

IIGCC

The Institutional Investors
Group on Climate Change

Addressing climate risks and opportunities in the investment process

A practical guide for trustees
and boards of asset owner
organisations.

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The Institutional Investors
Group on Climate Change

About the IIGCC

The Institutional Investors Group on Climate Change (IIGCC), is the pre-eminent European forum for investor collaboration on climate action and the voice of investors taking action for a prosperous, low carbon, future. It has over 160 mainly mainstream investors or asset manager members, across 11 countries with over €21 trillion assets under management.

IIGCC's mission is to mobilise capital for the low carbon future by amplifying the investor voice and collaborating with business, policymakers and investors to encourage public policies, investment practices and corporate behaviours that will address the long-term risks and opportunities associated with climate change. Members consider it a fiduciary duty to ensure stranded asset risk or other losses from climate change are minimised and that opportunities presented by the transition to a low carbon economy – such as renewable energy, new technologies and energy efficiency – are maximised.

For more information visit [@iigccnews](#) and [www.iigcc.org](#).

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Foreword



FOREWORD 01



It is three years since the IIGCC published its ‘Climate change investment solutions guide for asset owners’¹. Since that time the Paris Agreement has been ratified by 181 parties,² and awareness amongst the business and investment communities about the importance of managing and mitigating climate change has continued to grow. This trend has been supported by a number of industry developments, including the Financial Stability Board’s (FSB) Task Force on Climate-related Financial Disclosure (TCFD) recommendations in June 2017 that have gained widespread support³.

As industry standards continue to evolve across the institutional investment community, it is clear that the management of climate-related financial impacts is seen as being consistent with - and indeed an enhancement to - trustees’ fiduciary duty to act in the best interest of beneficiaries⁴. National regulators across continental Europe and the UK, as well as many EU institutions, are taking an increasing interest in the financial industry addressing climate-related risks. The European Commission for instance, recently published the Sustainable Finance Action Plan, a pioneering statement of policy direction which is aiming to align Europe’s financial system with the goals of the Paris Agreement⁵.

It is our belief that sharing and exchanging expertise and experience across the investment community will help to enable the industry to further evolve investment processes to align with the low-carbon transition process that is already unfolding. Our goal with this guide is to share some practical tips and examples of good practice such that trustees of asset owner organisations are better equipped to adapt their investment processes not only to underpin more resilient investment portfolios, but to also steer capital in support of the attainment of the goals of the Paris Agreement.

Russell Picot Chair of the IIGCC Investor Practices Programme and Chair of the HSBC Pension Fund

Overview



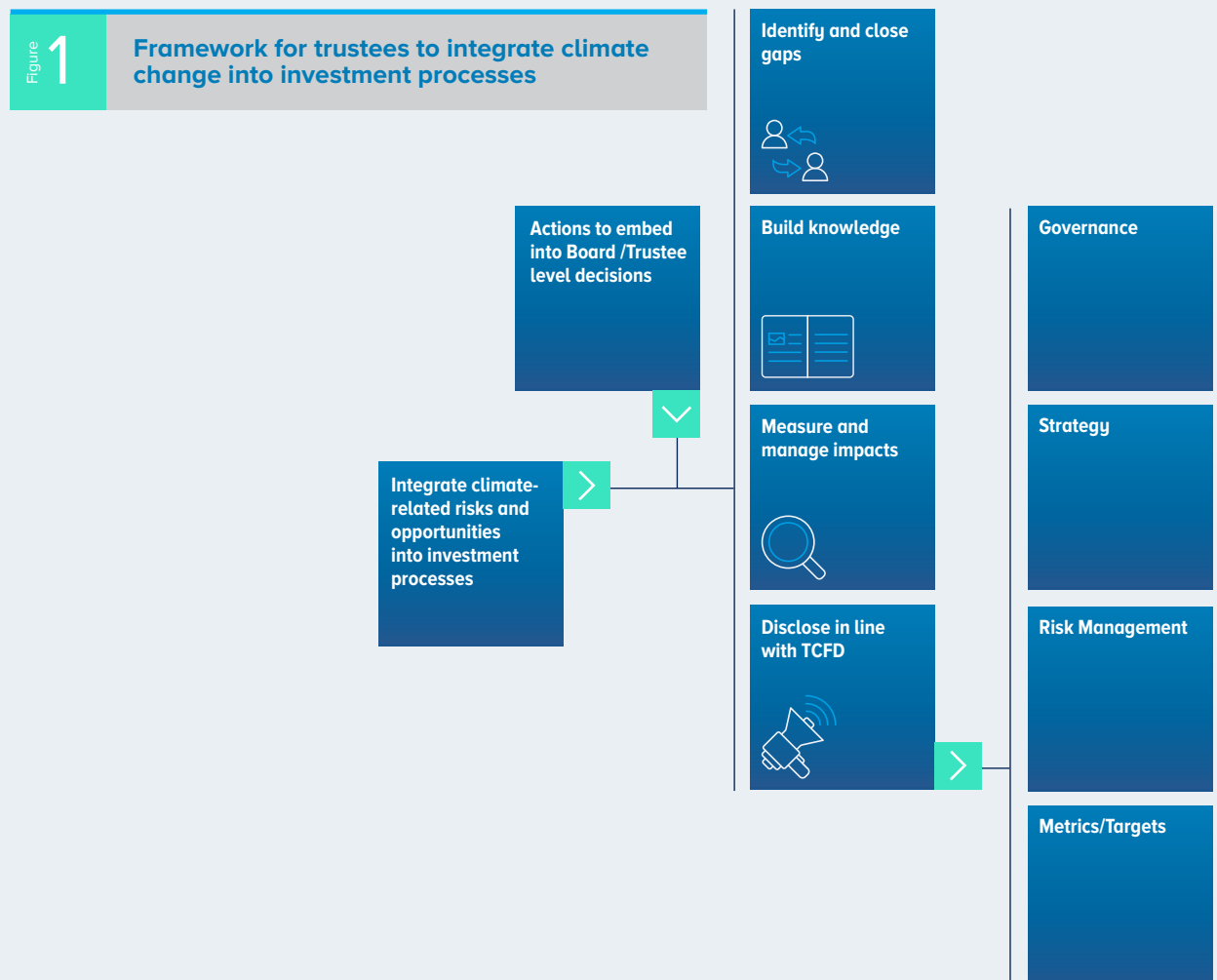
OVERVIEW

02

Climate change is one of the largest systemic risks that we face today, with governments, international regulators, business leaders, institutional investors and civil society all voicing concern and taking action to minimise its harmful effects⁶. The Paris Agreement’s goal of “limiting global warming to well below 2°C and pursuing efforts to limit the temperature increase to 1.5°C compared to the pre-industrial age” has been ratified by 181 governments⁷, resulting in a raft of new policy measures and regulations to help achieve that goal. At the same time, technology advancements are stimulating the development of new industries and opportunities in low-carbon solutions, including renewable energy, energy efficiency and energy storage⁸.

It is imperative that trustees and boards are participating in these efforts and fully understand the exposure of their investments to climate-related risks and opportunities, as well as the actions that they can take now to build greater resilience across portfolios to the changes that are already unfolding. This guide shares some practical tips, resources and examples of action, such that trustees and boards are better equipped to take on and respond to these developments with the urgency that is required.

By drawing on the experiences of IIGCC members, many of whom are at the forefront of the industry on this topic, this guide provides a series of questions/answers, examples and useful resources that are designed to support trustees and boards in their deliberations on incorporating climate-related risks and opportunities into board-level processes. These are presented as part of a framework to mobilise and underpin the discussions that trustees may need to have as part of integrating climate change into investment processes (Figure 1).



The guide is structured around the framework provided by the FSB's Taskforce on Climate-related Financial Disclosures (TCFD) as the emerging industry standard for climate-related financial disclosure across the four pillars of:

(1) **Governance**, (2) **Strategy** (3) **Risk Management** (4) **Metrics and Targets** (Figure 2).

Figure 2 Pillars of the TCFD recommendations

Core elements of recommended climate-related financial disclosures



Governance

The organisation's governance around climate-related risks and opportunities.

Strategy

The actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.

Risk Management

The processes used by the organization to identify, assess, and manage climate-related risks.

Metrics and Targets

The metric and targets used to assess and manage relevant climate-related risks and opportunities.

