the prospective manager considers and integrates climate factors in their engagement and voting behaviour (including, the asset manager's approach to securities lending).

45. Where asset managers outsource activities on climate stewardship, explicitly setting out expectations for such outsourced activities on climate stewardship and approaches in legal documents. This could include in documents such as the Investment Management Agreement (IMA) or side letters to pooled fund documentation.

46. Encourage your asset managers to be active participants in climate-related initiatives. For example, the Institutional Investors Group on Climate Change (IIGCC), Transition Pathway Initiative (TPI) and Climate Action 100+.

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[15] Further details on building a stewardship, engagement and voting policy across issues including on climate change can be found in the PLSA's *Stewardship Guide and Voting Guidelines 2020* - https://www.plsa.co.uk/Policy-and-Research/Document-library/PLSA-Stewardship-Guide-and-Voting-Guidelines-2020

[16] Engaging the Engagers: A practical toolkit for schemes to achieve effective stewardship through their managers' - https://www.plsa.co.uk/Policy-and-Research/Document-library/Engaging-the-engagers-A-practical-toolkit

Scheme's own strategy

47. Some trustees may have strategies to carry out their own engagement and/or voting. In this case, trustees should articulate a clear process and policy for voting on climate issues. This should identify what issues will be taken into account when deciding how to cast their vote and also set out their approach to exercising voting rights, having a clear understanding of what 'success' on climate issues looks like. Key issues to consider could include:

    - How to make systematic use of all voting powers at trustees' disposal to support the highest standards of climate governance and approach at investee companies.
    - Under what circumstances the trustees will seek to support climate-related resolutions. Key issues for consideration would include: whether the resolution conflicts with other climate resolutions; whether it is supported by management; whether the resolution is binding or non-binding; whether the solution sought is appropriate and consistent with the business' long-term success.
    - Where scheme investments are held in pooled arrangements, the extent to which the scheme's asset manager policies enable the casting of client votes.
    - Developing an engagement strategy beyond listed equity to include assets such as fixed income, real estate, bonds and infrastructure.

48. In addition to the above, trustees might also like to consider the following as part of their overall stewardship approach:

    - **Joining collective or collaborative engagement efforts**. The 2012 Kay Review noted that greater collective engagement could address concerns about fragmented and disparate ownership of companies. Collaborative engagement may be particularly appropriate for those trustees with fewer resources for specific engagement activities and who can maximise their influence by joining their voice with those of others. Trustees of these schemes can work within membership bodies such as the PLSA and UKSIF to press for stronger co-ordinated actions. Schemes can also collaborate and join with industry groups promoting Paris alignment, including the IIGCC's Paris Aligned Investment Initiative, the Net Zero Asset Owners Alliance and Transition Pathways Initiative.
    - **Influencing the public policy debate on climate**. Investor stewardship takes place within a policy and regulatory framework which is shaped by various forces including governments, political parties, membership associations, campaign groups and public opinion. If trustees feel that the legislative framework does not sufficiently support them in acting as good stewards of their assets, they should seek to influence policy and regulatory initiatives.
    - **Aiming to follow and engage with the UK Stewardship Code**, including becoming a signatory where possible.

- **Agreeing a policy and approach for communication of stewardship activities and outcomes to stakeholders**. As well as reporting duties under statutory requirements around engagement (see [3.2] above), stewardship should also be communicated with beneficiaries. Trustees could consider a standalone stewardship or responsible investment report, additional information on members' annual benefit statements or, for defined contribution schemes, content in the Chair's Statement.

Smaller schemes

49. Amendments to the Investment regulations[17] taking effect in October 2019 required all schemes to have a stewardship policy. Trustees should therefore already have considered their approach in some detail.

50. Whilst larger schemes are better placed to undertake direct engagement individually or through collaboration with other large investors, smaller schemes should still be able to demonstrate that they have engaged effectively with an asset manager both at appointment and through ongoing monitoring to implement this on their behalf. They should also ensure that their consultants give weight to asset managers' track records in climate change stewardship – and stewardship more broadly - in shortlisting and recommendations.

51. Trustees of such schemes should refer to Appendix 1 at the end of this section which provides a list of questions aimed at obtaining detailed information from asset managers, which will help them identify a manager to deliver their stewardship policy effectively.

3.3 Holding investee companies to account on TCFD

52. The TCFD recommendations apply not just to asset owners, but to intermediaries such as asset managers, and the investee companies themselves[18]. Trustees should be working with their advisers and managers to ensure a joined-up approach on TCFD which extends through to these companies. This should include engagement and, where necessary, applying a voting sanction to company boards which are not effectively monitoring, assessing and providing oversight of the company's approach to managing the risks and opportunities from climate change.

53. Some of the largest companies are already reporting using TCFD. This can either be done in a separate Sustainability Report or integrated throughout the Annual Report – which is the approach many investors prefer. Although trustees should make allowances for smaller firms in their use of specific third-party frameworks

[17] Occupational pension schemes (investment) regulations SI 2005/3378 – as amended by SI 2018/988.
[18] Premium listed companies will be required to report against the TCFD recommendations from 2021 see: [FCA– PS20/17 - https://www.fca.org.uk/publications/policy-statements/ps20-17-proposals-enhance-climate-related-disclosures-listed-issuers-and-clarification-existing
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/820284/190716_BEIS_Green_Finance_Strategy_Accessible_Final.pdf
See also FCA consultation CP20/3: Proposals to enhance climate-related disclosures by listed issuers and clarification of existing disclosure obligations: https://www.fca.org.uk/publications/consultation-papers/cp20-3-proposals-enhance-climate-related-disclosures-listed-issuers-and-clarification-existing

like TCFD, there should be evidence that all companies are at least broadly considering their approach to climate risk in terms of governance, strategy and risk management – and which are also making use of appropriate metrics and scenario analysis.

54. Trustees should look for the following as signs of good corporate behaviour:

- **A discussion of climate change in terms of strategic, financial and operational factors**. The potential impact of different scenarios – including reactions from policymakers and regulators – on value creation in the long-term should be clearly discussed. There should also be a clear link to risk management at the executive level and risk oversight at the board level. The impact of climate risk and opportunities on the firm's strategy over the short-, medium- and long-term should be clearly outlined.
- **Clear climate-related governance and oversight structures and processes**. This includes climate change expertise at board level, identification of which Director is accountable for climate issues and management's role in assessing and managing climate-related risks and opportunities. Every Director should demonstrate an understanding and awareness of the potential range of impacts which climate change may have on the company[19].
- **A proactive approach both to identifying and managing climate risks (and opportunities) and providing sufficient disclosures on climate change.** Although at this stage this does not need to include reporting using the TCFD framework, there should already be evidence that companies are considering the issue of climate change across the high-level TCFD areas of governance, risk management, strategy, metrics and targets, and scenario analysis.
- **Active consideration and discussion in reporting of both the expected physical impacts of climate change and transition impacts**. In terms of physical impacts of climate change, the resilience of assets and supply chains in the face of, for example, changing weather patterns and rising sea levels should be considered as relevant. Companies also need to demonstrate consideration of the potential impact of changes in public policy and regulation around the transition to a low carbon economy.
- **Clear reference in the Annual Report and Accounts to, and use of, credible industry climate reporting metrics.** This should include reference to the Task Force on Climate-Related Financial Disclosures, SASB (Sustainability Accounting Standards Board) CDSB (Climate Disclosures Standards Board), or other established third party frameworks. Companies should provide explanations as to the rationale for their choice of framework and the extent to which, if at all, relevant metrics have been "blended" with others. *Please note*: smaller and medium sized companies should be allowed

[19] We acknowledge that this understanding may change owing to developments in the available data as well as technological, regulatory and scientific developments.

some discretion and flexibility regarding their choice of framework and timescales.

- **References in disclosures mention the Paris Agreement and mention Net Zero**. Companies should disclose whether or not they have assessed whether their business model is compatible with global commitments to mitigate temperature increases and, where they do not feel this is currently the case, have outlined a process – complete with relevant timescales – under which they hope to achieve compatibility.
  This should include a discussion of the metrics which the company has chosen to assess climate-related risks and opportunities in line with its strategy and risk management. These metrics could include Scope 1, 2 or (where relevant) Scope 3 greenhouse gas emissions.
- **Financial disclosures include transparency on the underlying assumptions used to calculate balance sheet valuations and earnings**.[20] Many key valuation and profit measures disclosed by companies depend on assumptions about future returns. Investors may wish to challenge the calculations and/or substitute alternative assumptions in their own financial analysis should there be concern that these may rely on the Paris Agreement not being delivered in practice. In order to be open to such discussion, companies should be transparent on the assumptions underlying their calculations.
- **A company's political donations and membership of trade associations are aligned with their stance on climate change**. Investors have become increasingly concerned about corporate support for organisations and individuals whose lobbying activities and objectives are considered to frustrate climate change mitigation. Such support may take the form of political donations, trade association membership, or the establishment of charitable or educational trusts that undertake lobbying against progressive climate legislation[21].

55. Asset owners should describe, where appropriate, engagement activity with investee companies (including through appointed managers) to encourage better disclosure and practices related to climate-related risks to improve data availability and asset owners' ability to assess climate-related risks.

[20] A useful resource for trustees to consider is Principles for Responsible Investment initiative 'Accounting for Climate Change' https://www.unpri.org/sustainability-issues/accounting-for-climate-change

[21] We encourage investors to consider the recommendations from the Institutional Investors Group on Climate Change (IIGCC) on *European Investor Expectations on Corporate Lobbying on Climate Change* (2018) which outlines what positive company engagement with public policymakers on the transition to an orderly transition to a low carbon economy might look like.

Stewardship Suggested trustee actions (and recommended disclosures)	Relevant legislation to consider	TCFD
1. Consider, document and disclose the trustees' policy[22] setting out the processes by which the trustees engage with investee companies (including but not limited to issuers of debt or equity, investment managers or another holder of debt or equity) on climate-related issues. Trustees should consider: - the methods by which, and the circumstances under which, the trustees would monitor and engage with investee companies on climate-related issues; - their approach to exercising rights (including voting rights) attaching to the scheme's investments in relation to climate-related issues; - the extent to which responsibilities for stewardship are delegated by the trustees to third parties or sub-committees and/or individuals/organisations providing executive support to the trustees; - where trustees delegate stewardship activities to the scheme's asset managers, the processes by which the trustees familiarise themselves (and seek to influence) the manager's stewardship policies in relation to climate-related issues and how the trustees evaluate the alignment of the managers' stewardship policies with the trustees' climate-related investment beliefs and the scheme's investment strategy and objectives in relation to climate issues.	Regulation 2 – (Investment) Regulations 2005) Schedule 3 (para 30) – (Disclosure Regulations 2013)	R(a)(iv)
2. Disclose how, and the extent to which the trustees' engagement policy on climate-related issues has been followed during the year.[23] Trustees should consider: - outcomes of any collaborative engagement/other engagement initiatives in which the trustees have taken part; - the voting behaviour by, and on behalf of, the trustees (including the most significant votes cast by the trustees or on their behalf) during the year; - use of the services of a proxy voting advisory service during the year.	Regulation 2 – "(Investment) Regulations 2005)" Schedule 3 (para 30) – "(Disclosure Regulations 2013)"	
<u>Additional actions/disclosures for those seeking to demonstrate leadership</u>		
3. Disclose the Stewardship Code signatory status of the scheme.	n/a	n/a

[22] This can be set out in the trustees' policy on stewardship required to be included in their Statement of Investment Principles, see regulation 2(3)(c) of the Occupational Pension Schemes (Investment) Regulations 2005

[23] This can be set out in the trustees' implementation statement prepared under regulation 12 of the Occupational and Personal Pension Schemes (Disclosure of Information) Regulations 2013 in accordance with paragraphs 30(ca) or 30(f) (as applicable) of Schedule 3 to those regulations.

4. Additional points for defined benefit schemes

Key Considerations

- Trustees need to take an integrated risk management (IRM) approach to DB scheme funding and investment, looking at how climate-related risks around the employer covenant, funding, and investment strategy may be linked and inter-dependent.
- Scenario testing can help trustees and their covenant advisers assess risks to investments, funding and covenant arising from climate change.

4.1 Assessing the impact of climate-related risks on sponsor covenant

56. For DB schemes, the sponsor covenant is the extent of the employer's legal obligation and financial ability to support the scheme now and in the future. TPR has previously set out in guidance its view of how the sponsor covenant should be assessed.[24]

57. As with any other risk, trustees need to consider risks from climate change on the sponsoring employer when assessing the strength of the current covenant.[25] Trustees should take independent external advice where they lack the objectivity or expertise required to perform an appropriate assessment.

58. All sponsoring employers will be exposed to climate-related risks and opportunities to some extent, although their nature and magnitude will vary considerably. Trustees of schemes with direct exposure to fossil fuels companies should be aware that their scheme will likely have above-average exposure to climate-related risks through the scheme's sponsor covenant. However, climate-related risks may be more difficult to identify where they are longer-term in nature or primarily arise through indirect routes such as supply chain exposure.

59. There are various routes through which climate-related risks can affect businesses, with both direct and indirect effects on their financial strength. For example:[26]

[24] https://www.thepensionsregulator.gov.uk/en/document-library/regulatory-guidance/assessing-and-monitoring-the-employer-covenant

[25] See press release from the Employer Covenant Practitioners Association ("ECPA") (July 2019): "it's vital that DB covenant assessments consider potential implications of climate change on sponsors' businesses" https://ecpa.org.uk/docs/20190717-news-climate.pdf

[26] Examples taken from Institute and Faculty of Actuaries, Resource and Environment Issues for Pensions Actuaries: Supplementary Information on Resource and Environment Issues and their Implications for Sponsor Covenant Assessments - https://www.actuaries.org.uk/system/files/field/document/Covenant%20report%20-%20July%202019%20updates.pdf

- Cost and availability of inputs – due to interaction of supply and demand, possibly affected (positively or negatively) by government intervention.
- Valuation of company assets – e.g. fossil fuel reserves (stranded assets), high carbon infrastructure, buildings on flood plains.
- Legislative and regulatory change – mechanisms may be market-based (e.g. carbon taxes, emission trading schemes, renewable subsidies) or non-market-based (e.g. vehicle emission limits, bans on certain chemicals, water quality standards).
- Technological change and product evolution – e.g. rapid advances in renewable energy technology is reducing costs and threatening the cost-competitiveness of fossil fuels.
- Changes in customer demand and social norms – prompted by environmental concerns, either voluntarily, or in response to, or anticipation of, policy changes.
- Reputational damage – caused by failing to meet public expectations and/or legislative requirements.
- Shareholder sentiment – businesses that are seen as environmentally risky or inconsistent with a low carbon future may become unpopular with investors (e.g. high profile campaigns are encouraging divestment from fossil fuels).
- Business disruption – e.g. caused by damage to business premises, infrastructure or the transport network, affecting the business directly or its suppliers and customers.
- Fines and litigation risk – climate change is a new source of litigation risk as people affected by climate change, or organisations campaigning on their behalf, seek compensation.

60. As schemes rely on sponsor contributions for many years into the future, trustee assessments of their sponsor covenant should be forward-looking, taking account of the impact of potential medium and long-term climate scenarios on the employer business (considering both transition and physical risks) and the market in which it operates.