Source: TCFD Final Recommendations

The guide sets out a framework to help trustees and boards embed climate-related risks and opportunities across each of the four TCFD pillars in terms of the following actions:

Identify and close gaps 	Undertake a 'gap' analysis of the potential actions that trustees could take and identify steps to help close these gaps.
Build knowledge 	Develop a comprehensive understanding of climate-related risks and opportunities at the board level to help make better-informed decisions as part of oversight responsibilities.
Measure and manage impacts 	Utilise the tools and approaches that are available and being used across the industry to assess the potential climate-related financial risks and opportunities for investments.
Disclose in line with TCFD 	Report key climate-related actions and outcomes in line with the TCFD recommendations as the emerging industry standard for disclosure to end beneficiaries and wider stakeholders.

Governance



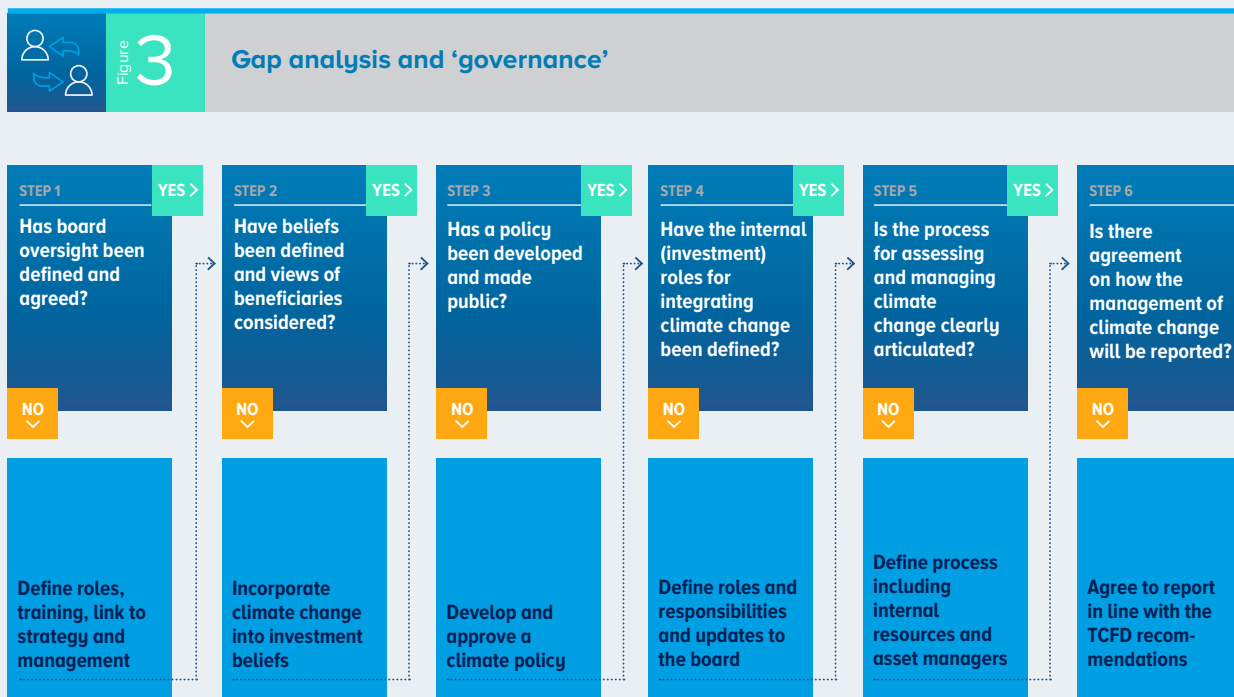
GOVERNANCE

03

The final report of the FSB TCFD recommendations highlighted the importance of putting good governance structures in place to ensure that there is effective oversight of climate-related risks and opportunities⁹. The specific TCFD recommendations in relation to governance of climate-related impacts (for companies as well as asset owners and asset managers) include:

- a) Describe the board's oversight of climate-related risks and opportunities
- b) Describe management's role in assessing and managing climate-related risks and opportunities

A simplified gap analysis that trustees and boards might wish to undertake to assess the governance arrangements around managing climate-related risks and opportunities is provided in Figure 3.



Source: Adapted from the FSB TCFD Recommendations of the Task Force on Climate-related Financial Disclosures



Practical governance issues to consider:

Why does climate change need to be on the board agenda?

In order to ensure that climate change is integrated into the over arching investment strategy it will be necessary to put this on the formal agenda of the executive or trustee board and/or any relevant sub-committees that are involved in setting investment beliefs and policies.

Who can help the board with its deliberations on climate change?

- Consult other pensions funds in your networks
- Consider bringing in a facilitator to help frame the discussion on investment beliefs
- Request in-house teams review how climate change might impact investments
- Ask investment consultants for support in reviewing investment strategies and selecting asset managers
- Request asset managers explain how climate change is integrated into their investment decision-making process

Should the board include climate change as part of a committee or sub-committee?

Some pension funds have found it helpful to set up a sub-committee with a small number of trustees so that sufficient time can be given to explore climate change and make well-considered recommendations to the investment committee (IC) and the board. Others have delegated the issue to the IC or the risk committees for oversight, reporting to the board on progress and outcomes. The existing governance arrangements, level of expertise and available resources will vary across asset owner organisations and will in large part determine the appropriate oversight responsibility. The important point to note is that, regardless of the structure, oversight responsibility needs to be clearly defined and agreed at the board level.

How can the board overcome blockages in its consideration of climate change?

If there are blockages in the decision-making process of the board due, in part, to a lack of understanding of the issue and insufficient time allocated on board agendas, it will be helpful to set up a board meeting with sufficient time dedicated to climate change issues. This could take the form of an away day or an investment strategy session. This would provide the board and trustees with the opportunity to look at the issue in depth, and would provide time to include more detailed sessions on:

- The latest evidence on the investment impacts of climate change and case studies of best practice actions across the investment community
- Views from investment consultants, asset managers and other service providers on how climate-related risks and opportunities impact on investment portfolios
- The appropriate actions and response to help manage the climate-related risks and capture the opportunities



Build knowledge

What is the link between climate change and fiduciary duty?

Action: Develop an understanding of the link between climate change and fiduciary duty, including the emerging risk of litigation for inaction.

Fiduciary duty bestows a requirement upon all trustees to consider current and evolving risks when making investment decisions. Insofar as climate change carries material financial risks, trustees will need to consider it as a core part of fiduciary duty. For example, the UN-backed Principles for Responsible Investment (PRI) published a series of reports on the changing landscape of fiduciary duty. In those reports, it specifically noted the need for climate change to be considered as part of the investment process and identified the potential for trustees to come under greater scrutiny in terms of their capacity, competency and professionalism in this regard (Figure 4). This view is increasingly being reflected in potential litigation actions (see Highlight), as well as the way financial regulations and interpretation of fiduciary duty is evolving.

Figure 4

Climate change and fiduciary duty

Example: climate change

Fiduciaries need to be able to show that they have identified and assessed the risks (to companies and to their portfolios). In the case of climate change, for example, this would require them to:

- Show that they have recognised relevant risks (even if they are sceptics on the issue of climate change)
- Analyse how climate change might affect investment returns over the short, medium and long term
- Explicitly manage the risks, and not assume that the risks are automatically managed by other risk management strategies
- Interrogate and challenge the individuals or organisations (e.g. investment managers, companies) to ensure that these risks are being effectively managed
- Establish processes that enable them to demonstrate the actions they have taken.

Source: <https://www.unpri.org/fiduciary-duty/the-changing-landscape-of-fiduciary-duty/248.article>

Highlight: Climate-related legal action

In 2016, two UK barristers presented a legal challenge which resulted in a new legal opinion on fiduciary duty. The opinion concluded that where climate risks carry material financial implications for fund performance, trustees must take those risks into account in investment decisions. Its authors stated that this is “beyond reasonable argument” and that failing to do this “would not be a proper exercise of [trustees’] powers.” Source: <https://www.clientearth.org/pensions-law-reform-will-sweep-climate-confusion-off-the-table-environmental-lawyers/>

In the UK, the trustees of 14 UK pension schemes have received letters warning of imminent legal action should they fail to consider the financial risks associated with climate change. The letters asked trustees to make a public statement outlining what steps they are taking to tackle the risks and warned that legal action by scheme members could soon follow. This comes after the Environmental Audit Committee proposed mandatory reporting after finding that four of the UK’s 25 largest funds do not acknowledge climate risks. Source: <https://www.documents.clientearth.org/library/download-category/climate/>

An Australian based superannuation fund, REST, is being sued by a member for failing to adequately disclose how it is managing climate-related risks as part of its investment process. This could force the industry to be more open about how it managed climate risk going forward. Source: <http://www.abc.net.au/news/2018-07-25/super-fund-rest-sued-for-not-doing-enough-on-climate-change/10029744>

How are regulators evolving their guidance on climate change and fiduciary duty?