61. Trustees should consider their sponsor's business resilience in the face of future uncertainties. This might involve exploring the employer's risk management processes, including how it identifies emerging risks and factors them into long-term business planning. Where applicable, trustees may wish to consider the appropriateness of the sponsor providing information to the trustees (or their professional covenant assessors) in line with the TCFD recommended disclosures.

62. Emphasis should also be placed on qualitative information, including information about the employer values and culture in relation to climate issues and risk management.

63. Trustees may wish to consider raising the following questions with their sponsoring employer[27]:

- What are the main climate-related risks faced by the business over the short, medium and long-term?
- How does the company identify, assess and mitigate these risks?
- What climate-related risks might affect business viability over the term of the scheme's recovery plan and long-term funding target?
- How does the company seek to achieve a resilient business model which is robust to a wide range of potential climate scenarios?

4.2 The role of the covenant adviser

64. In selecting a covenant advisor, trustees should ensure that the prospective adviser demonstrates an understanding of the issues and the possible impact that climate change could have on the sponsor. Ideally, they would also be able to demonstrate tools to incorporate these risks into their assessment of covenant, and suggestions for how risks might be mitigated.

65. Potential advisors should be able to demonstrate an ability to work with management teams to source and interpret information. As always in DB pensions, it is crucial that advisers are able to provide advice which can be integrated into a scheme's investment, funding, legal and administration advice.

66. Trustees of larger schemes should ensure that such skills and knowledge are held within their proposed delivery team and not drawn purely from 'specialists' who will not be part of core services.

4.3 Taking account of climate issues in DB funding

67. As for any area of risk, the funding implications of climate issues on DB schemes are affected by the covenant and investment implications and vice versa. For example, a scheme that is actively managing climate-related risks to its investments and has a sponsor with relatively low exposure to climate-related risks, may conclude that no adjustments are needed to the current financial assumptions.

68. Conversely, scheme actuaries may want to suggest a more prudent funding approach in schemes where mitigation of climate-related risks is not explicitly addressed in the trustees' investment strategy or where climate-related risks are a major source of covenant risk.

69. More broadly, scheme liabilities may be affected through wider financial and mortality assumptions:

- Actuaries use market yields when setting financial assumptions, and compare the resulting value of liabilities with a market value of assets. Where markets

[27] Taken from Institute and Faculty of Actuaries, Resource and Environment Issues: A Practical Guide for Defined Benefit Pensions Actuaries (April 2017) - https://www.actuaries.org.uk/practice-areas/resource-and-environment/resource-and-environment-practice-area-practical-guides

are not pricing climate-related risks correctly (or are underestimating the downside risks) this may have a knock-on effect on financial assumptions.

- Current mortality rate assumptions are affected by environmental factors such as cold winters and poor air quality, and these effects are reflected in the data used to construct base tables and initial rates of mortality improvement. Assumptions may, however, be impacted by climate-related issues. This may go wider than the direct effects of rising temperatures and more extreme weather events. Other factors may have an effect such as increasing energy prices and a resource-constrained economy. Conversely efforts to reduce air pollution and greenhouse gas emissions may improve health.[28] All of these effects are difficult to quantify, however and impacts may vary by age and location.

70. Given the uncertainty surrounding these effects, trustees may wish to consider asking their actuaries to illustrate a range of possible financial assumptions and mortality improvements in their advice, taking into account different potential climate scenarios.[29]

71. Buy-out funding targets for schemes may also be affected as insurers start to price in climate impacts, although anecdotal evidence suggests that there has been little, if any, impact on annuity pricing to date.

DB covenant and funding **Suggested trustee actions (and recommended disclosures)**	**Proposed requirements in the draft Occupational Pension Schemes (Climate Change Governance and Reporting) Regulations**	**TCFD**
1. Identify, document (and disclose where applicable[30]) the extent to which (and how) the trustees factor climate-related risks and opportunities into their assessment of the sponsor covenant. Trustees may wish to consider: - the trustees' (or their covenant assessor's) processes for determining which climate-related risks and opportunities could have a material impact on the sponsor's covenant including how materiality determinations are made; - what the trustees (or their covenant assessors) consider to be the relevant short-, medium-, and long-term horizons and the climate-	Schedule Part 1 – Paras 1, 3, 4, 6, 10, 11, 12, 13 Schedule Part 2 – 21 (a), (d), (e), (g), (h), (i), (k), (l), (m)	G(a)(ii) S(a) S(c)(i) R(a)(iii) R(b)(ii) R(c)(i)

[28] For further examples see Resource and Environment Issues for Pension Actuaries: Implications for Setting Mortality Assumptions (October 2017) - https://www.actuaries.org.uk/system/files/field/document/Mortality%20report%20-%20July%202019%20updates%20%28final%29.pdf

[29] An IFoA risk alert, dated May 2017, states that "Actuaries should ensure that they understand, and are clear in communicating, the extent to which they have taken account of climate-related risks in any relevant decisions, calculations or advice" - https://www.actuaries.org.uk/documents/risk-alert-climate-related-risks

[30] It is recognised that some information which trustees rely upon in forming a view of the scheme sponsor's covenant may be confidential and or market-sensitive and that accordingly, disclosures may be limited to a description of the trustee processes rather than providing substantive information in relation to the sponsor.

related issues for each time horizon that could have a material impact on the sponsor - whether transition or physical risk; and - the resilience of the scheme's sponsor, taking into consideration different climate-related scenarios, including a 2°C or lower scenario and how this informs the design of strategies.		
2. Identify, document and disclose how climate-related risks are included in the actuary's assessment of the scheme's liabilities. Trustees may wish to consider the extent to which: - changes to longevity / mortality assumptions and asset performance assumptions are made to take account of climate issues; - margins for prudence are included to allow for mitigation of climate-related risks not explicitly addressed in the trustees' investment strategy or climate-related risks in relation to the sponsor covenant; and - a different approach is adopted in assessing technical provisions and long-term funding targets.	Schedule Part 1 – Paras 5, 12 Schedule Part 2 – 21 (f), (l)	S(b)(ii) R(b)(i)

5. Method of reporting and member communication

Key Considerations

- Trustees should seek to inform members of actions taken to manage climate-related risks and opportunities across their portfolios.
- Trustees should consider how best to provide a compelling, accessible narrative which not only demonstrates to members that the trustees are appropriately managing climate-related issues.

5.1 Disclosure

72. Preparing for public reporting in line with the TCFD recommendations may help trustees meet other existing and forthcoming regulatory disclosure requirements around climate change.

73. Subject to consultation and Parliamentary approval, Government regulations will come into force from 1 October 2021. Trustees can consider the following approaches to publishing TCFD-aligned disclosures based on whether or not they are in scope of the requirements:

Starting out (not in scope of 2021 legal duties)	• Publish a standalone TCFD report, potentially in summary form. • Incorporate the report into the Annual Report, or Chair's statement/ implementation statement (for defined contribution schemes required to produce one).
Good Practice (legal minimum for schemes in scope)	• Publish a TCFD report on a publicly available website and make it accessible free of charge • Reference the report from the scheme's Annual Report • Tell members via the annual benefit statement (and the annual funding statement for DB schemes) that the information has been published and where they can locate it.
Best Practice	• Publish a TCFD report on a publicly available website and make it accessible free of charge • Reference the report from the scheme's Annual Report • Tell members via the annual benefit statement (and the annual funding statement for DB schemes) that the information has been published and where they can locate it. • Incorporate TCFD-aligned disclosures into one or more other forms of member communication (such as member newsletters or a responsible investment report).

74. Regardless of which of the above approaches are used for disclosure, the TCFD recommends that climate-related financial disclosures should be subject to appropriate governance processes "that are the same or substantially similar to those used for financial reporting."[31]

75. The TCFD offers further guidance on how to make the 11 recommended disclosures, noting that "When used by organisations in preparing their climate-related financial disclosures, these principles can help achieve high-quality and decision-useful disclosures that enable users to understand the impact of climate change on their organisations". Trustees should consider the following principles when deciding upon and reviewing their climate-related financial disclosures:

[31] TCFD Final Report. Recommendations of the Task Force on Climate-related Financial Disclosures (June 2017), p.18. - https://www.fsb-tcfd.org/publications/

Principles for Effective Disclosures[32]

1	Disclosures should present relevant information specific to the potential impact of climate-related risks and opportunities on the scheme avoiding generic or boilerplate disclosures that do not add value to members' understanding of issues.
2	Disclosures should be specific and sufficiently complete to provide a thorough overview of the scheme's exposure to potential climate-related impacts and the trustees' governance, strategy and processes for managing climate-related risks and opportunities.
3	Disclosures should be clear and understandable showing an appropriate balance between qualitative and quantitative information.
4	Disclosures should be consistent over time to enable scheme members to understand the development and/or evolution of the impact of climate-related issues on the scheme.
5	Disclosures should ideally be comparable with other pension funds of a similar size and type.
6	Disclosures should be reliable, verifiable and objective.
7	Disclosures should be provided on a timely basis. The TCFD recommends annual disclosures for organisations. However, pension funds starting out may consider triennial disclosures.

Auditing

76. The reasonable level of assurance provided by the auditors in their audit report relates only to the financial statements included with a company's Annual report, not to the Annual report as a whole. With limited exception[33] the auditor does not, in their audit of the financial statements, provide an assurance opinion on the 'Other Information'[34] included in the Annual Report.

77. Therefore, trustees do not need to secure additional auditors assurance as a result of including the disclosures in the Annual Report. However, Trustees may still wish to ask to have their TCFD reports audited to provide further confidence that they are both accurate and complete.

5.2 Member communication

78. Communicating clearly with members on how climate-related risks and opportunities are being managed can also help build trust and public confidence, especially as members' interest in climate change continues to escalate. The UK

[32] Adapted from the TCFD Final Report, Annex: Implementing the Recommendations of the TCFD (June 2017) Part F - https://www.fsb-tcfd.org/publications/final-implementing-tcfd-recommendations/
[33] Certain elements of a quoted companies' director's remuneration report are subject to audit.
[34] ISA (UK) 720 (Revised November 2019) Paragraph 12(c)

Stewardship Code also requires signatories to communicate the activities and outcomes of their stewardship and investment (see chapter 3).

79. In addition to public reporting, trustees can consider including more tailored member communication on climate change in the following:

- Regular newsletters.
- Online content including social media.
- Member events and representative programs.

80. Trustees interested in improving their member communications on important topics like climate change are encouraged to read ShareAction's report, "Pensions for the Next Generation: Communicating What Matters".[35] Trustees should also read PLSA's "Implementation Statement Guidance for Trustees"[36] which includes a specific chapter on how to produce clear, effective and meaningful disclosures on voting behaviour in the Implementation Statement.

Review process, monitoring and reporting **Suggested trustee actions (and recommended disclosures)**	**Proposed requirements in draft regulations**	**TCFD**
1. Consider the communication routes used to provide assurance to beneficiaries and other stakeholders on climate-related activity and whether disclosure to members adheres to the UK regulatory requirements, TCFD recommended disclosures and underpinning principles for effective disclosure.	Schedule Part 2 para 21 - Climate Change Governance and Reporting Regulations Regulation 4 – Miscellaneous Provisions and Amendment Regulations	n/a
<u>Additional actions/disclosures for those seeking to demonstrate leadership</u>		
2. Provide an overview of the climate related queries or communications from beneficiaries and other stakeholders	n/a	n/a

[35] ShareAction, Pensions for the Next Generation: Communicating What Matters (March 2018) - https://shareaction.org/resources/pensions-for-the-next-generation-communicating-what-matters/
[36] PLSA, Implementation Statement Guidance for Trustees (July 2020) - www.plsa.co.uk/Portals/0/Documents/Policy-Documents/2020/PLSA-Implementation-Statement-guidance-for-trustees-July2020.pdf

Appendix 1 - Enquiries to make of asset managers

Trustees should be careful to ensure that the products and services they buy are genuinely managing climate risk. They need to be able to identify and avoid greenwash.

As with any other investment or governance issues, they should not be afraid to dig deeper, keep asking questions and challenge what they hear. They should also be willing to move the discussion onto their own territory. How do the managers' strategies and outcomes reflect the trustees' own investment beliefs, stewardship and investment policies? Rather than allow fund managers to pick their own case studies, what engagement and voting do they carry out in relation to the firms chosen by the trustees.

In line with their fiduciary duty, trustees should rigorously assess the capabilities and approach to climate management of new and existing managers. Below we have included a 'Top 10' list of questions to prioritise when assessing asset managers, and a list of further questions structured in line with the TCFD recommendations.

Top 10

1. Has the manager produced a TCFD report which outlines their governance of climate related issues? (Governance)
2. Will the manager share climate-related scenario analysis undertaken as part of their investment process? (Strategy)
3. Do they support shareholder resolutions on climate change - if so, how many, which ones, and what was the rationale for their decision? (Strategy)
4. Are they transparent regarding all their voting activity? (Strategy)
5. What is the manager's escalation policy when engagement is unsuccessful? Can they give an example of when they have escalated, how they did so, their rationale for doing so, and the outcome? (Strategy)
6. Does the manager support and/or play a leading role progressive public policy initiatives on climate change, e.g. decarbonisation of transport, agriculture? (Strategy)
7. How does the manager undertake top-down research and analysis related to climate-related risks? (Risk Management)
8. Does the manager demonstrate that the implications of climate-related risks are considered across different asset classes and investment strategies? (Risk Management)
9. Do they know, and disclose, the exposure to fossil fuel assets? (Risk Management)

10. Does the manager commit to providing trustees with appropriate (and fund specific) climate metric data required to permit the trustees to meet their own disclosure obligations? (Metrics and Targets)

Additional questions

Governance

11. If not, is there clear evidence that governance structures and responsibilities are in place/have been updated to ensure appropriate oversight of climate-related risks and opportunities?
12. Does the manager report climate change data annually?

Strategy

Integration into the investment process:

13. Does the manager integrate climate-related risks into their investment process i.e. valuation and construction process?
14. How does the manager perform in league tables that compare managers' approach to climate change (e.g. https://aodproject.net/managers/)
15. Is the manager a signatory to the Stewardship Code?
16. Is the manager a PRI signatory? Does their PRI Reporting include voluntary information, as well as mandatory information? Do they provide private transparency reports on request?

Engagement and voting:

17. Are your rights to hold companies to account exercised?
18. How does the manager vote per region?
19. How often do they vote against company resolutions?
20. In what circumstances – and how often – do they vote against (re)appointments of chairs on climate grounds?
21. Do they propose their own shareholder resolutions?
22. Does the manager have custom voting policies?
23. Is their voting materially different from large proxy voting providers?
24. How do they manage internal conflicts of interest?[37]
25. Who internally decides on the way in which the asset manager votes?
26. Does the manager abstain from voting?

[37] This is a reference to *stewardship* conflicts which is different to firm-level conflicts. Annex 5 of PLSA's 'Vote Reporting Template for Asset Owners' provides further background on conflict - identificationhttps://www.plsa.co.uk/Portals/0/Documents/Policy-Documents/2020/IS-Asset-Owners-template.pdf

27. Do your managers speak for your beneficiaries?
28. Is the manager a member of and actively involved in key selected climate-related initiatives (such as PRI, CDP, CA 100+)? - If the manager is a PRI member – How have they decided where and on what to lead? Does their PRI Reporting include voluntary information, as well as mandatory information? Do they provide private transparency reports on request?
29. Does the manager have examples and successes from leading collective engagement?