Action: Build an understanding of the emerging trends in financial regulations and the wider interpretation of fiduciary duty as it relates to climate change and ESG issues.

Some of the developments that seek to clarify the current position on fiduciary duty as it relates to climate change and ESG risks more broadly include¹⁰:

- **The EU Institutions for Occupational Retirement Provision (IORPS II) Directive (approved in 2016).** The directive states that member states should require IORPs to explicitly disclose the relevance and materiality of ESG factors to a scheme's investments and how they are taken into account, including an assessment of new or emerging risks related to climate change, use of resources and the environment, social risks and risks related to the depreciation of assets due to regulatory change¹¹.
- **The EU Commission consultation on fiduciary duty and sustainable investment in 2017.** It is likely that this will result in the Commission bringing legislation that will seek to clarify and further articulate how investors set out their duties regarding sustainability and increased transparency for beneficiaries, including their strategy and climate related exposures¹².
- **Article 173 of the French Law on Energy Transition and Green Growth (which came into force in 2016).** It strengthened mandatory carbon disclosure requirements for listed companies and introduced carbon reporting for institutional investors, defined as asset owners and investment managers. The law requires that institutional investors disclose information on how ESG criteria are considered in their investment decisions, and how their policies align with the national strategy for energy and ecological transition.¹³
- **The UK Government's Department of Work and Pensions (DWP) update of regulations around fiduciary duty (made in 2018).** This confirmed changes to pension trustee duties and rules, to make explicit trustees' obligation to consider all material issues, "whether those are traditional, such as company performance, interest or exchange rates; or broader such as those resulting from ESG considerations including climate change"¹⁴. As a result of the changes, pension funds will have until October 2019 to update their main and – where applicable – default Statements of Investment Principles (SIP) to include:
 - How they take account of financially-material considerations, including (but not limited to) those arising from ESG considerations, including climate change
 - The stewardship of investments, including engagement with investee firms and the exercise of the voting rights associated with the investment

How are societal expectations and beneficiary preferences evolving?

Action: Develop an understanding and awareness of how societal expectations and beneficiary preferences are emerging in relation to climate change.

The World Economic Forum has ranked climate change and extreme weather events as the number one global risk for the past three years in a row¹⁵. Indeed, climate change is often identified as the most widely cited threat at the global level,¹⁶ with millennials in particular consistently identifying climate change as their biggest concern¹⁷.

The preferences of beneficiaries and/or stakeholders can add a further nuance and urgency to trustees' understanding of climate change on sensitive issues, such as the extent to which investment in fossil fuels is a moral or ethical concern for beneficiaries. Indeed, one of the recommendations of the EU High Level Expert Group (HLEG) on sustainable finance was the need for asset owners to take into consideration the preferences of clients, members and/or beneficiaries on ESG issues (including but not limited to climate change), as part of the investment decision making process¹⁸. Furthermore, trustees of charities and endowment funds also need to consider the consistency of their investment process and strategy with the fund's mission.



How can boards engage with beneficiaries and stakeholders on climate change?

Action: Engage with beneficiaries and stakeholders to gauge their views on climate change and agree to communicate the actions that the board is taking in line with the TCFD recommendations.

Trustees and boards can engage with their beneficiaries and/or stakeholders on climate change, to gauge their attitudes and preferences, in a number of ways, such as:

- Incorporating a survey with questions on climate change into regular communications, for example as part of improving member services and undertaking satisfaction surveys
- Engaging in focus group meetings with members
- Pro actively responding to (and engaging with) enquiries and correspondence from beneficiaries on climate change
- Including climate change risks and opportunities as part of reporting the fund's activities, in particular disclosure in accordance with the TCFD recommendations¹⁹

How can boards incorporate climate change into investment beliefs and policies?

Action: Incorporate climate change into investment beliefs and policies, explaining how climate change fits into the board's oversight and decision-making processes, including articulating roles and responsibilities and reporting in line with the TCFD recommendations.

Trustees and boards can approach this in a number of ways, with some explicitly referencing climate change as part of the core investment beliefs, with others incorporating their position on climate change as part of the responsible investment or ESG belief statement. Some asset owners are also aligning their investment strategies with the UN Sustainable Development Goals (SDGs)²⁰, with climate change being very relevant to the attainment of many of these goals.

1. What is our level of concern about the impact of climate change on our portfolio in terms of potentials risks and opportunities?

2. What climate change scenario do we currently consider to be the most likely, and what financial impact is this likely to have on the portfolio?

3. How will we adapt our actions and decision-making processes to reflect these beliefs and potential outcomes?

What are some examples of how asset owners are developing climate change beliefs and policies?

AP2. The Second AP Fund, Sweden: AP2 has a long-term investment strategy based on 12 Investment Beliefs which describe the Fund's view of how financial markets function and the opportunities and potential they present for generating a solid return on investment. One of the beliefs states: "by being a responsible owner and investor, values can be both protected and created". The Fund notes: "The starting point of our climate work is to lessen the financial risk and leverage the opportunities by contributing to the transition. AP2's climate ambition is to develop our portfolio in line with the two-degree target. This is achieved by integrating climate analysis into the investment process and by, based on the fund's mission, contributing to the transition into a two-degree society." [See link](#)

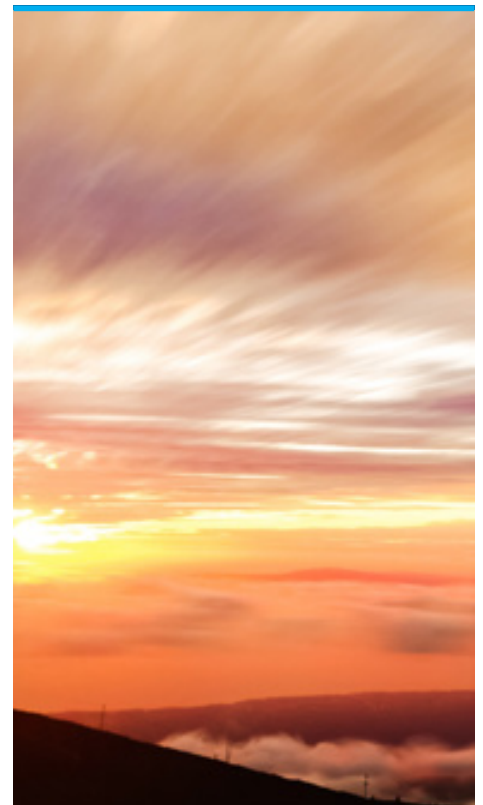
AP4, The Fourth Swedish National Pension Fund: The Fund has publicly issued various position statements, research papers and targets with respect to climate change via its website and through press statements. It shares its goals and outcomes on an annual basis via its website. Its policy includes specific reference to its beliefs and goals with respect to climate change, including increasing investments in low-carbon strategies to 100% of the global listed (passive) equity portfolio by 2020, and measuring and disclosing carbon footprint in listed equity holdings. [See link](#)

TPT Retirement Solutions, UK DB and DC Trust: The Trust has a board-approved climate change policy. It notes that: "Of the environmental issues that we consider, we believe that climate change presents the most material risk to the value of assets held in our portfolios and there is an increasing body of academic evidence to support this". When appointing asset managers, they will be assessed for their approach to "stewardship, climate change and ESG risks". [See link](#)

ERAFF, the French Public Sector Pension Fund: The Fund has a general position statement on climate change published on its website. It does not have a climate-specific policy, although climate change is mentioned as part of its board approved SRI charter that assigns major importance to the need to limit greenhouse gas emissions. Its policy and actions are available online. [See link](#)

Environment Agency Pension Fund, UK DB plan: A board-approved climate change policy document includes the Fund's beliefs, principles, goals, and intended actions and targets. The fund's policy notes: "We recognise that climate change is a material financial risk for the Fund, but it also presents opportunities, such as investing in clean technology". [See link](#)