Client education

30. Does the manager seek to understand client needs and views on climate?
31. Are managers able to demonstrate how they are helping their clients, and ultimate beneficiaries, to act on climate change?
32. How does the manager inform their clients about the future risks and opportunities that are not fully recognised by the market?
33. How does the manager communicate the impact they have had to their clients?
34. Is the reporting detailed, standardised, and cover the whole of the portfolio?
35. Are they articulating the 'value add' of their engagement on climate change?
36. Can the manager share worked examples of the impact they have had?

Public policy

37. Does the manager challenge companies that fund anti-climate lobbying through affiliates and trade associations?
38. Does the manager push for better standards in regulation, listing rules and other oversight?
39. Does the manager collaborate with others to promote continued improvement of the financial markets?

Product development

40. Does the manager have a comprehensive low-carbon offering across asset classes? Do they offer a bespoke service for clients?
41. Is the manager's approach to product development and low-carbon offerings aligned with its broader climate strategy/approach?

Risk Management

Macro-economic and thematic research

42. Does the manager demonstrate that this feeds into considerations of sector analysis and asset allocation?
43. Has the manager estimated the potential risk of assets becoming stranded in a 2ºC climate scenario? If not, are they willing to undertake this exercise?

44. Is climate-related risk considered in the assessment of sovereigns?

Micro-economic/company research

45. Does the manager demonstrate how top-down and bottom-up analysis of climate-related risks are integrated into investment decision-making, including fundamental analysis (active) and index strategies (passive)?
46. Does the manager measure the carbon footprint, including reserves, of its portfolios? Have they clearly reported this on an annual basis?
47. Has the manager considered the risks of physical impacts of climate change on the portfolio?

ESG engagement for all clients and markets

48. Is the manager able to demonstrate how engagement activities are linked up to the consideration of climate-related risks within investment analysis/portfolios?
49. Is the asset manager able to demonstrate engagement in assets other than listed equity?
50. Are there any other activities or initiatives that the manager is involved in to mitigate the risk of climate change?

Appendix 2 - Guide for assessing climate competency of Investment Consultants

The guide sets out five themes against which trustees should expect their Investment Consultants to demonstrate their climate competency. Examples of positive and best practice indicators are included against each theme to help judge competency. The indicators are deliberately stretching with the aim of raising investment consultants' standards and it should be acknowledged that some of these indicators will be aspirational.

As with assessing asset managers, trustees should ask their Investment Consultants for evidence of action to support their reported competencies. Trustees should test the depth of application and integration of these climate competencies in the services they receive from their Investment Consultants. This guide is not exhaustive.

This guide has been prepared by the Investment Consultants Sustainability Working Group (ICSWG), with helpful input from independent parties including ShareAction, The Pensions Regulator and the UN PRI. The ICSWG is a collaboration between 17 firms formed in 2020 taking action to support and accelerate sustainable investment initiatives in the UK. The ICSWG members are:

Aon	Cambridge Associates	LCP	Momentum Redington	SEI
Barnett Waddingham	Cardano	Mercer	River and Mercantile	Willis Towers Watson
bfinance	Hymans Robertson	MJ Hudson		XPS Investment
Buck		Allenbridge		

ISIO

Competency theme	Positive indicators	Best practice indicators
Firmwide climate expertise and commitment	▪ Clear governance structure and responsibilities stated to ensure appropriate oversight of climate-related factors into client services ▪ Assigned senior leader (partners / board member) responsibility for the oversight of climate-related issues ▪ Firm-wide strategic response to manage climate-related risks and opportunities and steward an orderly transition which is publicly available (for example, in line with the recommendations of the Taskforce on Climate-related Financial Disclosures) ▪ Specialists with depth of climate expertise ▪ UN PRI signatory ▪ Signatory to the UK Stewardship Code 2020 (from mid-2021) ▪ Conflicts policy which addresses potential conflicts related to advice on climate as a result of differences between the investment consultant's commercial interests and the trustees' climate objectives, or business relationships between the investment consultants and the asset managers or trustees	▪ Performance assessment of the investment consulting firm's consultants and senior leaders is aligned with helping clients achieve their climate-related objectives ▪ Signatory of (or affiliated to) other climate related initiatives ▪ Produce climate risk management thought pieces ▪ Inclusion of climate-related issues in regular client communications ▪ Demonstrate an awareness of climate justice, including a just transition
Individual consultant climate expertise	▪ All investment consultant colleagues receive regular and appropriate climate-specific training by both internal and external experts ▪ Seek to understand client needs and views on climate change, and where relevant educate clients on climate-related risks to their investments ▪ Able to identify and assess climate-related risks and opportunities ▪ A working understanding of how to apply and disclose against the recommendations of the Taskforce on Climate-related Financial Disclosures	Demonstrable record of helping clients: ▪ develop climate related beliefs and understanding of key issues ▪ shape voting policy to include explicit guidance on climate-related voting, including policies on shareholder proposals, and influencing asset managers to accept these. ▪ develop climate-related targets (such as Paris alignment, decarbonisation and other targets) in line with recommendations of the Taskforce on Climate-related Financial Disclosures. ▪ develop climate-related policy frameworks

Competency theme	Positive indicators	Best practice indicators
		▪ integrate climate-related considerations across all asset classes ▪ shape their investment strategy, incorporating climate-related risks, pricing opportunities and climate-related impacts ▪ with practical recommendations to reduce their climate-related risk exposure and/or develop strategies to steward an orderly transition to a net zero and resilient economy ▪ with guidance on climate-related reporting ▪ fully integrate climate considerations into manager selection and monitoring ▪ keep abreast of and meet regulatory expectations
Tools and software	▪ Have a database of climate metrics for investments covering for example: ○ Carbon intensity ○ Carbon emissions ○ Alignment with goals of the 2015 Paris climate agreement and implied temperature rise ○ Climate Value at Risk ○ Exposure to 'green' revenues ▪ Help clients monitor climate-related metrics ▪ Use freely available tools such as PACTA or PRA stress test data to help clients assess climate risk ▪ Help clients set and monitor appropriate climate-related targets	▪ Capability to conduct scenario analysis for assets, liabilities and sponsor covenant to help clients understand how climate change might affect investment returns and value at risk over the short, medium and long-term. ▪ Consideration of an orderly transition, disorderly transition and failed transition scenario with their associated direct transition and physical risks as well as systemic risks that could arise ▪ Where relevant, help clients consider real world impacts on climate change of their investment choices
Thought leadership and policy advocacy	▪ Encourage better standards of corporate governance of climate-related risks, for example through positive contributions to public consultations on guidance and regulation of climate-related risks ▪ Supportive of public policy initiatives on climate change	▪ Engage with regulators on latest climate-related policies ▪ Engage with the developers of climate reference scenarios ▪ Contribute meaningfully to system decarbonisation and achieving the goals of 2015 Paris climate agreement

Competency theme	Positive indicators	Best practice indicators
	▪ Collaboration as part of climate industry groups	▪ Active monitoring of related developments, for example, nature-related financial risks such as biodiversity loss
Assessment of investment managers and engagement with them	▪ Engage with investment managers about their climate practices (eg integration into investment decisions, voting and engagement) ▪ Climate change is integrated into manager research and a topic of discussion at research meetings ▪ Provide assessment of investment managers' firmwide approaches to climate change risk management, including through both asset allocation and stewardship	▪ Provide assessment of investment managers' fund specific approaches to climate change risk management ▪ Disclose details of methodologies and framework for assessing investment managers' approaches to managing climate-related risks and opportunities ▪ Investment managers' approaches to managing climate-related risks and opportunities feed into the consultant's ratings of investment managers ▪ Prepared to exclude fund recommendations on sustainability criteria ▪ Encourage improvement in investment managers' climate competencies including on stewardship, and set expectations on best practice ▪ Encourage investment managers to become signatories to the UK Stewardship Code 2020

HM Government

Aligning your Pension Scheme with the TCFD Recommendations

Part III - Scenario analysis

January 2021

The Pensions Climate Risk Industry Group

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Contents

What this section will cover

- An introduction to Scenario Analysis
- Expectations of trustees when adopting scenario analysis, including minimum legal requirements
- Different approaches to conducting scenario analysis
- Things to consider for different scheme types and sizes
- Which scenarios to use, how to analyse them and how to report them
- A scenario analysis case study

Scenario Analysis – resilience of the pension scheme to different climate scenarios

Key Considerations

- Scenario analysis is a key tool for testing the strategic resilience of the pension scheme to different future plausible climate states.
- Carrying out scenario analysis will be a required action under proposed regulations pursuant to changes made by the Pension Schemes Bill 2021. But even for schemes not in scope of that legislation, it will still be a valuable step in trustees meeting their broader legal duties to manage climate-related risks. It is therefore relevant for all pension schemes, whatever their size or circumstances.
- The TCFD recommendations for asset owners, including pension scheme trustees, requires them to consider how resilient the scheme's strategies are to a range of climate related scenarios, which illuminate the possible impacts of both transition and physical risks and opportunities. These should include transition to a lower-carbon economy consistent with a high probability of a temperature rise of less than or equal to 2°C.[1]
- A simple approach is for trustees to ask their asset managers for details of any climate scenario analysis they have carried out and actions taken as a result.
- There are also free tools and resources that trustees can use, such as The Paris Agreement Capital Transition Assessment (PACTA)[2], the Prudential Regulation

[1] The work of the TCFD, and the publication of its recommendations in July 2017, took place before the publication of the Intergovernmental Panel on Climate Change (IPCC)'s special report on Global Warming of 1.5°C in 2018. Since that IPCC report, the focus of the international community has increasingly been on limiting warming to 1.5°C, including in the UK Government's commitment to reach net zero emissions by 2050, and pension schemes would be well advised to keep this in mind when carrying out scenario analysis.
[2] https://2degrees-investing.org/resource/pacta/

Authority's (PRA)[3] stress test and guidance from The Institutional Investors Group on Climate Change (IIGCC)[4]. Alternatively, a consultant or a third-party provider can be asked to conduct the scenario analysis.

- It may be easiest to start with qualitative approaches that describe how climate-related impacts could crystallise over time. This should, however, be followed up with quantitative analysis as soon as practicable.
- Climate scenario modelling is inevitably subject to limitations due to the uncertainties and complexities involved. Trustees should not place too much weight on any single set of results, but instead use the analysis as a tool to build understanding of climate risks and make better-informed decisions.
- Analysis might initially focus on assets only and cover the impacts on limited asset classes, such as listed equities and corporate bonds. Over time, it should be extended to the rest of the scheme's assets and (for DB schemes) the impact on the liabilities, covenant, and funding position.
- In all cases, it is important that disclosures specify the scenarios used, methodology and related assumptions, as well as to state the conclusion regarding the strategic resilience of the scheme under different plausible scenarios.
- Climate scenario analysis tools and the information and data behind them are evolving rapidly. Trustees should keep developments under review and consider on an annual basis whether to update their analysis.

1 Introduction to climate scenario analysis

1. Scenario analysis is a well-established tool for understanding possible alternative futures, "challenging conventional wisdom about the future"5, and developing strategic plans that are more flexible or robust to a range of plausible future states. In a world of uncertainty, scenarios are intended to explore alternatives that may significantly alter "business-as-usual" assumptions.
2. For pension schemes, scenario analysis is the process of estimating the expected financial position after a period of time in different scenarios, and identifying mitigating actions to minimise the risks, or positive actions to exploit the opportunities under different scenarios. It might be carried out for a range of interest rates, exchange rates, or broader macroeconomic scenarios. In this guide, we outline the use of scenarios as a tool to help trustees assess and

[3] https://www.bankofengland.co.uk/-/media/boe/files/prudential-regulation/letter/2019/life-insurance-stress-test-2019-scenario-specification-guidelines-and-instructions
[4] https://www.iigcc.org/resource/navigating-climate-scenario-analysis-a-guide-for-institutional-investors/
[5] Quote from page 2 of the TCFD technical supplement on "The use of scenario analysis in disclosure of climate-related risks and opportunities" (2017) https://www.fsb-tcfd.org/wp-content/uploads/2017/06/FINAL-TCFD-Technical-Supplement-062917.pdf

manage the financially material risks that climate change may pose to their scheme.

3. Due to the nature of the risks posed by climate change, past performance of the markets cannot provide meaningful information about future impacts. Forward looking scenario analysis is therefore a key tool for assessing the risks and opportunities that climate change presents. In particular, scenario analysis might consider economic, environmental, social, technological and regulatory impacts.
4. Scenario analysis may include the consideration of stress testing, which can be a useful approach to understanding the potential impacts of a more extreme or more sudden re-pricing event (shock) linked to climate change, such as the introduction of more aggressive policies to accelerate the timeframe to becoming carbon neutral, which could have a significant impact on the outlook for certain asset classes and/or sectors.
5. The TCFD framework requires asset owners, including pension schemes, to use scenario analysis to assess their resilience to climate-related risks and opportunities, including:
    - asset-side changes such as potential earnings impairment or enhancement of companies in which they invest and to whom they lend – for example, as a result of transition policies, demand changes, physical impacts, and other factors such as litigation risks.
    - (in the case of DB schemes) liability-side changes such as inflation, interest rates, longevity and the strength of the sponsoring employer covenant.
6. Carrying out climate scenario analysis will be a required action under proposed regulations pursuant to changes made by the Pension Schemes Bill 2021. But even for schemes not in scope of that legislation, it will still be a valuable step in trustees meeting their broader legal duties to manage climate-related risks. It is therefore relevant for all pension schemes, whatever their size or circumstances. Light touch approaches are possible and may be appropriate for some schemes, such as smaller schemes with limited resources. Chapter 4 indicates how the approach adopted may vary depending on the scheme's circumstances.
7. Modelling of this type is inevitably subject to limitations due to the uncertainties surrounding climate change and the difficulties of modelling such a complex phenomenon. Whatever approach they adopt, trustees should bear in mind that climate scenario models are not forecasts or predictions. The model outputs will be highly uncertain, especially for longer range and more extreme scenarios, and so should not be used as the sole basis for investment decisions. Nonetheless, the modelling can be valuable in illustrating possibilities, building understanding, and helping trustees to make climate-informed investment and (for DB schemes) funding decisions.
8. Data, methodology and tools are evolving rapidly in the area of climate scenario analysis. Schemes should keep developments under review and consider on an annual basis whether to update their analysis. For small schemes, such a review

could be light touch, but larger schemes should consider a fuller update as models and portfolios change.

2 Expectations of trustees

2.1 Getting started

9. Trustees are already subject to a legal duty to manage climate-related risks. Carrying out scenario analysis in line with the TCFD recommendations will help trustees meet the minimum legal requirements in respect of climate change.

10. Chapter 3 outlines several approaches that trustees can use to conduct climate scenario analysis: asking your asset managers, appointing a consultant or third-party provider, or doing it yourself.

11. One place to start is by asking your asset managers and this is something all schemes should do. The managers' analysis is likely to be carried out at security level ("bottom-up") for each fund or mandate. Trustees should therefore seek ways of complementing this with consideration of scheme-level ("top-down") risks that arise from aggregation of portfolio-level impacts, macro-economic impacts and (for DB schemes) covenant and liability impacts. Such analysis may be done qualitatively at first, although trustees should improve the analysis over time and move to quantified approaches as soon as practicable.