Ilmarinen, Finnish based insurance and pension fund provider: The company has a climate change policy that has been approved by the ownership policy management team. The policy sets out the company's mission and how climate change relates to its active ownership responsibilities and how it can contribute to preventing climate change through its activities. [See link](#)



Further resources:

A number of additional guides have been written in relation to governance issues of climate change that might be useful resources for investors:

Climate Disclosure Standards Board - Directors' duties and liabilities around climate risk: the TCFD recommendations

PRI – Implementing the Task Force on Climate-related Financial Disclosures (TCFD) recommendations

PRI - Fiduciary Duty in the 21st Century

Sackers – Where next for ESG? An evolving approach for trustees

WWF Climate Guide to Asset Owners: Aligning investment portfolios with the Paris Agreement

DC Investment Forum - Navigating ESG: a Practical Guide

UK Sustainable Investment and Finance Association (UKSIF) - Understanding and Applying Fiduciary Duty

UKSIF - Climate risk - A checklist for pension scheme trustees

Pensions and Lifetime Savings Association (PLSA) - More Light, Less Heat: A Framework for Pension Fund Action on Climate Change



Strategy

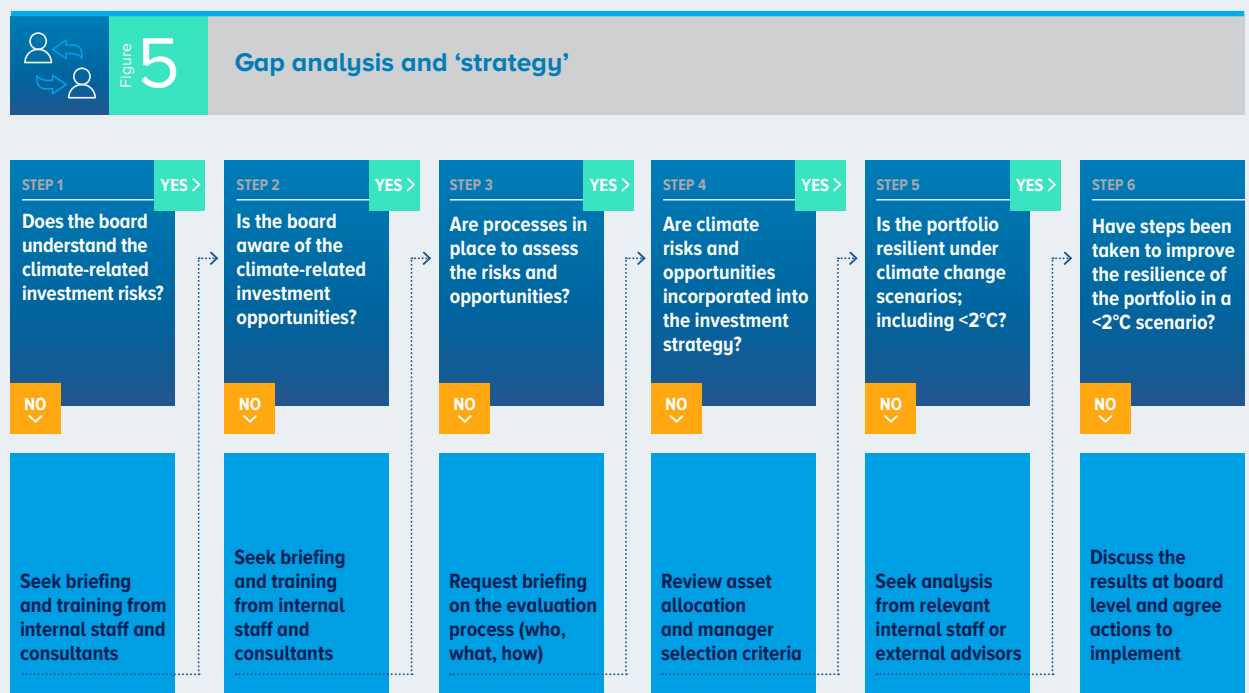
STRATEGY

04

The TCFD recommendations highlighted the importance of integrating climate-related impacts into an organisation's business, strategy and financial planning²¹, including:

- Identify risks and opportunities - describe the climate-related risks and opportunities over the short, medium and long term
- Impact on investment strategy - describe the impact of climate-related risks and opportunities on the investment strategy
- Resilience of investment strategy - describe the resilience of the investment strategy, taking into consideration different climate related scenarios, including a 2°C or lower scenario

A simplified gap analysis that trustees and boards might wish to undertake to support the incorporation of climate-related risks and opportunities into a fund's investment strategy is provided in Figure 5. This includes analysis of resilience to a less than 2°C outcome, reflecting the Paris Agreement's goal of "limiting global warming to well below 2°C and pursuing efforts to limit the temperature increase to 1.5°C compared to the pre-industrial age".



Source: Adapted from the FSB TCFD Recommendations of the Task Force on Climate-related Financial Disclosures



Build knowledge

Once trustees and boards have undertaken a gap analysis of their strategic response to managing climate-related risks and opportunities, the next step is to build the knowledge and processes to help close these gaps by taking appropriate action. The following discussion sets out some common questions and issues that arise as part of these deliberations.

Action: Build an understanding of the climate-related risks and opportunities that may impact on the portfolio and incorporate this knowledge into the investment strategy.

What are the main climate-related risks that boards need to be aware of?

There are various sources of information available for boards to consider in relation to their assessment of climate-related risks. A useful summary and starting point are the climate-related risks as set out in the TCFD final report (Figure 6).

Figure 6

Sources of climate-related risks

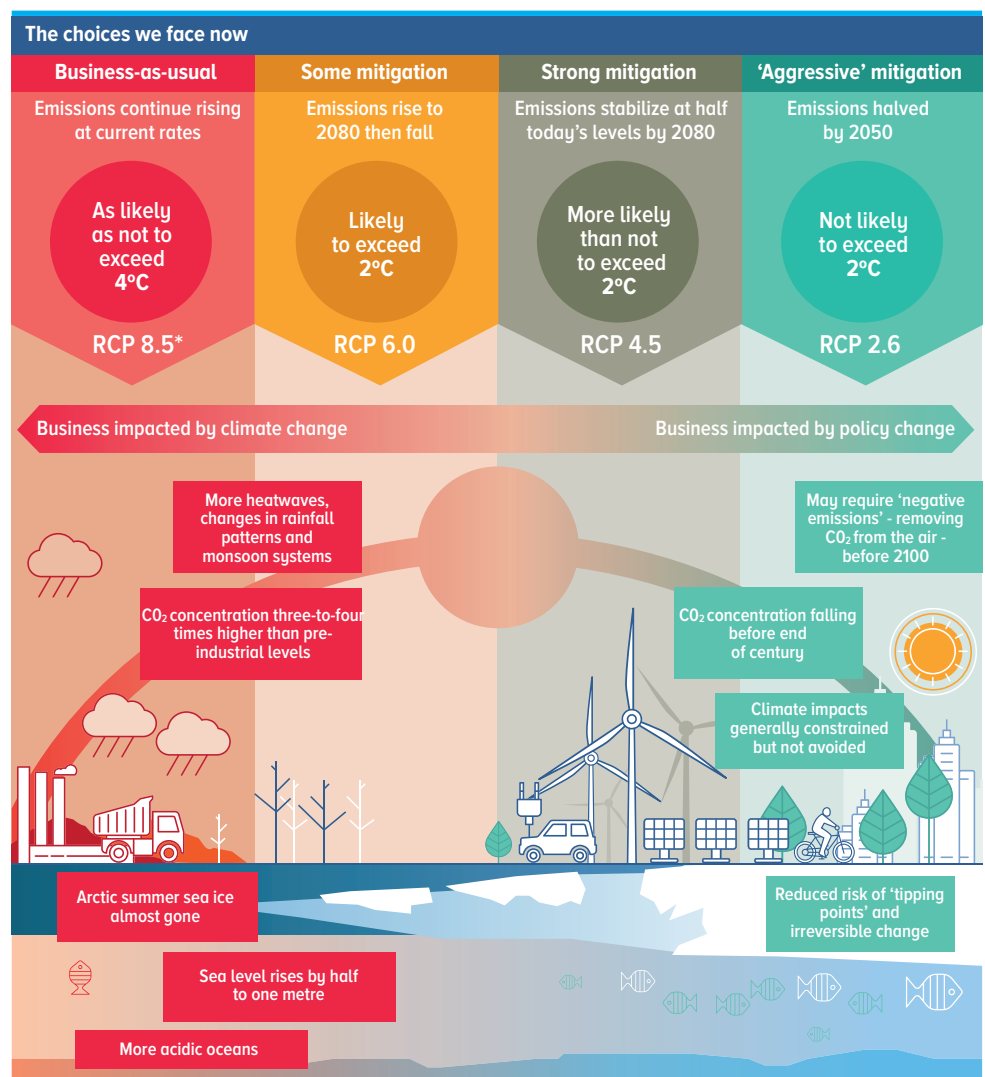
Transition Risks				Physical risks	
Policy and Legal	Technology	Market	Reputation	Acute	Chronic
Increased pricing of GHG emissions	Substitution of existing products and services with lower emissions options	Changing customer behaviour	Shifts in consumer preferences	Increased severity of extreme weather events such as cyclones and floods	Changes in precipitation patterns and extreme variability in weather patterns
Enhanced emissions-reporting obligations	Unsuccessful investment in new technologies	Uncertainty in market signals	Stigmatisation of sector		Rising mean temperatures
Mandates on and regulation of existing products and services	Costs to transition to lower emissions technology	Increased cost of raw materials	Increased stakeholder concern or negative stakeholder feedback		Rising sea levels
Exposure to litigation					