12. It should be noted that all pension scheme modelling makes assumptions about climate change, even though these assumptions are usually implicit. When consultants present any modelling, trustees should ask them what allowance is being made for the physical and transition risks of climate change. Consultants should be able to justify their approach, including if they are making no allowance for risks beyond those already reflected in market prices.

2.2 Minimum requirements for large schemes

13. Subject to consultation and approval by Parliament, regulations will come into force in October 2021 requiring trustees of schemes in scope of the measures to:

    - As far as they are able, undertake scenario analysis which assesses the potential impact on the scheme's assets and liabilities of the effects of the increase in temperature and the resilience of the scheme's investment strategy and, where it has one its funding strategy, in at least two global average temperature increase scenarios, one of which must be a scenario where the increase is by a temperature between 1.5 °C and 2 °C inclusive above pre-industrial levels.
    - In their annual TCFD report, describe the potential impacts on the scheme's assets and liabilities which they have identified and the resilience of the scheme's investment strategy and, in the case of DB schemes, funding strategy in at least two climate-related scenarios, including at least one scenario with an average temperature rise of between 1.5°C and 2°C inclusive.

14. Trustees would be required to undertake scenario analysis in the first scheme year during which they are subject to the climate change governance requirements in the regulations and every three years thereafter. However, in the intervening years, trustees would be required to review annually whether or not circumstances have changed such that they should carry out new scenario analysis before the end of the 3-year period. If they decide not to do so, the regulations would require them to explain why in their TCFD report.

15. The Government is consulting on accompanying draft statutory guidance[6] which sets out in further detail expectations regarding what trustees should do to fulfil these and other requirements. This includes the expectation that:

    - For dual section hybrid schemes, scenario analysis should be carried out separately for the DB and DC sections of the scheme. (However, trustees would not need to carry out scenario analysis for a DC section that consists solely of Additional Voluntary Contributions).
    - For DC schemes, scenario analysis should be carried out for the default arrangement. For DC schemes with multiple default arrangements, trustees should as a minimum carry out scenario analysis for those defaults in which 250 or more members are directly invested, irrespective of whether they are actively contributing.

2.3 Best practice

16. Some schemes will choose to go beyond the minimum requirements set out in regulations, although this may not be until their second year of TCFD reporting or later. They are likely to seek to address data shortcomings and modelling limitations identified in their initial rounds of climate scenario analysis. Trustees may wish to increase the sophistication and granularity of their modelling, incorporating the latest thinking from across the industry. They may find it helpful to compare results from several different models and increase the number of scenarios considered.

3 Choice of approach

17. A variety of approaches to climate scenario analysis are available. When selecting their approach, trustees should consider:

    - the resources available to them (e.g. the extent of in-house support and services offered by their consultants); and

    - their objectives for the modelling (e.g. increasing the trustees' understanding of the scheme's climate risk exposure; informing investment or funding strategy decisions; identifying ways of reducing climate risk exposure in their

[6] https://www.gov.uk/government/consultations/taking-action-on-climate-risk-improving-governance-and-reporting-by-occupational-pension-schemes

most-exposed mandates; or identifying priority securities for stewardship activities).

18. Where resources are not available for all sectors or all assets, it may be best to begin by focusing on some higher risk sectors or asset classes and reporting on the assets which are considered – but working towards including all assets over time.

19. The rest of this section considers three choices: qualitative versus quantitative analysis; top-down versus bottom-up models; and who carries out the analysis.

3.1 Qualitative versus quantitative analysis

20. The TCFD suggests that asset owners might start with qualitative scenarios and develop more quantitative analysis over time.

21. Qualitative approaches are essentially narratives that describe how climate-related risks and opportunities may crystallise over time. They can help trustees understand how the world may look different in the future. Rather than developing their own scenarios from scratch, trustees could use the descriptions of publicly available reference scenarios as the basis of a qualitative exercise[7].

22. Qualitative scenarios are particularly useful for aspects that are hard to model in a quantitative manner, for example:

    - longer term scenarios (e.g. 2050 onwards) where the impacts are highly uncertain;
    - higher temperature scenarios (e.g. 4°C warming pathway), due to the likelihood that conventional economic approaches will underestimate the impacts; and
    - the effects on asset classes for which a company-level approach is not feasible due to lack of data, such as property, infrastructure and other private market investments.

23. It is expected that most trustees will find quantitative analysis useful as this will help them assess the materiality of climate-related risks and put the results in context, relative to other risks that the scheme faces. However, it is important that they understand the limitations of the analysis and do not place undue emphasis on model outputs that are inevitably uncertain. If trustees use quantitative analysis, narrative descriptions are still likely to be helpful in building their understanding of the scenarios and judging the appropriateness of the numerical results.

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[7] See, for example, 'Climate scenarios demystified. A climate scenario guide for investors' from Cicero, https://www.cicero.oslo.no/en/publications/internal/2867

3.2 Top-down versus bottom-up models

24. Climate scenario analysis can be carried out by adopting a "top-down" or "bottom-up" approach[8]. Each approach has its advantages and disadvantages and the two approaches are not mutually exclusive. Trustees should consider combining these approaches to give a broader perspective on the impacts of climate change.

25. Top-down models enable schemes to consider the implications of climate change for strategic asset allocation. They seek to incorporate macro-economic impacts of climate change on economic growth, inflation and interest rates, and use this to model the impacts on pension scheme assets broken down by asset class. More granular models may look at breaking down the impacts on returns by sector.

26. Top-down modelling can also be used to analyse the effect of variation in macro-economic factors on defined benefit liabilities, potentially combined with longevity impacts. This permits DB schemes to consider climate-related impacts on assets and liabilities in a consistent way. The scheme's consultants may offer this type of analysis.

27. Bottom-up models seek to analyse the impact of climate change on individual securities and aggregate these to the level of company, sector, region or whole portfolio (see box). This enables identification of the securities which are contributing most to climate-related risk exposures, concentrations of climate risk and companies to target for stewardship activities.

Types of bottom-up scenario analysis

Company level analysis – this is the most granular approach and allows for a high degree of company-specific tailoring, such as a company's future strategic direction and ability to adapt. However, it will typically require a large amount of data and resource. It is more suited for use by investment analysts that are studying individual companies in an investment portfolio than for trustees in-house, except possibly, in the case of DB schemes, for the impact on the sponsoring employer. When the results are aggregated across all investee companies in a particular sector, it becomes a form of sector-level analysis.

Sector level analysis – this offers the ability to home in on an individual 'at-risk' sector. Whilst the approach disregards effects in the broader portfolio which might offset the impairment in those sectors being analysed, this is probably the easiest type of analysis for pension schemes taking an in-house approach. When applied across all sectors that make up a fund, it becomes a form of portfolio-level analysis. The PACTA tool described below is a form of ready-made sector level analysis.

[8] The classification here uses the IIGCC's Navigating climate scenario analysis: A guide for institutional investors https://www.iigcc.org/download/navigating-climate-scenario-analysis-a-guide-for-institutional-investors/ as a start point.

Portfolio level analysis – this typically uses a bottom-up approach to aggregate climate impacts on individual securities. The data needed to apply such an approach may be most readily available for listed equity and corporate bond portfolios. The high-level view may understate the importance of sectoral or regional impacts, if these are 'netted out' in the end results, so it is worth unpacking the results to look at the implications for individual sectors and asset classes. The scheme's asset manager may well offer this kind of analysis.

28. Trustees may find both approaches useful. For example, top-down analysis can help them assess their overall exposure to climate-related risks and opportunities and identify the mandates which are likely to have the highest exposure. Bottom-up analysis can then drill into the exposure of those mandates, enabling them to question their asset manager about the steps they are taking to manage the risks and their rationale for holding the most-exposed securities.

3.3 Which party should carry out the analysis

29. All schemes should ask their asset managers about providing climate scenario analysis. However, unless the manager is responsible for all the schemes' assets, it is likely that the trustees will need to supplement this with additional analysis to enable a consistent scheme-wide view. This additional analysis could be carried out by the trustees' existing consultants, a third-party provider and/or the scheme's in-house team. The PRI has produced a list of free-to-use and commercially available climate scenario tools[9], although other tools are also available.

30. Whichever approach they adopt, trustees should ensure they have access to sufficient expertise to fully understand the results of the analysis and its limitations, asking challenging questions as appropriate.

Ask your asset manager/s

31. All schemes should ask their asset managers whether they carry out scenario analysis in relation to portfolios which they administer on the scheme's behalf, whether as pooled funds or segregated mandates. Where the manager carries out scenario analysis, trustees should ask for details of the scenarios (including the methodology and assumptions) as well as the output of the analysis in relation to the scheme's portfolio. Such analysis is likely to be bottom-up.

32. Scenarios and underlying assumptions may differ between asset managers. Trustees who obtain scenario analysis from more than one manager should exercise care when analysing the outputs. It is unlikely to be appropriate to aggregate them unless the managers have used the same scenario tool.

33. Where portfolio-level scenario analysis is not available, trustees should ask for the results of any other analysis that the asset manager is using to identify and assess climate-related risks in relation to the portfolio, such as carbon footprint

[9] https://www.unpri.org/climate-change/directory-of-climate-scenario-tools/3606.article

data. They should also ask what the asset managers are doing differently as a result of the analysis, to mitigate the risks.

34. Where no scenario analysis is taking place, particularly for easier-to-analyse asset classes such as listed equities and corporate bonds, trustees should ask about their managers' plans for adopting scenario analysis and encourage faster action if this is not ambitious enough.

Appoint your consultant or a third-party provider

35. Schemes may wish to ask their consultant or a third-party provider (some of whom specialise in this area) for scenario analysis. A wide variety of approaches is available. Trustees should ensure they understand the key features and limitations of the analyses on offer, to help them select the one(s) most appropriate for their objectives and budget.

36. Consultants and third parties may be able to provide scheme-level analysis that is applied consistently between different asset classes and assets managed by different asset managers. Depending on the provider, the analysis could be top-down, bottom-up or a combination of both.

37. When selecting a provider, trustees may wish to consider the following questions:

- Which types of assets does the analysis cover? What proportion of the scheme's assets would the analysis cover?
- Does the analysis consider the scheme's actual holdings or make high-level assumptions about the impacts on whole asset classes or sectors?
- (For DB), does the analysis include impacts on the scheme's liabilities and/or covenant strength?
- What climate and economic modelling expertise does the provider have (or access from third parties)?
- What steps has it taken to ensure the robustness of its modelling?
- What is the timeframe of the analysis?
- Does the analysis consider both physical and transition risks?
- Which features are modelled and which are not?
- What is the expected likelihood of different scenarios? Do the assumptions (e.g. regarding climate policies and technologies) seem appropriate and consistent with this likelihood?
- What are the limitations of the modelling? Are those limitations acceptable, given the trustees' objectives?
- Do the results look plausible and consistent with the magnitude of the risks implied by the scenario narratives?

- How is the provider incorporating the latest thinking into its modelling, in relation to climate science, climate policies, technological developments and improved modelling techniques? How often does it update its analysis?

- How much will it cost, both for the initial analysis and subsequent updates?

Carry out the analysis in-house

38. Where schemes do not wish to incur consultancy fees, or wish to carry out an analysis in-house, some free-to-use tools are available. We outline four of them in the box. Like all modelling tools, they have strengths and weaknesses, and inclusion of them here should not be interpreted as an endorsement. The IIGCC has produced guidance on climate scenario analysis and related topics that trustees might find helpful.[10]

> **2 degrees of separation** – analysis from the Carbon Tracker Initiative of the risk to individual oil and gas firms of the transition to a low carbon economy, based on the economics of their potential oil and gas projects. It provides detailed analysis of the percentage of potential capital exposure that is inconsistent with certain low carbon scenarios, helping trustees to understand the transition risks facing one high-risk sector in their portfolios.
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> **PACTA** (Paris Agreement Capital Transition Assessment) – the PACTA tool, developed by the 2 Degrees Investing Initiative and backed by the PRI, will produce a free report on upload of a portfolio of equities and bonds by their International Securities Identification Number (ISIN). It does not directly show the financial risk to portfolios from climate change, but instead shows the degree to which the strategies of the firms in which the scheme has invested are aligned with a given climate scenario. Analysis uses asset-level data and is available for over 40,000 companies.
>
> **PRA stress tests** – in 2019, the Prudential Regulatory Authority produced three hypothetical climate scenarios with assumed impacts by sector, for use by life insurers as an exploratory part of the PRA's annual stress test exercise. They consist of data-driven hypothetical narratives are presented, along with a set of assumptions designed to help quantify the impacts on assets in different sectors using simple metrics. These could be used by a scheme to calculate possible effects on its asset values. Where trustees cannot obtain asset data that is split into these sectors, they may find it necessary to use estimates or ranges. .
>
> **NGFS scenarios** – in 2020, the Network for Greening the Financial System published a set of eight scenarios, focusing on three "representative" scenarios chosen to show a range of lower and higher risk outcomes. They were developed to provide a common starting point for analysing climate risks to the economy and financial system. While developed primarily for use by central

[10] https://www.iigcc.org/resource/navigating-climate-scenario-analysis-a-guide-for-institutional-investors/

banks and supervisors, they may also be useful to trustees, although they are not comprehensive and so would need supplementing with additional assumptions before they could be used for quantitative analysis. The NGFS has said it will continue to develop the scenarios and the Bank of England is planning to employ the reference scenarios in its 2021 Biennial Exploratory Scenario for banks and insurers[11].

39. Some tools, such as PACTA, rely on detailed knowledge of fund holdings. Trustees can ask asset managers for this information or request that managers use the free tools themselves and supply the output.

4 Considerations for different scheme sizes and types

4.1 Extent of resource available

40. Managing risk and return is an essential part of trustees' duties whatever the nature of benefits offered by a scheme, its size or time horizons. However, the resources available for schemes to carry out scenario analysis will necessarily vary by scheme size.

41. For large schemes, proportionate assessment and management of the risks associated with climate change through scenario analysis would permit the expenditure of more significant time and resource.

42. Schemes with lower levels of resource should still carry out a proportionate and effective analysis, and the expectation is that all schemes will make use of qualitative and quantitative analysis where possible. Chapter 3 outlines some free-to-use tools that schemes may wish to use if they have appropriate in-house support.

4.2 Defined contribution schemes

43. For DC schemes, scenario analysis should focus on the effect of different warming and transition scenarios on members' pension pots. It is particularly important to apply scenario analysis in the design of default strategies before these are offered to members, and to continue to monitor them as investment strategies, economic conditions and scenario analysis models evolve.

44. Current members of open DC schemes – the vast majority of whom will be invested in the default – may well be exposed to climate-related investment risks well into the 2060s and beyond, meaning that they will be retiring into a world of very different asset valuations. This should be borne in mind when selecting the time horizon for the scenario analysis (see Chapter 5 below).

[11] The Bank consulted on its plans between December 2019 and March 2020; for details, see https://www.bankofengland.co.uk/paper/2019/biennial-exploratory-scenario-climate-change-discussion-paper. In November 2020, it announced that the exercise would launch in June 2021, following a delay due to the Covid-19 pandemic.

4.3 Defined benefit schemes

45. Climate scenario analysis is likely to be useful to DB schemes, whatever their level of maturity. For example, even closed DB schemes that are aiming to wind up in the next few years are vulnerable to climate-related risks which could affect the value of assets such as corporate debt and annuity pricing. Such risks could materialise over short time periods, for example, as governments make policy announcements, markets price in technological change and insurers allow for climate change in their modelling.

46. In line with The Pensions Regulator's guidance to use an integrated risk management approach[12], DB schemes should seek to conduct scenario analysis that combines climate impacts on investment, covenant and funding. This will enable them to explore the extent to which the liability impacts might be hedged by corresponding asset impacts, and how climate change might affect the employer's ability to meet future contribution requirements.

47. Modelling climate impacts on the funding position will necessarily require a top-down approach that incorporates possible impacts on real discount rates. Such analysis is subject to considerable uncertainty due to the challenges of modelling macroeconomic impacts such as interest rates and inflation, but it can nonetheless be a valuable exercise. Ideally, the analysis would also incorporate impacts on demographic variables, particularly mortality rates[13]. Any modelling of the covenant impacts should use the same scenarios for consistency, although the scenarios may need extending to include the variables of most relevance to the sponsoring employer. For example, assumptions may be needed about legislative interventions and technological innovations affecting the employer's sector (e.g. automotive). Input from the employer and/or covenant advisers is likely to be needed.

48. In the near term, DB schemes may find it easiest to start with bottom-up analysis of their listed equity and corporate bond investments (for which data tends to be more readily available) alongside high-level consideration of the covenant impacts, perhaps using scenario analysis that the employer has prepared for its own risk management.

49. Scenario analysis can be used to inform journey planning by illustrating how climate-related impacts may affect the cost of the scheme's long-term objective and the time taken to reach it. For example, if a scheme plans to buy out its liabilities with an insurer, it should consider how climate change might affect future annuity pricing (through its impacts on asset values, liability cashflows and reserving requirements). If a scheme has a "self-sufficiency" target with low reliance on the sponsor covenant, it should consider whether the target is

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[12] See The Pensions Regulator's regulatory guidance on Integrated Risk Management, https://www.thepensionsregulator.gov.uk/en/document-library/regulatory-guidance/integrated-risk-management

[13] See, for example, 'Resource and Environment Issues for Pension Actuaries: Implications for Setting Mortality Assumptions' from the IFoA, https://www.actuaries.org.uk/documents/environment-issues-pension-actuaries-implications-setting-mortality-assumptions

adequate in light of the additional uncertainties arising from climate change and how climate change might affect the availability of future funding from the employer if the target is not adequate.

5 Which scenarios should trustees use?

50. It is important to avoid relying on a single scenario (otherwise the analysis risks being interpreted as a prediction), and that the scenarios used are plausible yet challenging. Trustees should look to analyse their scheme's position over a range of scenarios which illuminate future exposure to both transition and physical climate-related risks and opportunities.

51. Three broad types of scenario that are likely to be of interest are:

- **Orderly transition, 1.5-2ºC scenario** – emission reductions start now and continue in a measured way in line with the objectives of the Paris Agreement and the UK government's legally binding commitment to reduce emissions in the UK to net zero by 2050. Investors and companies face disruption from physical climate-related risks, yet these are expected to be much less severe than under a no transition scenario.

- **An abrupt transition, 1.5-2ºC scenario** – little climate action in the short term, followed by a sudden and unanticipated tightening of policy as countries rush to get on track with the Paris Agreement. The falling cost of the solutions may mean companies and investors face a double policy and technology shock[14]

- **No transition, pathway to 4+ºC scenario** – a continuation of historic emission trends and a failure to transition away from fossil fuels. Physical climate-related risks are severe, and increase over time, causing widespread social and economic disruption. (Note that conventional economic approaches are very likely to underestimate the impacts[15].)

52. Other possible scenarios include those with an intermediate temperature rise of, say, 3°C in line with the expected outcome if governments' current climate policies are implemented[16], or with a disorderly transition that does not take place until it is too late to keep temperature rises below 2°C.

53. It should be noted that many variations are possible under each of these broad headings. Different combinations of government action and technological change

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[14] This draws on analysis by Cambridge University and DNB (2018), An energy transition risk stress test for the financial system of the Netherlands, https://www.dnb.nl/en/binaries/OS_Transition%20risk%20stress%20test%20versie_web_tcm47-379397.pdf (page 18)

[15] The climate scientist Kevin Anderson has warned that four degrees of warming is "incompatible with any reasonable characterisation of an organised, equitable and civilised global community". (Source: "Climate Change Going Beyond Dangerous – Brutal Numbers and Tenuous Hope," Development Dialogue 61, September 2012). For more detailed information, see World Bank (2012), Turn Down the Heat: Why a 4°C Warmer World Must be Avoided, https://www.worldbank.org/en/topic/climatechange/publication/turn-down-the-heat

[16] https://www.unenvironment.org/resources/emissions-gap-report-2019

may result in the same global average warming, but with differing impacts on the scheme's assets, liabilities and employer.

54. Trustees should be aware of the potential limitations of the scenarios being considered and also consider the likelihood of achieving the warming indicated by a particular scenario. Trustees should pay particular attention to the underlying assumptions for scenarios designed to represent more ambitious warming outcomes (e.g. 1.5°C) including, for example, the expected probability of achieving the warming outcomes given the assumed level of emissions, the credibility and impartiality of the source of the data underlying the scenarios, assumptions about the reliance on or use of technology that is not yet proven, and the alignment of the scenario with the Paris Agreement.

55. Trustees should consider the time frame over which the analysis is done, as climate-related risks will evolve over time. It is recommended that trustees assess exposure to climate change within and beyond the normal timeframe of their investment strategy.

56. With further warming effectively pre-loaded into the earth's climate system[17], the impact of physical risks from climate change that pension schemes might face over the immediate decades is largely independent of the emission scenario selected[18].

57. While transition risks are likely to emerge over shorter timescales than physical risks, the latter will be relevant over all time horizons considered. Not only are some physical impacts already being felt, but market pricing may anticipate the effects of higher temperature rises many years in advance. For both types of risk, disruption to asset values may be rapid and unpredictable.

6 Interpreting and using the results

58. Once complete, investors face the question of how to interpret climate scenario analysis. Results will vary according to the tool used, but the outputs are likely to be in the form of:

    - metrics illustrating the alignment (or non-alignment) of the portfolio to a given scenario; and/or
    - financial analysis such as an illustration of the change in asset value or funding position over a specific time period.

[17] See Zickfeld and Herrington (2015) "The time lag between a carbon dioxide emission and maximum warming increases with the size of the emission" https://iopscience.iop.org/article/10.1088/1748-9326/10/3/031001
[18] See for example the graphs on page 27 of the IPCC's 5th Assessment Report (2014) https://www.ipcc.ch/site/assets/uploads/2018/02/SYR_AR5_FINAL_full.pdf

59. Trustees may find it helpful to test how sensitive the model results are to different investment and funding strategies, as well as different climate scenarios, to see how much impact they can have on the outcomes.

60. Some points for trustees to consider may include[19]:

- What does the analysis show about the likely impacts on different asset classes and sectors?
- Where in the investment portfolio are climate-related risks most concentrated?
- Over which time frame are climate-related risks and opportunities likely to materialise?
- What are the trends and drivers that could influence exposure to climate-related issues in the near to mid-term?
- What the key dependencies and limitations with the analysis?
- (For DB), what are the key climate-related factors (whether through transition risk or physical risk) which will affect the strength of the employer covenant? What are the climate indicators of particular relevance to the sponsoring employer that could be used in covenant monitoring and contingency planning frameworks?

61. Trustees should consider the implications of their scenario analysis at each stage of the investment process (as outlined in Part II of this guidance) in order to identify key actions. Examples include revisiting investment beliefs, considering adjustments to strategic asset allocation and mandates for asset managers and advisers, as well as voting and stewardship priorities.

7 Reporting the analysis

62. When trustees report climate scenario information to beneficiaries and other stakeholders, they should consider the needs and expertise of their audience, and layer the information appropriately.

63. The TCFD recommends that asset owners should report:

- the climate-related scenarios and associated time horizon(s) considered;
- the critical input parameters, assumptions and analytical choices for the scenarios used;

[19] Adapted from "Navigating climate scenario analysis a guide for institutional investors by IIGCC 2019 page 51 https://www.iigcc.org/resource/navigating-climate-scenario-analysis-a-guide-for-institutional-investors/

- how their strategies may be affected by climate-related risks and opportunities;
- how climate scenarios are used, e.g. to inform investments; and
- how their strategies might change to address potential risks and opportunities.

64. In addition, trustees should indicate the external factors which have limited their ability to do scenario analysis, such as data gaps, and the steps they are taking to address these.

65. As stated earlier, in making such disclosures, trustees should apply the TCFD's seven principles for effective disclosure (see Part II).

66. Schemes might consider structuring their disclosures as follows:

- **Summary** – an overview of the type and extent of analysis carried out; a single paragraph narrative summary of how resilient the scheme is to each scenario considered; and a summary of actions taken as a result.
- **Detail** – more detail on the climate-related scenarios considered; data on results (e.g. potential asset value reductions) under the different scenarios, by asset class, sector or geography as appropriate; and more detail of how the scenarios have been and will be acted on.
- **Technical annex** – the technical detail of the scenarios used; any other technical information which is judged relevant but too complicated for the large majority of possible readers – e.g. detail of quantitative measures and assumptions underpinning the analysis.

Case study

An example of what can be achieved from a top-down perspective is shown below for the Lloyds Banking Group (LBG) pension schemes. Their trustee started with a simple question: How robust is the investment portfolio to climate-related risks?

To answer this, the internal executive team worked with their strategic investment advisor to assess, at a broad level, the impact on each of the asset classes held in their schemes' portfolios under two of the four climate change scenarios constructed by the Inter-governmental Panel on Climate Change - known technically as Representative Concentration Pathways 2.6 and 6.0 but re-labelled 'Globally Co-ordinated Action (GCA)' (a below 2°C scenario) and 'Lowest Common Denominator (LCD)' (probably above 2°C but below 4°C) respectively.

The advisor applied numerical stresses to each asset class (and liabilities for a fully-integrated analysis). However, to reduce reliance on numerical assumptions and to create a more compelling visual, each asset class was then mapped to one

of three risk groups (red, amber and green in order of decreasing severity) that revealed three general principles:

i. developed nations (including the UK Government) should be capable of repaying sovereign debt in all but the most extreme climate scenarios, over the time horizon considered. For emerging market sovereign debt, the picture is more nuanced.

ii. The higher the asset is in a company's capital structure, the lower the risk of permanent loss of capital arising from climate change. So broadly, equities are riskier than corporate bonds.

iii. The pace and impact of climate change is uncertain, therefore lending for longer periods is riskier than lending for shorter periods.

iv. Illiquid assets (e.g. property) are riskier because of the inability to sell quickly (if at all) in the event that the asset is impaired by climate change outcomes.

Asset Class	Current SAA	Risk Assessment	
		GCA	LCD
Liability hedging			
LDI	35%		
Cash	2.5%		
Secure Income			
Highly liquid credit	2.5%		
'Buy & maintain' Bonds	5.5%		
Global corporate bonds	8%		
Collateralised loans	4%		
Other contractual cash flows	2.5%		
Alternative Credit			
Emerging market debt	4%		
Liquid credit opportunities	12%		
Illiquid credit opportunities	4%		
Return Seeking			
Global equities	5%		
Private equity	2.5%		
Hedge funds	7.5%		
Real estate & infrastructure (non-core)	5%		
	100%		

Key : = no material risk, = moderate risk, = significant risk

The LBG trustee was able to draw the following conclusions from this work in relation to its defined benefit schemes

1. Climate change is a risk that could impair the trustee's ability to meet the schemes' funding objectives

2. The asset portfolio is reasonably robust to a 2ºC warming scenario, but more exposed to higher warming scenarios.

3. The asset classes most at risk of climate change are those that the schemes are likely to divest from in the medium term as part of their de-risking 'journey'.

4. Further (bottom-up) analysis should focus on the bond assets as these will form the vast majority of the schemes' assets over the period in which climate change plays out.

For the defined contribution scheme, whilst the above risk assessment holds, a different strategy is required to manage climate risk. This is because defined contribution members are typically younger, with longer investment time horizons (running deeper into the period over which climate change is expected to play out) and members' pots tend to be significantly invested in equities rather than bonds.

Appendix A – Case Study

This case study has been provided by The Prince's Accounting for Sustainability Project (A4S) and the pension scheme in question, who is a member of A4S's Asset Owners Network.

BBC PENSION TRUST: OUR APPROACH TO SCENARIO ANALYSIS

The BBC Pension Trust is a defined benefit pension scheme with over 47,000 members and assets under management of £17.3 billion.

WHAT

Scenario analysis was a critical first step in addressing the impact of climate change on our investment strategy, and it has informed our approach to other areas such as governance and risk management. We started by taking part in a 2015 Mercer study, which modelled the impact on asset returns across all asset classes for three warming scenarios: 2°C, 3°C and 4°C. Mercer updated and expanded the analysis in 2019, incorporating stress testing of transition risks to examine what could happen if the transition happened sooner than expected.

Taking part in these studies helped develop our understanding of climate scenario analysis and how to translate this information back into our investment strategies. So in 2019 we introduced climate scenario analysis into our existing annual scenario analysis, which we outsource to our investment consultant. As well as looking at asset returns, we model the impacts on scheme liabilities and our funding position. In future years, we plan to disclose the results in our annual report.

Having a scenario analysis at the beginning of our TCFD journey has proven to be a valuable investment. The process has given us a strong business case to enhance our overall governance processes and approach, which has in turn strengthened our climate-related risk management. We have gained a good understanding of our exposure to climate risks and a strong base on which to develop other aspects of our TCFD reporting.

HOW

Getting the right expertise: As we have a small in-house team, we commission our investment consultant to conduct our annual scenario analysis, which now includes climate scenarios. We then review the quantitative data and analysis we receive, asking questions when we see surprising results. Our investment consultant uses two climate scenarios: a below 2°C scenario and a 'business as usual' scenario above 2°C. These are based on a combination of pathways used by the Intergovernmental Panel on Climate Change (IPCC). Getting independent, expert input has allowed us to focus our resources on using that input to improve our policies and processes, and it adds credibility to our reports.

Reporting to the trustees: Our investment committee commissions the scenario analysis report each year. Our investment consultant then prepares a tailored report that they present to the committee for review and discussion. Following this, the investment committee reports to the trustee board, taking salient points from the scenario analysis report and adding them into an annual review paper on responsible investment. The trustee board is responsible for authorizing our responsible investment policy. To help trustees review the scenario analysis, we have training sessions for the wider trustee board, supported by our

investment consultants who come in to present their reports.

Understanding our climate-related risk: It's not only the data that comes out of scenario analysis that is useful. For us, much of the value comes from the discussions with trustees, consultants and asset managers that have been sparked by the annual scenario analysis process and its results. Our work on scenario analysis has enabled us both to embed climate-related risk management into our work and to dive deeper into our asset managers' policies and processes on climate-related risk.

Making changes: Following recommendations from scenario analysis reports, we have updated our risk register, our investment beliefs and our responsible investment policy. Embedding climate change considerations into our ongoing governance and risk management processes means that climate change considerations will always inform our work.

Going through the scenario analysis process has also reinforced our commitment to collaborative climate initiatives such as the Institutional Investors Group on Climate Change (IIGCC) and Climate Action 100+.