The precise magnitude and timing of these risks depends in part of the extent to which policy makers close the gap to attain the goals of the Paris Agreement, and the technology mix that evolves to support the ongoing shift to a low carbon economy (Figure 7). The biggest investment risk is a continued delay in action from policy makers, companies and investors - that will necessitate the need for an abrupt and more forceful response in the future. Trustees and boards therefore need to understand what their portfolio's exposure is to these risks across asset classes, and take action to mitigate them now. These deliberations need to be embedded into risk management processes, as Section 3 of this guide further explains.

Figure 7

Policy action and climate outcomes



Source: Climate Change: Action, Trends, and Implications for Business, Cambridge University Press, 2013, based on the Intergovernmental Panel on Climate Change, Fifth Assessment Report (AR5)

Figure 8
Source of climate-related opportunities

Resource Efficiency	Energy Source	Products & Services	Markets	Resilience
Use of more efficient modes of transport Use of more efficient production and distribution processes Use of recycling Move to more efficient buildings Reduced water usage and consumption	Use of lower-emission sources of energy Use of supportive policy incentives Use of new technologies Participation in carbon market Shift toward decentralised energy generation	Development and/or expansion of low emission goods and services Development of climate adaptation and insurance risk solutions Development of new products or services through R&D and innovation Ability to diversify business activities Shift in consumer preferences	Access to new markets Use of public-sector incentives Access to new assets and locations needing insurance coverage	Participation in renewable energy programs and adoption of energy efficiency measures Resource substitutes/diversification

Source: <https://www.fsb-tcfd.org/publications/final-recommendations-report/>

What type of asset owner are you?
Key questions for a defined benefit scheme in the consideration of climate change:

1. What is the sponsor's position on climate change? Have they considered climate change as a strategic issue and should this be reflected in the investment strategy of its pension scheme?
2. How is the sponsor potentially impacted by climate change risks/opportunities and should this be incorporated into assessments reviewing the strength of its covenant?
3. What proportion of assets might be materially impact by climate change and over what time period?

Defined benefit pension schemes managed for charities or faith based organisations may also wish to consider the following:

1. How should the organisation's mission and/or the underlying beliefs of its members influence its investment beliefs on climate change and ESG issues?
2. Should positive or negative screening across our investments be considered to ensure we are reflecting these views?

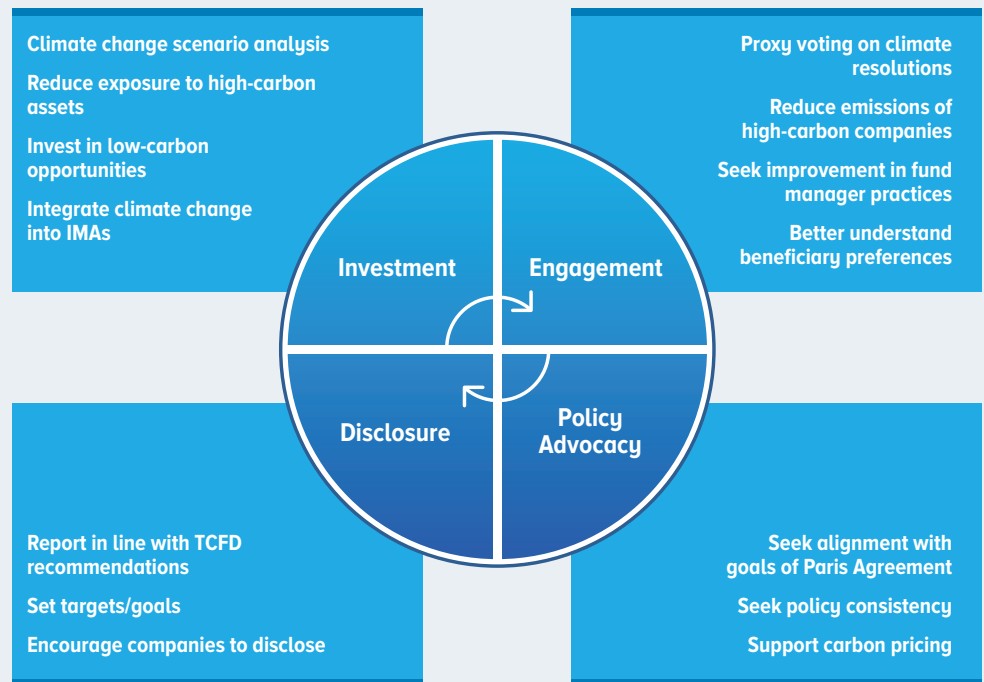
Key questions for a defined contribution scheme in the consideration of climate change:

1. Have climate change risks been addressed in the investment strategy for both the default fund and the self-select options available?
2. Should the organisation engage with underlying members to ensure that their views on climate change/ESG are considered?
3. Have the time horizons of climate change been considered, and how does this impact different cohorts of members?

What are the different ways that climate change can be reflected into an investment strategy?

Action: Build an understanding of the climate-related risks and opportunities that may impact on the portfolio and incorporate this knowledge into the investment strategy.

Typically, the type of actions that trustees and boards will need to discuss and consider as part of their overall investment strategy and approach to integrating climate change into investment processes include some, or all, of the following²²:

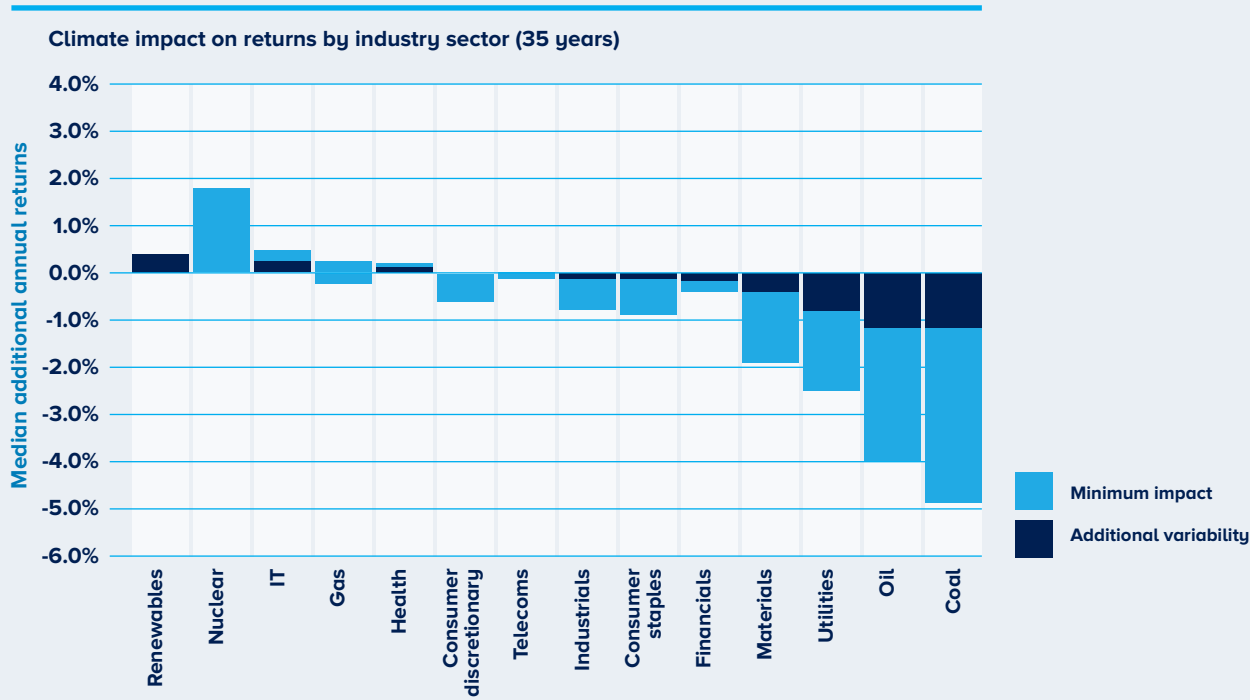


How does climate risk influence asset allocation?

Action: Build awareness of the potential implications of climate change for investment returns and portfolio resilience to understand how they might impact on different sector, asset class and regional exposures.

The impacts of climate change will depend on geography and asset class. For example, as climate change leads to increased rainfall, this can raise revenues from agriculture in some parts of the world, while simultaneously lowering the credit scores of cities in low-lying areas. There have been a few attempts to quantify the impacts with a view to informing asset allocation, but this remains a new and evolving area of research.

For example, a 2015 study from investment consultancy Mercer²³ has modelled a range of scenarios which reflect the success or failure of climate change ambitions. It finds that climate change action (or lack thereof) can have either a positive or negative effect on the returns of various asset classes. Under different climate scenarios, median annual returns range from +3.5 % (for renewables) to -4.9% (for coal). At a portfolio level, a climate action scenario is seen as most favourable for investors.



What are some practical steps that can be taken to evolve asset allocation processes?

There are some straightforward steps that trustees and boards can take today to evolve asset allocation processes that incorporate the consideration of climate change, including scenario analysis and utilising tools and resources that are already available²⁴.

Practical steps that trustees and boards can take to evolve asset allocation processes

- **Undertake scenario analysis** to examine the sensitivity of the portfolio to climate-related risks and opportunities, including a less than 2°C outcome
- **Identify areas** where the asset allocation ranges and portfolio structure might evolve in the future
- **Discuss and identify potential 'trigger points'** to consider altering asset allocation ranges
- **Engage with asset managers** to bolster the integration of climate-related risks and opportunities into core investment processes, including integrate into investment manager agreements
- **Expand universe** of opportunities to research, explicitly incorporating climate alignment and low carbon transition as part of the 'search' criteria
- **Match potential opportunities** and investment universe within the fund's existing asset allocations targets
- **Set and agree priority areas** on the potential opportunities for further research
- **Ask asset managers and consultants** to investigate and present opportunities in the priority areas
- **Replace fund managers/mandates** where considered appropriate from a risk/return perspective
- **Add new fund managers/mandates** where considered appropriate from a risk/return perspective
- **Review and report** on these considerations on an ongoing basis as part of the TCFD disclosure efforts

What are some examples of scenario analysis being utilised in practice?

The TCFD recommendations included comprehensive guidance on the need to utilise scenario analysis, including the assessment of the resilience of their portfolios against the Paris Agreement's less than 2°C outcome²⁵. The tools and research that are available to support the utilisation of climate-related scenario analysis is a rapidly evolving field and is likely to further proliferate over the coming years²⁶. Some examples of how scenario analysis is being utilised by different asset owners is provided in Figure 9.

Action: Discuss the potential utilisation of scenario analysis as part of ongoing asset allocation processes, agree the preferred approach and responsibilities for undertaking and reporting such analysis.

The IIGCC will be publishing more detailed material on scenario analysis and reporting in line with the TCFD in the last quarter of 2018. Some examples of how different asset owners are utilising scenario analysis as part of their assessment and management of climate-related risks and opportunities are provided below.

Figure 9

Examples

FRR (Fonds De Reserve)

The FRR and the climate challenge - Report under article 173 of the energy transition act for the year 2016

TPT Retirement Solutions

Climate Change Disclosure Report Risk and opportunities in the growth portfolio

London Borough of Islington Pension Fund

Portfolio Carbon Footprint Analysis for London Borough of Islington Pension Fund

Norges Bank Investment Management

Annual Report Responsible Investment 2017, including scenario analysis

ERAFP (French pension scheme for civil servants)

Public report 2016

CalSTRS (US public pension fund)

Investing in a time of climate change



What is a “less than two degrees” aligned portfolio?

It is a portfolio whose investments are compatible with the Paris Agreement's agreed goal of “limiting global warming to well below 2°C and pursuing efforts to limit the temperature increase to 1.5°C compared to the pre-industrial age”. In order not to breach this temperature ceiling, global emissions of greenhouse gases must peak and start to decline, to the point where they reach net-zero. A less than two degrees aligned portfolio will gradually reduce its holdings in the highest-emitting companies, in line with global milestones.



What are the strategic options for investing in climate-related opportunities?

Action: Discuss the strategic options for increasing exposure to climate-related opportunities, agree the priority assets and prioritise the search for new opportunities as part of the investment strategy.

Potentially suitable investment opportunities exist for all types of asset owner organisations, with a choice of investments in liquid/illiquid, small/large-sized assets, direct investments, public sector partnership investments, segregated/pooled mandates, active/passive, internal/externally managed and listed/unlisted funds. These are discussed at length in the IIGCC guide on climate change investment solutions²⁷.

In broad terms, the opportunities span both the mitigation of climate change as well as adaptation to its physical effects and can be accessed through investments that integrate climate change into investment processes (without being labelled as ESG or low-carbon as such), as well as opportunities that are labelled as climate focused, such as:²⁸

- **Fixed income** – green bonds as well as climate aware, integrated fixed income mandates in both sovereign and corporate bond allocations.
- **Listed equities** – passive and actively managed mandates, including low-carbon/fossil-fuel free indices as well as funds that integrate climate change issues into the core investment process across the developed and developing markets.
- **Unlisted assets** – highly-rated, energy efficient and climate resilient property funds/assets, low-carbon and climate resilient private equity and infrastructure funds/assets, timberland and sustainable agriculture funds/assets (in developed and developing markets), to name a few.

What are some examples of investors allocating to low carbon opportunities?

New York City's pension fund pledged to double its investments in clean energy and climate solutions to US\$4 billion over the next three years.

UK pension fund **Environment Agency Pension Fund** has included among its strategic priorities: long termism, sustainable capitalism and impact investing, climate change and water risk. It has explicitly decided to invest a proportion of the portfolio in "low-carbon, energy efficient and other climate mitigation opportunities".

French public sector pension fund **ERAFP** plans to invest €50 million into international equity funds aimed at combating climate change. The Fund has been utilising a best in class approach to 'socially responsible investment' for a number of years and announced in 2017 an extension to this program, with the allocation of capital to investment solutions that "meet the challenge of combating climate change".

Dutch pension fund manager **APG** announced it has not made investments in coal-fired power plants in the last decade and will not invest in any new coal-related infrastructure going forward. It also aims to double its investments in sustainable energy generation from one to two billion Euros.

Danish pension fund **PKA** increased its new and existing offshore wind farm investments to more than €1 billion. PKA believe that offshore wind investments align with their goal to generate a solid investment return, with long-term stable cash flows whilst also having a positive impact on the climate.

Public pension funds **CalSTRS, AP2, AP3, UNJSPF and California State Treasurer** were early supporters of green bond market. The 2008 World Bank (IBRD) green bond of US\$130 million attracted public sector pension funds including the US pension fund CalSTRS, Swedish pension funds AP2 and AP3 and the United Nations Joint Staff Pension Fund.

The pension scheme of **HSBC UK** worked with an asset manager, an index provider and an investment consultant to develop a fund with a climate 'tilt' for the default equity allocation of its defined contribution scheme, with the aim of achieving better risk-adjusted returns. The fund starts with an index of companies which score well on factors such as low volatility. It then reduces its exposure to companies with higher than average carbon emissions and fossil reserves (excluding coal), while simultaneously increasing exposure to companies generating "green" revenues from low-carbon services and products. In addition, the fund's tilting strategy was designed to work in conjunction with the designated manager's climate engagement strategy.