NEXT STEPS

We already publish TCFD disclosures within our annual report. Now we're looking at how we can develop this further in our 2021 report, such as including information a climate scenarios and how we do our modelling.

Scenario analysis is now part of our annual governance process and included in annual business planning for our investment committee. So we will continue to renew our scenario analysis periodically, and use this to inform discussions about our responsible investment priorities.

TOP TIPS

GET STARTED

We found it helpful simply to get started on what we could and go from there. Beginning TCFD work with scenario analysis can also help you to improve your governance structures and develop your thinking about climate-related risk, which will pay off later.

BRING IN EXTERNAL ADVISERS

If you don't know how to start, ask the people that advise you. A lot of consultants work in this area and can offer support with analysis and reporting. Think carefully about their advice and ask questions about anything you don't understand.

DON'T OVERCOMPLICATE IT

Quantitative analysis is helpful, but this is a complex area and the numbers are imprecise. So don't get tied up in an overly complex analysis. Be mindful of the assumptions you've made, and treat the numbers as a tool to guide your thinking about managing climate risk for your portfolios.

TALK TO YOUR ASSET MANAGERS

Scenario analysis also offers a useful framework and evidence for talking to your asset managers about climate change. It can empower you to exercise more oversight over asset managers' work and the extent to which they operate in line with the Principles for Responsible Investment (PRI).

Appendix B – Further Reading

- IFoA (2020) – Climate Scenario Analysis for Pension Schemes: A UK Case Study
- IFoA (2020) – Climate Scenario Analysis for Pension Schemes: An illustration of potential long-term economic & financial market impacts
- Carbon Tracker (2019) – 2 degrees of separation: Transition risk for oil & gas in a low carbon world
- NGFS (2020) – Guide to climate scenario analysis for central banks and supervisors
- CFRF (2020) – Climate Financial Risk Forum Guide
- IIGCC – Understanding Physical Climate Risks and Opportunities: A Guide for Investors

HM Government

Aligning your Pension Scheme with the TCFD Recommendations

Part IV - Setting metrics and targets to measure and manage climate related risks

January 2021

The Pensions Climate Risk Industry Group

Pensions Climate Risk Industry Group

Aligning your pension scheme with the TCFD recommendations

Part IV - Setting metrics and targets to measure and manage climate-related risk exposure

January 2021

The Pension Climate Risk Industry Group

Contents

What this section will cover

- An introduction to metrics and their role in aligning with TCFD
- Minimum legal requirements Trustees must meet when adopting metrics and targets
- The availability of data
- Things to consider when selecting metrics and targets
- Outcome Metrics and Process Metrics.
- A selection of core and additional metrics for trustees to use (Appendix A)
- Examples of targets trustees could set

Metrics and Targets

Key considerations

- Metrics have a role to play in activities throughout the pension scheme's investment decision-making process to measure, manage and disclose climate risk.
- Target-setting is a useful tool for trustee boards to track their efforts to reduce climate change risk exposure and maximise climate change investment opportunities. Targets should be embedded in governance processes, so that trustees measure their performance against them.
- Trustees should select both: (a) outcome metrics (measuring the climate change risks and impacts of their investments, such as greenhouse gas emissions); and (b) process metrics – those reflecting governance processes for managing exposure to climate change.
- The Government is consulting on draft Regulations which would require trustees of pension schemes in scope to calculate and report on certain climate-related metrics. This guidance sets out a number of recommended metrics for getting started, minimum legal requirements and (for leaders) additional reporting – across a variety of asset classes.
- All trustees should obtain data on portfolio carbon footprinting, exposure to carbon-related assets, and from their asset manager, information about the share of their portfolio in which climate change is actively considered, including through engagement and voting.

1 Introduction to metrics

1. The TCFD report included a recommendation that pension scheme trustees report publicly the metrics they use to govern their fund's climate change risk exposure. The Taskforce's report went into further detail about the kind of metrics asset owners should use in line with this recommendation, covering both the fund's contribution to

climate change, including through exposure to carbon-intensive industries, and activities trustees have undertaken to reduce this exposure.

2. In this chapter, the guidance lays out the rationale for disclosure and use of metrics, the current and future status of requirements to update and disclose relevant metrics and targets dependent on scheme size, and provides detail of the sorts of metrics all trustees should consider embedding within their risk governance processes.

2 Role of metrics and targets – measure, manage and disclose

3. Metrics and targets have a role to play in activities throughout the pension scheme's investment decision-making process, from setting investment beliefs to choosing an asset manager that aligns with these; and from measuring exposure to climate change risks and opportunities, through to setting targets to reduce or increase certain types of exposure and monitoring progress against these targeted outcomes.
4. It is important that the metrics incorporated by the trustees are tailored according to their relevance to the scheme. Calculating and reporting metrics and targets should not be seen as focused solely on disclosing a number to members. It should also be used to measure and manage climate change risk exposure and determine, monitor and update investment strategies accordingly.
5. Trustees can use the information obtained through calculating metrics in a number of ways to inform their investment decision-making:
    - trustees should feed metrics data into their investment strategy and risk management processes where financially material.
    - trustees may also engage with their asset manager(s) and investee companies to focus efforts on the highest greenhouse gas (GHG) emitting firms or the most carbon-intense funds within the portfolio.
    - Investor engagement may directly lead to a company changing its behaviour and improve transition alignment in the interests of investors.

3 Minimum legal requirements

6. Trustees have fiduciary and statutory duties to consider and report on how they take into account the financially material risks associated with climate change (see Part I of this guidance).
7. Subject to consultation and Parliamentary approval, regulations will come into force on 1 October 2021 requiring trustees of schemes in scope of the measures to undertake the following activities.

Metrics

Trustees would be required to select:

- a minimum of two emissions-based metrics, one of which must be an absolute measure of emissions and one which must be an intensity-based measure of emissions

- a minimum of one other metric to assess the climate-related risks and opportunities which are relevant to the scheme's assets.

Trustees would be required on an annual basis and as far as they are able to:

- obtain the scope 1, scope 2 and scope 3 greenhouse gas emissions of the scheme's assets;
- obtain the data required to calculate their other selected metric or metrics
- use the data obtained to calculate their selected emissions-based and other metrics (see Appendix A); and
- use the metrics they have calculated to identify and assess the climate-related risks and opportunities which are relevant to the scheme.

Targets

Trustees would be required to:

- set a minimum of one target for the scheme in relation to at least one of the metrics which they have selected to calculate; and
- on an annual basis and as far as they are able, measure the performance of the scheme against the target, or targets, which they have set and determine whether to retain or replace the target(s) having taken into account the scheme's performance.

4 Expectation by scheme size

8. Regardless of differences in legal requirements, schemes of all sizes carrying out TCFD-aligned reporting should set metrics whatever the nature of benefits offered by a scheme or its time horizons. However, the number and range of metrics they select and the comprehensiveness of their reporting will necessarily vary by scheme size.
9. All schemes should obtain data either from their asset managers or from an independent third party source on exposure to carbon-related assets, carbon foot-printing and engagement. They should analyse that data, and use it to inform decision-making, as well as aggregating the data to an asset class-, fund- or portfolio-level and report it. It is recognised that data needs to come not just from the asset manager but from listed companies, real-asset holders and national governments, sometimes via specialist data providers. In the absence of such data being forthcoming trustees can request that service providers analyse their funds using independent source data, or market average techniques and assumption-based modelling.
10. For schemes which carry out their own engagement and/or voting, schemes should set metrics to assess and report on the extent and effectiveness of those activities. Larger schemes may wish to carry out some of the other activities listed under additional metrics, in the annex, to demonstrate leadership.

5 Availability of Data

11. The lack of available data is a commonly reported pitfall when schemes seek to calculate the TCFD's recommended metrics. Few, if any, trustees will be able to obtain full underlying data to inform the calculation of metrics or scenario analysis across their entire portfolio in the first instance. Where trustees are able to obtain data but only at a cost they believe to be disproportionately high or only in a format that will require significant further work before it is usable, they may make the decision to treat this data as unobtainable.

12. Pension schemes are internationally diversified, and some jurisdictions will have fewer disclosure requirements for the foreseeable future. However, the number of firms voluntarily committing to TCFD reporting is increasing[1] and more and better data is becoming available.

13. The statutory requirement for trustees of the largest schemes to comply 'as far as they are able' will enable them to produce outputs from scenario analysis and calculations of metrics and targets for only part of the portfolio or using estimation or incomplete data sets. This will still be decision-useful information for trustees. The urgency of climate change means that the trustees cannot wait until it has 'perfect' data before it starts putting it to use.

14. Where gaps in data do exist it should be regarded as preferable for trustees to use modelling or estimation to fill them, rather than to leave them unaddressed. Beginning with estimated or proxy data can help identify carbon-intensive hotspots in lending and investment portfolios, and serves as a benchmark for asset-specific data points as and when they become available.

15. In circumstances where the company or asset manager does not report energy use and emissions data for its operations or a particular fund, trustees could use third-party data providers. Trustees may also find this approach generally preferable to ensure consistency of data procurement. Trustees may also utilise proxy data where direct measurement is not possible.

16. For example, where you cannot find data for a specific asset class in which you are invested it may be possible to acquire sector averages and make estimations based on that.

17. Where incomplete data-sets exist for quantitative metrics, additional metrics which do not rely on quantitative data can be used to supplement them when assessing risk. Examples of such metrics are found in the Appendix A.

18. Trustees may also choose to only calculate metrics and set targets for the sections of their portfolio for which reliable data can be found and it may be proportionate to measure at a fund level rather than at an individual company level. Trustees can request that service providers analyse their funds using market average techniques and assumption-based modelling.

[1] The TCFD Status Report in 2020 reviewed reports for over 1,700 reporting companies - https://www.fsb.org/2020/10/2020-status-report-task-force-on-climate-related-financial-disclosures/and Report by Vigeo Eiris and Four Twenty Seven that presents findings from the disclosures of 2855 companies - https://vigeo-eiris.com/wp-content/uploads/2020/09/Measuring-TCFD-Disclosures.pdf

6 Selection of metrics

19. The metrics that trustees select to measure their exposure to climate change as a risk to their investments should be dependent on the characteristics of the scheme. But trustees should also look to link their metrics and targets to their investment beliefs and Statement of Investment Principles (SIP).

20. Trustees' choice of metrics can also include both outcome metrics (see 6.1) – those measuring the climate change risks and impacts of their investments, such as greenhouse gas emissions – and process metrics (see 6.2) – those reflecting governance processes for managing exposure to climate change.

21. Trustees should take into the account the availability and reliability of data when choosing metrics against which to report. Where there are assessments that trustees can make now, even with limited data, they should make them on the basis of the best data available. Re-evaluation of assessments initially made on the basis of comparatively less data may be a legitimate mitigating factor for re-framing of future targets. Moreover, this re-evaluation may be an important means by which to set more challenging targets which may formerly have been determined conservatively.

22. Where possible, schemes should request and collate data in line with the asset class schedules listed in the Appendix A and also at an overall fund level. There are two levels of metrics to be collected

    - **Core Reporting -** These are the metrics that it is reasonable for all schemes to report on.
    - **Additional Reporting -** These are the metrics that the largest schemes with greater governance capacity can consider to demonstrate leadership.

6.1 Outcome metrics – GHG emissions and others

23. The level of greenhouse gas (GHG) emissions is the key outcome metric by which pension schemes can measure their current transition risk, as well as being the most straightforward. There are difficulties in doing this with some asset classes such as sovereign debt but this is one of the most effective metrics – albeit backward-looking – through which trustees can assess their exposure to climate change.

24. A figure for total carbon emissions (in CO_2e) enables trustees to set a baseline for climate action and to understand the climate impact of their investments. Without measuring a clear baseline, trustees are left blind when assessing scenarios and defining their climate targets.

25. An intensity measure uses the Total Carbon Emissions figure and weights it to take account of the size of the investment made. Carbon footprint per million (£m) invested, the most typical measure, tells trustees how many tonnes of CO_2 emissions their investments fund. It can be applied to the company, sector or portfolio level and is useful for internal and external comparative purposes. Different intensity-based metrics are possible by attributing the GHG emissions of the issuer to the investor based on its ownership, either normalised for the size of the investment and/or the company market size.

26. Appendix A provides detail of the different measures trustees can use to assess the GHG emissions associated with their scheme

27. Some metrics, such as carbon footprint and weighted average carbon intensity (WACI), are better designed to determine a scheme's exposure to high carbon industries and therefore their exposure to transition to a lower-carbon global economy. These metrics adjust for portfolio value, making comparison much easier with other schemes between equity and fixed income, and between external managers within asset classes.

28. Intensity measure provides an overview of carbon risk across listed equities and corporate bonds that can be monitored year on year. By repeating this exercise, trustees can discover consistent patterns and key emitting companies, that have the potential to be reduced through targeted engagement. This approach promotes both consistency and comparability between pension schemes. It could also be helpful in providing the basis for additional identification of collaborative engagement opportunities, which may be relevant for the purposes of optimising and ultimately delivering on process metrics and targets.

29. However, given that these metrics use a scheme's proportional share of equity, an increase in share prices, all else equal, will result in a decrease in the scheme's emissions per £m invested.

30. Basic metrics, including absolute GHG emissions are more effective in communicating contribution to climate change but they are more difficult to translate into exposure to risk because they will generally fluctuate with changes in investment allocations, or the increase or decline of pension scheme assets.

31. Trustees will need to understand the distinction between an issuer's direct GHG emissions (Scope 1 and 2) and, where appropriate, indirect GHG emissions (Scope 3):

    - Scope 1 – All **direct emissions** from the activities of an organisation or under their control. Including fuel combustion on site such as gas boilers, fleet vehicles and air-conditioning leaks.
    - Scope 2 – **Indirect emissions** from electricity purchased and used by the organisation. Emissions are created during the production of the energy which is eventually used by the organisation.
    - Scope 3 – All **other indirect emissions** from activities of the organisation, occurring from sources that they do not directly control. These are sometimes the greatest share of a carbon footprint, covering emissions associated with business travel, procurement, production of inputs, use of outputs, waste and water. Whilst these are not *directly* within organisations' control, the emissions are highly sensitive to the decisions issuers make – for example, the outputs they produce, the supply chains they choose and where they opt to locate their business.

32. GHG emission calculations should be in line with the GHG Protocol[2] methodology to allow for aggregation and comparability across asset classes and funds and between schemes.

[2] https://ghgprotocol.org/

6.2 Process metrics – governance, stewardship and voting

33. Some outcome metrics enable a trustee or manager to measure their climate change risk and opportunity exposure; process metrics allow them to disclose how they are managing that exposure.

34. Appendix A lists out a number of metrics that can be disclosed as part of core and additional reporting. Broadly, process metrics rely much less on detailed disclosures from others in the investment chain. However, key process metrics such as voting and stewardship records do require information to be passed from asset managers to trustees in order that schemes can disclose their record to members.

35. Trustees can still report the extent to which they engage with issuers on climate change, the extent to which the trustee board takes account of climate change risk and the weight given to climate change in discussions and mandate-setting with their managers without disclosure of full voting and stewardship records to schemes. However, as with outcome metrics, where pension schemes align better with TCFD and ask meaningful questions of their service providers, it should drive improved reporting by asset managers and other intermediaries.

6.3 Selecting Metrics

36. Implementing metrics in line with the TCFD recommendations will help trustees meet forthcoming regulatory requirements around managing climate related risks.

37. Subject to consultation and approval by Parliament, regulations will come into force on 1 October 2021. Trustees can consider the following approaches to metrics based on whether or not they are in scope of the requirements. These are simply guideline examples and where it is proportionate and reasonable to do so trustees should feel encouraged to use additional metrics, regardless of the category their scheme falls into.

Starting out (not in scope of proposed 2021 legal duties)	Basic: - Select one core process metric which does not require quantitative data Moderate: - Additionally, select one core outcome metric. **Tip:** Focus on an absolute emission metric (e.g. Total Carbon Emissions in CO_2e) where the data may be more easily obtainable and usable. Lots of companies will disclose this information in their annual accounts which can be found on company websites. Where companies do not disclose this information try to obtain proxy data such as averages for the sector the company sits in. Proxy data for metrics which are generally more easily obtainable are also likely to be derived from a more statistically robust base.
Good Practice (in scope	- Select two (core outcome) emissions-based metrics, one of which must be an absolute measure of emissions (e.g. Total Carbon Emissions in CO_2e)

of proposed 2021 legal duties)	and one which must be an intensity based measure of emissions (e.g. Carbon Footprint) and obtain emissions data as far as trustees are able. - Additionally, select one (core outcome or core process) other metric (e.g. implied temperature rise).
Best Practice (in scope of proposed 2021 legal duties)	- Select two (core outcome) emissions-based metrics, one of which must be an absolute measure of emissions (e.g. Total Carbon Emissions) and one which must be an intensity based measure of emissions (e.g. Carbon footprint including Scope 3). - Obtain emissions data for less straightforward asset classes. Market leaders should look to increase the percentage of assets they get emissions data for. - Additionally, select one or more (core outcome) other metrics (e.g. a portfolio alignment metric, calculated using the Transition Pathway Initiative (TPI) tool[3]). - Select one or more core process based metrics. Larger schemes have much more capacity for engagement with issuers and so should consider measuring it.

7 Targets

38. In addition to establishing metrics, the TCFD report recommends that pension scheme trustees should set quantitative targets for managing climate-related financial risks and opportunities, including time frames for reaching these targets.

39. Target-setting is a useful tool for trustee boards to track their efforts to reduce climate change risk exposure and maximise climate change investment opportunities. Targets should be embedded in governance processes, so that trustees can hold managers and consultants to account for performance against their prescribed objectives. Quantification of commitments, including those made within the Statement of Investment Principles, as targets and key performance indicators (KPIs) not only consolidates a trustee board's management of climate-related risk but signals to members that schemes consider it to be of sufficient importance to commit in the form of accountable targets.

40. Many listed companies and several pension schemes are beginning to set targets and commitments in relation to climate change, including committing to Net Zero carbon emissions by 2050. Schemes should assess how relevant such commitments are to their funds and build in milestones in the nearer term, setting a clear plan as to how they hope to meet short and medium-term targets.

41. Several benchmarks are publicly available for many of the metrics introduced in this guidance. MSCI produce a free directory of Weighted Average Carbon Intensity for 20 indexes[4].

[3] https://www.transitionpathwayinitiative.org/
[4] MSCI Index Carbon Footprint Metrics - https://www.msci.com/index-carbon-footprint-metrics

7.2 Selecting Targets

Starting out (not in scope of proposed 2021 legal duties)	**Action** - Maintain a target for a core process metric. - Measure performance against the target(s) set. **Examples** - Percentage of votes against management at companies where there is failure to implement expected climate risk management measures (e.g. disclosure in line with TCFD, analysis of company resilience in a 2°temperature rise scenario). - Number of conversations/engagements between pension scheme and its asset managers analysing/discussing their voting on ESG matters
Good Practice (in scope of proposed 2021 legal duties)	**Action** - Maintain a target for a core outcome emissions-based metric, and another metric. - Measure performance against the target(s) set. **Examples** <u>Emissions-based</u> - A reduction in the carbon footprint of your investment portfolio <u>Other</u> - A X°C reduction in the implied temperature rise of your portfolio
Best Practice (in scope of proposed 2021 legal duties)	**Action** - Maintain targets for both core outcome emissions-based metrics, one of which must be an absolute measure of emissions (e.g. Total Carbon Emissions) and one which must be an intensity based measure of emissions (e.g. Carbon Footprint including Scope 3). - Maintain targets for one other core outcome metric (e.g. Implied temperature rise). - Maintain a target for one process based metric. - Measure performance against the target(s) set. **Examples** <u>Emissions-based</u> - A reduction in the carbon footprint of your portfolio or of a particular asset class / sector represented in their portfolio. - A X% reduction in the total greenhouse gas emissions attributable to your investment portfolio. <u>Other</u> - Outcome - a X°C reduction in the implied temperature rise of your portfolio. - Process – Engagement – a X% increase in the number of engagements with high carbon emitters (on-going, closed successful or closed with

	restrictions) on emission reduction targets aligned with the Paris Agreement. - A % increase in the proportion of engagements where positive progress is evidenced. - An improvement of the scheme's TPI score

Appendix A – List of Metrics

Core Metrics

The metrics that follow in this section are all recommended. There are also others which schemes can enlist to manage their climate-related financial risk. This section covers core metrics, which all trustees should seek to collect.

Listed equity and Corporate Debt

Data availability is greater here than in other asset classes such as private equity/debt or sovereign bonds, although it may still be limited in certain jurisdictions.

Outcome Metrics

Emissions intensity -based

<table>
<tr><th colspan="2">Carbon Footprint</th></tr>
<tr><td>Risk Type: Transition</td><td>Dependencies: Company Disclosure</td></tr>
<tr><td colspan="2">Carbon footprint, the most typical intensity measure, tells trustees how many tonnes of CO_2e emissions each million (£m) they invest causes.

$$\frac{\sum \frac{current\ value\ of\ investment}{(total\ issuer\ equity\ and\ debt)} \times\ issuer's\ scope\ 1,2\ \&\ 3\ GHG\ emissions}{current\ portfolio\ value\ (£M)}$$

For this metric, a trustee uses the Total Carbon Emissions normalized by the market value of the portfolio. Scope 1, 2 & 3 GHG emissions are allocated to investors based on an equity ownership approach. Under this approach, if an investor owns 5 percent of a company’s total market value, then the investor owns 5 percent of the company as well as 5 percent of the company’s GHG (or carbon) emissions. This formula allows trustees to understand the relative carbon intensity of their investments. It can be applied to the company, sector or portfolio level and is therefore useful for internal and external comparative purposes.</td></tr>
<tr><td>Advantages over other metrics

• Can be used to compare asset classes/portfolios to one another and/or to a benchmark
• Using the portfolio market value to normalise data is fairly intuitive to investors
• Metric allows for portfolio decomposition and attribution analysis</td><td>Potential Drawbacks

• Uses a scheme’s proportional share of equity and debt – an increase in share prices, all else equal, would result in a decrease in the scheme’s total emissions
• Metric does not take into account differences in the size of companies (e.g. does not consider the carbon efficiency of companies)</td></tr>
</table>

Weighted Average Carbon Intensity	
Risk Type: Transition	**Dependencies:** Company Disclosure

This is a key metric for measuring a fund's exposure to carbon intensive assets, expressed in tons of CO_2e per millions of pounds of revenue (or of value).

$$\sum_{n}^{i}\left(\frac{current\ value\ of\ investment_i}{current\ portfolio\ value} * \frac{issuer\ scope\ 1,2\ \&\ 3\ GHG\ emissions}{companrevenue,or\ total\ equity\ and\ debt_i}\right)$$

For this metric, a trustee needs the share of their fund invested in a given company (the weight) to multiply by the ratio of a company's emissions to its revenue, or a measure of company valuation. This is dependent on the issuer's disclosure of its GHG emissions.

Advantages over other metrics	Potential Drawbacks
• Measured relative to portfolio value; agnostic to ownership share of company. • Useful indicator of potential exposure to transition risks such as policy intervention and changing consumer behaviour.	• Metric will appear lower for those companies with high revenue driven by high prices • Sensitive to outliers (high or low) • More difficult to communicate than carbon footprint

Absolute emissions based

Total Carbon Emissions	
Risk Type: Transition	**Dependencies:** Company Disclosure

This metric measures the total absolute greenhouse gas emissions attributable to a portfolio. This can be used to give a sense of high/medium/low emissions and the associated exposure to a transition to an economy that produces net zero emissions in the future.

$$\sum_{n}^{i}\left(\frac{current\ value\ of\ investment_i}{Total\ issuer\ equity\ and\ debt\ _i} * issuer's\ Scope\ \ 1,2\ \&\ 3\ GHG\ emissions_i\right)$$

For this metric, a trustee needs the share of a given company that the pension scheme holds (the weight) to multiply by the company's emissions, effectively measuring the pension scheme's share of the company's emissions. This is dependent on the issuer's disclosure of its Scope 1, 2 and 3 GHG emissions.

Advantages over other metrics	Potential Drawbacks
• Simple to calculate • Easy to communicate to trustees and embers • Enables trustees to set a baseline for climate action and to understand the climate impact of their investments	• No normalisation between funds; • An increase in share prices, all else equal, would result in a decrease in the scheme's total emissions. • Difficult to translate into exposure to climate risk

Other

Portfolio Alignment Metrics, e.g. Implied Temperate Rise	
Risk Type: Transition	**Dependencies:** Company Disclosures / Analysis
Portfolio alignment metrics provide a forward-looking metric of carbon exposure that can be applied to a wide range of industries, companies, and asset classes. Such metrics estimate expected future emissions associated with a given investment portfolio, fund or investment strategy. Using an Implied Temperature Rise measure, estimates are translated into a projected increase in global average temperature (in °C) above preindustrial levels. ITR disclosure could help asset owners' beneficiaries make a forward-looking assessment of an asset owner portfolios' exposure to climate-related risks, their ability to capitalize on opportunities in the low-carbon transition over time, and overall investment strategy.	
Advantages over other metrics • Lack of widely available, high-quality historical climate-related information, creates need for forward-looking metrics • Addresses the increasing regulatory expectations - forward-looking understanding of climate-related risk • ITR is expressed in a single temperature unit or range that is comparable to widely understood potential climate outcomes	**Potential Drawbacks** • New and still evolving • Several technical and methodological challenges related to calculating ITR • No 'one size fits all solution' to alignment • Further work and input from preparers and users of disclosure will likely be needed to improve its quality and availability.

Climate Value at Risk (Climate VaR)	
Risk Type: Transition	**Dependencies:** Scenario analysis
Value-at-Risk metrics – which state the amount of a potential loss, at a certain level of probability over a relevant timeframe – have become standard for measuring financial risk. Climate VaR aims to assess potential financial sensitivity to climate-related risks and opportunities, with an output expressed as a numeric value or range in a selected currency. For example, a climate VaR of 20% by 2030 at a 90th percentile for a below 2 degrees scenario.	
Advantages over other metrics • Provides a forward looking measure of climate risk – important, given the limitations of historic metrics. • Can offer both a central assumption and a range for the effects of each temperature scenario. • Depending on the model, can evaluate the impact of climate-related opportunities as well as risks.	**Potential Drawbacks** • Uncertainty – in higher temperature rise scenarios, models might significantly under-estimate the negative impacts stemming from wider societal disruption. • Given the multiplicity of numbers – central and upper/lower outcomes for multiple climate scenarios – Climate VaR is less readily usable for target setting.

Exposure to Carbon-Related Assets	
Risk Type: Transition	**Dependencies:** N/A
This metric is the most basic calculation of value to trustees attempting to understand the scheme's exposure to transition risk. $$\frac{\sum\ current\ value\ of\ investments\ in\ carbon\ related\ companies}{current\ portfolio\ value} * 100$$ For this metric, a trustee needs to classify whether an investment should be considered 'carbon-related'; the Global Industry Classification Standard (GICS) is useful for this. The formula then allows trustees to understand how great a share of the fund these assets, the most vulnerable to a transition to a low-carbon economy, represent.	
Advantages over other metrics • Very simple to calculate • Very easy to communicate to trustee board and members • Does not require significant disclosure of data by the asset manager	**Potential Drawbacks** • Does not account for emissions, merely carbon dependency • Company activities may be a mix of carbon-related and non-carbon-related.

Proportion of fund invested in low carbon opportunities	
Risk Type: Transition	**Dependencies:** N/A
This metric enables trustees track the extent to which they are taking advantage of investment opportunities that emerge from an economic shift to a lower carbon industrial system. These includes low carbon/transition sectors such as renewable energy, and electric vehicles amongst others. In theory, this metric should grow over time as more and more listed companies lay out transition pathways that enable them to be classified as low-carbon related.	
Advantages over other metrics • Very easy to calculate • Not dependent on any other part of the investment chain	**Potential Drawbacks** • 'Low carbon opportunities' very vague • Without consensus on definition, open to 'greenwashing'

Process Metrics

Share of portfolio held at year end for which engagement or voting on climate-related risk and opportunities has been a substantive topic	
Risk Type: Transition	**Dependencies:** Asset Manager engagement
Engagement is a key route through which trustees can reduce their exposure to climate change risk. The investments they make give them not just voting rights but significant influence over the direction of a company. Asset managers should be using this influence to manage the scheme's exposure to climate change risk and opportunities, highlighting any concerns about the direction of a firm during engagement activity that they undertake. This metric allows a trustee to assess the extent to which an asset manager is prioritising engagement and/or voting on the topic of climate change.	
Advantages over other metrics • Does not require data • Useful for monitoring asset managers	**Potential Drawbacks** • Engagement measure is binary; no measure of influence on company direction • Can be subject to "greenwash".

Share of board meetings per year in which climate-related issues have been a substantive agenda item	
Risk Type: Transition	**Dependencies:** N/A
This is a very basic metric measuring the frequency of discussion of climate risk at trustee board meetings. Discussion at the pension scheme's highest level of governance is a strong signal that the scheme is actively considering climate risk.	
Advantages over other metrics • Very simple to calculate • Measures senior incorporation of climate risk within governance	**Potential Drawbacks** • 'Substantive' is subjective • Binary; does not measure depth of discussion or actions taken forward

Share of portfolio held at year end for which climate-related metrics of an acceptable quality have been obtained	
Risk Type: Transition and Physical	**Dependencies:** Company Disclosures
The share of the portfolio on which high quality climate-related disclosures are taking place is a good indication of the integration of climate risk and opportunity in trustee and asset manager decision-making. Without such disclosures, the ability of trustees to carry out governance and manage risks associated with climate change is significantly reduced, as is the ability to set out robust strategies.	
Advantages over other metrics • Very simple to understand • Focuses trustee attention on improving data quality as part of asset manager appointment and monitoring decisions.	**Potential Drawbacks** • Will not offer long-term time series – acceptable quality threshold likely to increase over time. • Will be sensitive to asset classes held. Disclosure from private and emerging markets very likely to be worse.

Fixed Income - Sovereign

This asset class comprises sovereign bonds. Sovereign bonds are generally difficult to analyse in terms of climate change risk as this relies on disclosure and management of risk exposure by national governments, something that asset managers cannot readily lobby for. The process for taking account of embodied emissions from imports and exports also adds complexity and uncertainty. Moreover, sovereign debt is not subject to investor engagement or voting and therefore the influence trustees can have over the management of climate risk is much reduced.