UK defined contribution pension fund **NEST** invested in a new climate aware world equity fund that seeks to deliver returns in line with the FTSE Developed Index that applies a positive tilt towards companies that are contributing to combating climate change, with a negative tilt away from high carbon emitters and companies with fossil fuel reserves that are not adapting their strategies to support a low carbon economy.



Further resources:

- **FTSE Russell** – Investing in the global green economy: busting common myths
- **Environment Agency Pension Fund:** Sustainable Global Equity Managers: Observations from our search and tender
- **Ceres** – In Sight of the Clean Trillion
- **PRI** – How to invest in the low carbon economy
- **IGCC** – From Risk to Return: Investing in climate change adaptation
- **2° Investing Initiative** - Assessing the Alignment of Portfolios with Climate Goals
- **CDP** - Putting a price on carbon: Integrating climate risk into business planning
- **University of Cambridge, IGCC and UNEP FI, Climate: Everyone's Business, Implications for Investors and Financial Institutions**
- **PRI** – Implementing the Task Force on Climate-related Financial Disclosures (TCFD) recommendations
- **PRI** - How to craft an investment strategy
- **World Resources Institute and UN Environment Programme Finance Initiative** - Carbon Asset Risk: Discussion Framework
- **CICERO** - Climate scenarios demystified: A climate scenario guide for investors
- **IGCC** – Investing in Resilience: Tools and frameworks for managing physical climate risk



Risk a good night

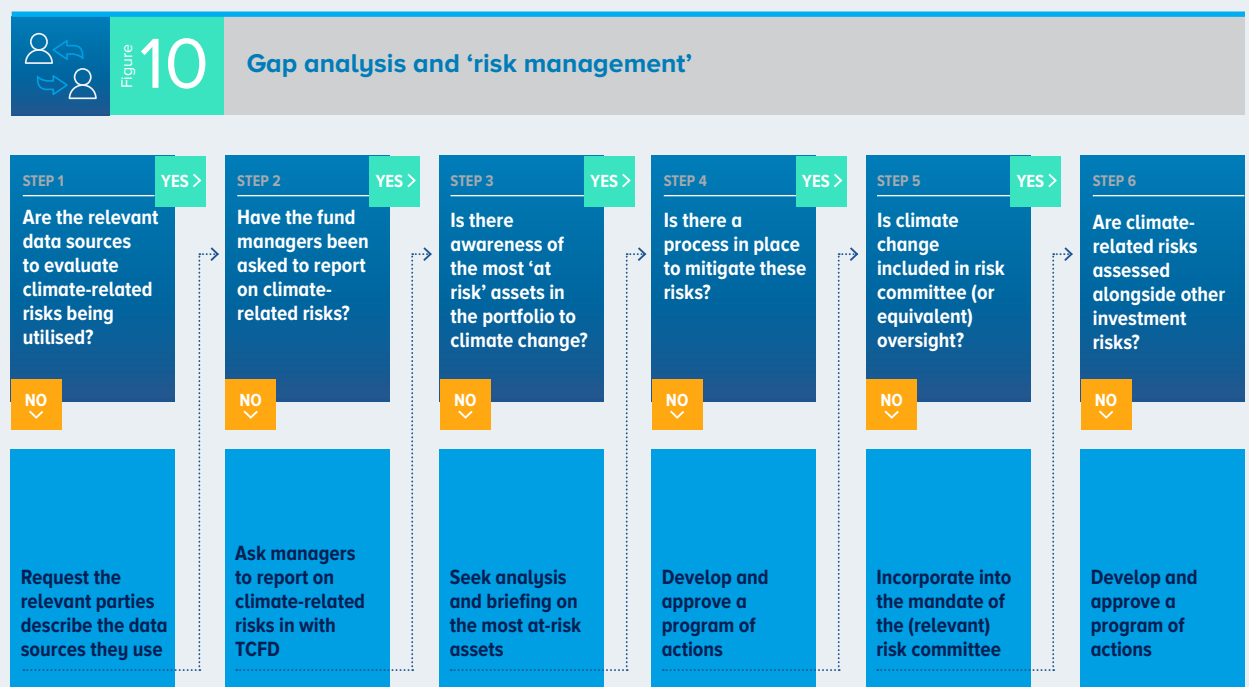
RISK MANAGEMENT

05

The TCFD recommendations emphasised the importance of integrating climate-related risks into risk management processes²⁹, including the need to:

- a) Assess risks - describe the processes for identifying and assessing climate-related risks
- b) Manage risks - describe the processes for managing climate-related risks
- c) Integrate risks - describe how these processes are integrated into risk management

A simplified gap analysis that trustees and boards might wish to undertake to support the incorporation of climate-related risks and opportunities into a fund's risk management processes is provided in Figure 10.



Source: Adapted from the FSB TCFD Recommendations of the Task Force on Climate-related Financial Disclosures



Measure and manage impacts

Adequate risk management depends on having the right processes and the right metrics in place. The preceding sections of this guide have outlined the governance frameworks and strategic processes that are necessary to ensure that trustees and boards (or the appropriate sub-committee) are well-equipped to manage the transition to a low carbon economy. However, it is worth reiterating that climate change represents a largely unpriced, negative externality that carries potentially very high and costly, market-wide risks. 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.

How can trustees and boards obtain information about the specific climate-related risks that the portfolio is exposed to?

Trustees can begin to engage with their internal staff and external agents along the investment chain to gather information on their fund's exposure to climate-related risks at the stock/asset level, sector level and asset class level, and through to the total portfolio level. Some of the issues to consider include (Figure 11): risks as set out in the TCFD final report (Figure 6).

Portfolio level analysis: This includes undertaking scenario analysis, as well as incorporating climate change risks and opportunities into strategic asset allocation frameworks (as discussed in section two, 'Strategy').

Action: Build an understanding of the climate-related risks and opportunities that may impact on the portfolio and incorporate this knowledge into the investment strategy.

Asset class analysis: As a subset of asset allocation decisions, build an understanding of the potential exposure at the asset class level to climate-related risks and opportunities.

Action: Ask your CIO and/or investment consultant to undertake a mapping of the sensitivities of asset classes to climate-related policies and alternative technology pathways.

Sector level analysis: Build an understanding of the portfolio's exposure to the sectors most at risk from the climate transition and physical impacts under different scenarios, including a less than 2°C or less outcome.

Stock/asset level analysis: Evaluate the companies and/or assets that are most at risk from climate change in terms of the transition to a low-carbon economy and the physical impacts that may arise.

Action: Ask your CIO/management team, asset managers of active mandates and/or index providers of passive mandates (or relevant service providers) to identify the sectors and stocks/assets most at risk in your portfolio (including those at risk of becoming 'stranded') and those that are most likely to benefit under a range of scenarios, including a less than 2°C outcome.