Outcome Metrics

Current forecast of GHG emissions	
Risk Type: Transition	**Dependencies:** N/A
This should be publicly available or easily commissioned. It can measure both the national government commitments (for example, to net-zero emissions) and the current projected trend rate of GHG emissions.	
Advantages over other metrics • Often publicly available research • Easy to calculate/commission	**Potential Drawbacks** • Any under/over performance against GHG targets potentially already priced in

Process Metrics

To what extent (high/medium/low) does the scheme's asset managers consider climate change in its analysis of sovereign bonds?	
Risk Type: Transition	**Dependencies:** Asset Manager Disclosure
Sovereign bond/debt analysis typically centres around credit rating evaluation and assessment of default risk. Asset Managers are able to assess the climate risk attached to government bonds. This might include: • Paris Agreement Alignment • Net-Zero Commitment • Decarbonisation progress • Power Generation transition	
Advantages over other metrics • Does not require quantitative data • Covers a large proportion of the typical fund	**Potential Drawbacks** • Difficult to assess the direct impact of a top-level commitment • 'Considering' climate change is not the same as analysing risk in depth

Real assets

Real assets, including real estate, infrastructure, energy, amongst others, is typically the most diverse share of a pension fund. In the absence of daily pricing of these assets, susceptibility to climate change risk is much more difficult to detect and poses a longer-term risk to the assets' value. However, there is often more data available to an institutional investor on – for example – a particular building project's environment impact/energy use than other asset classes.

Process Metrics

To what extent does the scheme's asset manager consider climate change in its analysis of real assets?	
Risk Type: Transition and Physical	**Dependencies:** Asset Manager Disclosure
Asset manager analysis of the viability of real asset investment is often based on the cost-benefit analysis of an investment including forensic assessment of the financials of a particular property investment or infrastructure opportunity. This metric enables trustees to understand the degree to which managers are taking into account both the physical risk, such as weather-related losses, sea level exposure, and the transition risk associated with the movement towards greener infrastructure as a default.	
Advantages over other metrics • Does not require quantitative data • Covers a large proportion of the typical fund	**Potential Drawbacks** • Difficult to assess the direct impact of a top-level commitment • 'Considering' climate change is not the same as analysing risk in depth

Additional Metrics

It is recognised that there exist significant and legitimate constraints on smaller pension schemes that prevent trustees from carrying out extensive, detailed or technical TCFD alignment reporting. That is why the preceding section features core metrics that have been carefully selected based on their appropriateness irrespective of scheme size and resources.

This section is targeted at those trustees and managers who want to go further. This could be large schemes who have capacity and capability and want to demonstrate leadership in a developing area. This could be smaller schemes who have particularly engaged trustees who want to be ahead of the curve on climate change and go beyond minimum reporting on risk and opportunity exposure.

Listed equity and Corporate Debt

Outcome Metrics

<table>
<tr><th colspan="2">Proportion of fund highly exposed to key indicators of physical risk</th></tr>
<tr><td>Risk Type: Physical</td><td>Dependencies: Company Disclosure</td></tr>
<tr><td colspan="2">Physical risk assessment and analysis are generally much more complex than transition risk metrics. Physical risk is much more uncertain in terms of timing and size of impact, and therefore relies on assumption-heavy modelling.

This metric would allow a trustee to track their exposure to the physical risks associated with climate change, including catastrophic weather events. Key indicators of such risk include sea level exposure, heatwave exposure, and drought risk. These are difficult to estimate and may only apply to a limited number of investments. Many listed companies make regular assessment of susceptibility to such risks but disclosure of such assessments may require engagement by the asset manager.</td></tr>
<tr><td>Advantages over other metrics</td><td>Potential Drawbacks</td></tr>
<tr><td>• Direct measure of those companies or assets held whose operations are most vulnerable
• Easy to communicate to trustee board and members</td><td>• Indicators of physical risk difficult to pin down and forecast
• Requires significant engagement</td></tr>
</table>

Process Metrics

Proportion of companies held with climate change risk mitigation plans	
Risk Type: Transition	**Dependencies:** Company Disclosure
This metric is considered advanced as it will require forensic assessment of all companies in which a pension scheme is invested. This will include whether companies are signed up to a transition pathway, have made commitments to net-zero emissions, have published a plan to reduce carbon-dependency and have committed to targets based on science. This will require a high degree of resource such that investment consultants or other service providers may be best placed to conduct this analysis.	
Advantages over other metrics • Simple to calculate and set targets • Easy to communicate to trustee board and members	**Potential Drawbacks** • Mitigation plans may be weak or insufficient. • May only consider scope 1 and 2 emissions

Fixed Income – Sovereign

Process Metrics

Proportion of sovereign bonds held issued by countries with Net Zero 2050 commitments	
Risk Type: Transition	**Dependencies:** Policy Detail
Basic process metrics that can be used to assess exposure to sovereign bond risk focus on the degree to which an asset manager conducts climate-related sovereign debt analysis. Advanced metrics in this area focus on the results of this analysis. The key signal national governments give to investors on this topic is their commitment to international agreements such as the Paris Agreement. Many other nations have made similar commitments. Stewardship and engagement are both difficult with this asset class, so exposure to countries with no such commitment often reflects carbon-dependency and therefore risk.	
Advantages over other metrics • Does not require complex data, simply adding up commitments • In the absence of any other tools or intelligence, gives the best estimate on an issuer's decarbonisation intention.	**Potential Drawbacks** • Difficult to assess the direct impact of a top-level commitment • 'Given ubiquity of such commitments not as useful as other metrics; little differentiation between schemes

Real assets

Outcome Metrics

Quantification of estimated financial loss in the event of extreme weather events	
Risk Type: Physical	**Dependencies:** Modelling Capability
Schemes with large holdings in infrastructure and real estate should be generally aware of their exposure to the physical risk of such assets being affected by severe climate change, such as flooding, hurricanes etc. This awareness could be considered a core metric. To go further, and quantify this assessment into an anticipated loss to the value of the fund caused by such events should be considered an advanced metric, based on dependency on modelling and data. $$\sum_{n}^{i}(chance\ of\ event * proportion\ of\ value\ lost * current\ value\ of\ investment_i)$$	
Advantages over other metrics • Direct impact on fund value measured • Allows for sensitivity analysis/varying assumptions	**Potential Drawbacks** • Requires complex meteorological and financial modelling

Process Metrics

Share of real assets covered by industry standard metrics on climate change/environmental impact	
Risk Type: Transition/Physical	**Dependencies:** Real Asset Holder Disclosure
There are many analytical tools available that will provide investors and their managers with information, including scores and metrics, on the environmental impact, including carbon footprint, of a given real estate project. Examples include the Global Real Estate Sustainability Benchmark. Trustees could work out the number or share of their real asset investments for which – for example – the GRESB data is available.	
Advantages over other metrics • Requires little work on the part of the trustee; simply collation • Very simple to understand	**Potential Drawbacks** • Typically requires payment for such data/information • More complex for s those with many real asset investments • Investments may be covered by industry standard metrics such as GRSB but may be relatively low scorers

Appendix B – Case Study

This case study has been provided by The Prince's Accounting for Sustainability Project (A4S) and the pension scheme in question, who is a member of A4S's Asset Owners Network.

HSBC BANK (UK) PENSION SCHEME: PUTTING IN PLACE TCFD METRICS

HSBC Bank (UK) Pension Scheme manages two schemes: a defined benefit scheme with 97,000 members and assets under management of £30.7 billion, and a defined contribution scheme with 90,000 members and assets under management of £4.9 billion.

WHAT

In order to understand better how exposed our portfolios are to carbon-intensive companies, we started using the weighted average carbon intensity (WACI) metric for our invested defined benefit (DB) and defined contribution (DC) assets. We have disclosed this metric and subsequent data in our TCFD statements since the 2017 financial year. As data has become more available over time, we have covered more assets in this calculation.

WACI is a backward-looking metric, so we wanted to balance it with a metric that is forward looking. So in 2020, we commissioned a second metric: the Transition Pathway Initiative's management quality score (TPI MQ). TPI MQ gives us insight into how well our investee companies are planning to manage both their greenhouse gas emissions and the risks and opportunities arising from transitioning to a low-carbon economy. We can then benchmark companies' carbon emissions against international targets and national pledges made as part of the Paris Agreement. We will include the TPI MQ metric in our TCFD statement for the 2021 financial year. Together, WACI and TPI MQ give us valuable insight into the climate risk of our investments.

HOW

Developing and calculating the metrics: Having researched the options, we then worked closely with external advisers to develop our metrics. We use regular investment consultant advisers for both our DB and DC assets, giving us a broad range of expert input. To give us confidence that we are using good quality, unbiased data, an independent data provider calculates the metrics.

Getting the metrics approved: Our metrics are part of an overarching climate risk management framework and we needed to get use of both metrics approved. We have a two-step process: our Assets and Liability Committee (ALCO) review and approve metrics, and endorse the overall framework which is sent to the full trustee board for final approval. To equip decision makers with the right information, we facilitated training for ALCO, and then later for the wider board, on our proposed metrics and why we had chosen these over the alternatives. Our investment consultant provided the training through videos, supplemented by written materials, to make the content accessible.

Using the metrics: We use our metrics as a risk management tool and a way to understand how asset managers are managing our portfolios. Metrics are currently imperfect and the data used to produce them are partial in coverage and constantly evolving, so we prefer to treat metrics as sources of information about risk – rather than as a standard that all assets must meet. This becomes a starting point for fruitful conversations with asset managers about climate-related risk management and climate risk policies. Through this engagement, we can push for changes that can better support the shift to a low-carbon economy and ensure our beneficiaries' investments remain resilient to this transition.

DISCLOSURE

Excerpt from our 2020 Taskforce on Climate-related Financial Disclosures (TCFD) Statement, showing the calculations made using the WACI metric for the main equity exposures of both the DB and DC assets of the scheme as at 31 December 2019.

DB	31/12/2019				31/12/2018				31/12/2017			
	FUM £m	Carbon Emissions Intensity (Weighted Average Carbon Intensity – Scope 1 & 2) – tonnes CO_2e/mUSD revenue			FUM £M	Carbon Emissions Intensity (Weighted Average Carbon Intensity – Scope 1 & 2) – tonnes CO_2e/mUSD revenue			FUM £M	Carbon Emissions Intensity (Weighted Average Carbon Intensity – Scope 1 & 2) – tonnes CO_2e/mUSD revenue		
		Fund	Bmk	Diff		Fund	Bmk	Diff		Fund	Bmk	Diff
Global Equities	**Fund no longer in portfolio**				1,969	209	297	-30%	2,245	185	296	-38%
Sterling Corporate Bonds - active	**1,477**	**291**	-	-	Not previously analysed				Not previously analysed			
BlackRock Investment Management (UK) Limited	841	287	-	-								
M&G Investments	636	297	-	-								
Global Bonds - active	**5,973**	**228**										
AXA Investment Managers	2,714	212	-	-								
BlackRock Investment Management (UK) Limited	1,399	199	180	11%								
Legal & General Investment Management	618	63	-	-								
Loomis, Sayles & Company	1,242	376	-	-								
Liquid Matching Assets (dollar)* - active	**1,182**	**543**										
Insight Investments	1,182	543	-	-								
Illiquid Matching Assets - active	**552**	**1,428**										

DC	31/12/2019				31/12/2018				31/12/2017			
	FUM £m	Carbon Emissions Intensity (Weighted Average Carbon Intensity – Scope 1 & 2) – tonnes CO_2e/mUSD revenue			FUM £M	Carbon Emissions Intensity (Weighted Average Carbon Intensity – Scope 1 & 2) – tonnes CO_2e/mUSD revenue			FUM £M	Carbon Emissions Intensity (Weighted Average Carbon Intensity – Scope 1 & 2) – tonnes CO_2e/mUSD revenue		
		Fund	Bmk	Diff		Fund	Bmk	Diff		Fund	Bmk	Diff
Global Equities - Passive	3,079	183	274	-33%	2,373	209	297	-30%	2,400	185	296	-38%
Global Equities - Active	401	112	172	-35%	383	154	214	-28%	433	301	489	-38%
Emerging Market Equities - Active	154	165	300	-45%	74	150	392	-62%	77	207	437	-53%
UK Equities - Active	89	68	123	-45%	72	175	138	+26%	83	194	152	+28%
Sustainable & Responsible Equities - Active	33	73	169	-57%	24	292	189	55%	27	233	544	-57%
Shariah Law Equities - Passive	43	72	222	-68%	24	72	72	0%	20	84	84	0%
UK Equities - Passive	24	121	123	-1%	17	138	138	0%	18	152	152	0%
North American Equities - Passive	22	175	175	0%	11	180	180	0%	Not previously analysed			
Asia (ex Japan) Equities - Passive	6	243	243	0%	3	238	238	0%				
Europe (ex UK) Equity - Passive	5	177	181	-2%	3	171	171	0%				
Japan Equities - Passive	3	104	104	0%	2	141	141	0%				

This analysis is our starting point, and we gain greater insight into the carbon implications and risks as we analyse our funds further. For example, the Sustainability & Responsible Equities – Active Fund has shown a significant degree of variability in the calculated WACI figures year on year. There are many possible reasons behind the variability in figures which may include, but are not limited to, changes in underlying fund managers; changes in underlying investment positions; improvements in data coverage and accuracy; and/or allocations to transition leaders,

in which the current WACI numbers may initially be high but the expected future improvement pathway is better eg construction companies with the most ambitious carbon reduction .

NEXT STEPS

Over the next few years, we will keep up with research findings and industry practice on existing and emerging metrics by being active members of platforms such as the Cambridge Institute for Sustainability Leadership, the UN's Principles for Responsible Investment (PRI) and Climate Action 100+. It's inevitable that we will start to see new metrics being developed. Where these are more useful than our current metrics, or work well alongside them, we will change our practice and adapt our disclosures.

Ultimately, we aim to have a dashboard of metrics. No single number can give us a full picture of our climate risks, but a carefully selected combination of metrics can offer a much more rounded view.

At the moment, because we have only two metrics and companies are only beginning to analyse scope 3 emissions, we haven't set specific targets. As industry practice and data quality evolves, though, we hope to develop targets that we can integrate into decision making – with the goal of building portfolios aligned with the Paris Agreement.

TOP TIPS

TRAIN DECISION MAKERS

Training trustees helps them to be informed decision makers. Our training described the proposed metrics and their methodology. We also presented alternative metrics, so trustees could see the advantages and disadvantages of different options.

UNDERSTAND YOUR METRICS

Learn how your metrics can be used, what they can tell you and the data you need to calculate them. Be aware of their limitations, too. This will help you clarify how best to include the metrics in your work – and where you should be cautious.

PLAN YOUR DISCLOSURES

Start planning your disclosures early based on the data you need, incorporating enough time to ask and receive data from different stakeholders so you can build them into your TCFD reports.

KEEP METRICS UNDER REVIEW

This area is changing rapidly, with research organizations developing new metrics and companies generating better data. Build in regular reviews to make sure that you stay up to date.

USE EXTERNAL ADVISERS

Talk to a range of people – including advisers and fund managers – so you can get new ideas and different perspectives. The more diverse your advisory team, the better your outcomes.