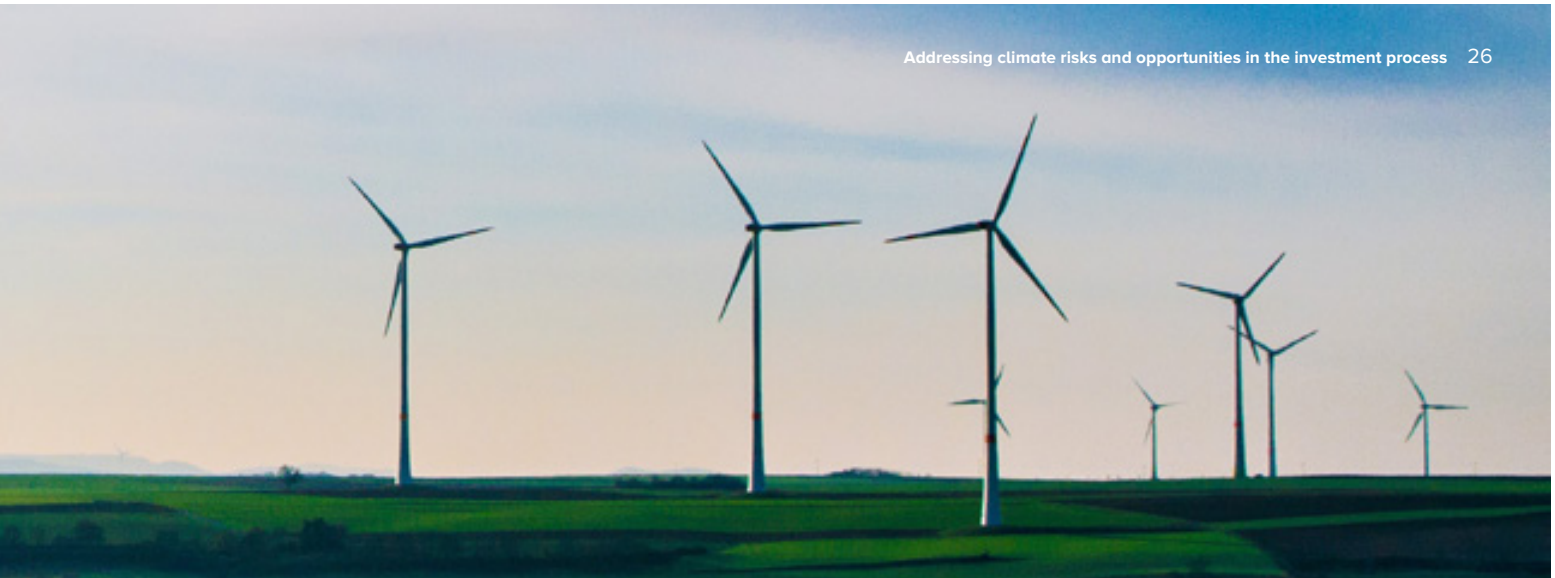
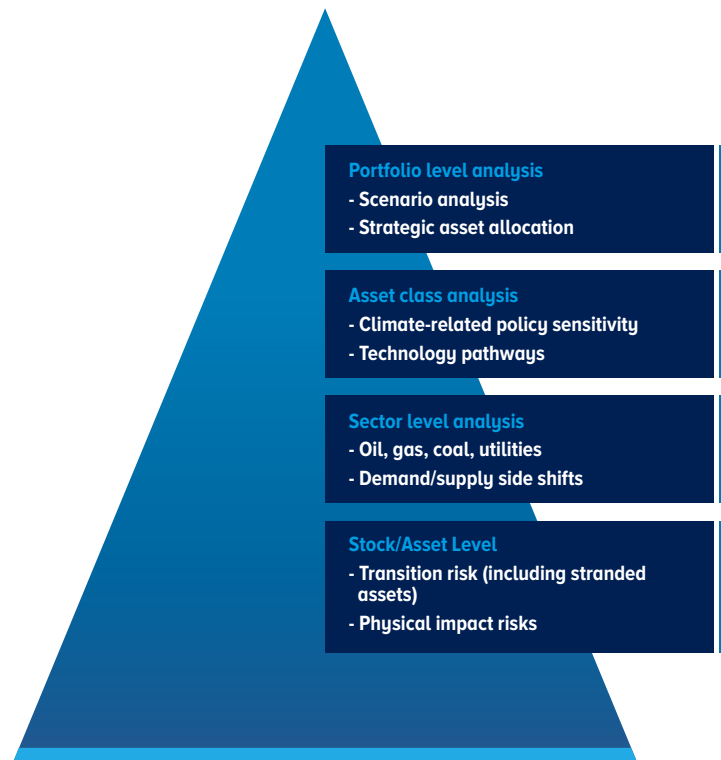


Figure 11

Assessing climate-related risks of investment portfolios

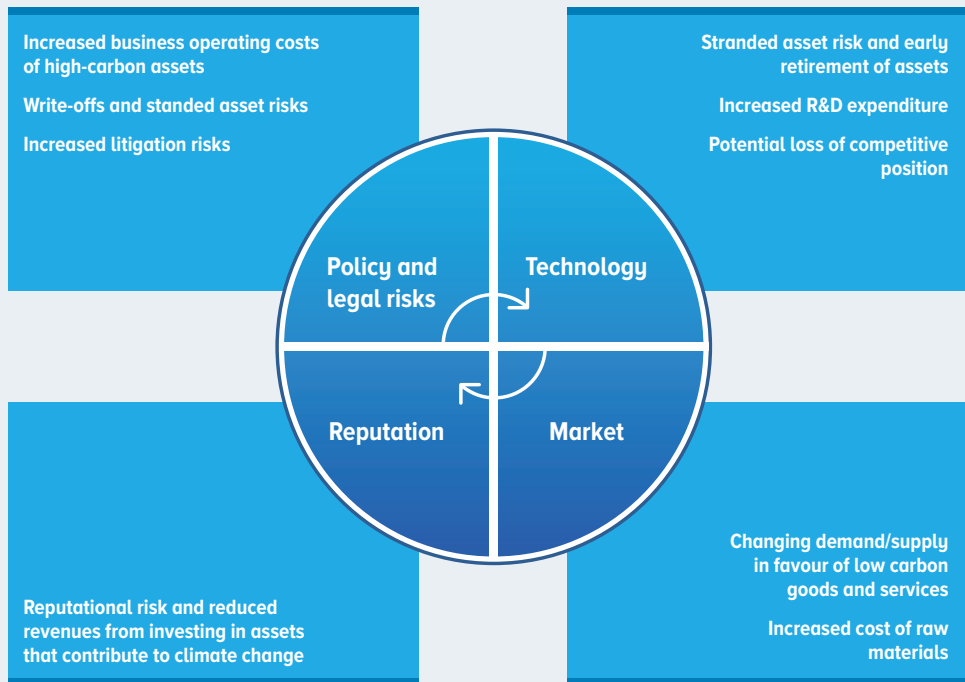


Source: IIGCC, adapted from TCFD Final Recommendations and the IIGCC 'Climate change investment solutions guide for asset owners'

What are the transition risks that boards need to manage?

Action: Ask your CIO/management team, asset managers of active mandates and/or index providers of passive mandates (or relevant service providers) to identify the sectors and stocks/assets most exposed to the transition risks in your portfolio and disclose in line with the TCFD recommendations (including a less than 2°C scenario).

Research suggests that the longer the delay in policy action, the greater will be the need for dramatic and rapid policy measures to ward off the impacts of climate change, which will in turn increase both the transition risks associated with the policy measures (as the measures are more forceful and costly being late) and also increase the physical impact risk of climate change (as late policy action also means higher physical costs).³⁰ The key climate-related transition risks that boards need to manage are summarised in Figure 12.



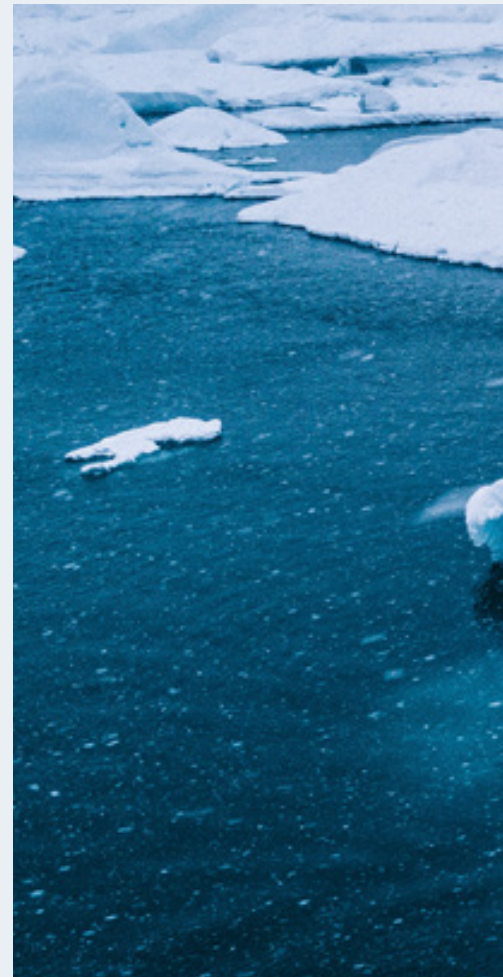
Source: IIGCC, adapted from the TCFD Recommendations, Table 1 pages 10-11

Highlight: Stranded assets

Various research reports produced by IEA, the Carbon Tracker Initiative and the University of Oxford's Sustainable Finance Programme (to name a few) have studied the risk of fossil fuel assets becoming 'stranded': assets which 'at some point prior to the end of their economic life (...) are no longer able to earn an economic return' (Carbon Tracker). 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). These reports have produced varying estimates based on different future scenarios, some of which could have detrimental impacts on investment portfolios. It is therefore in the interest of trustees and boards with a long-term investment horizon to explore the stranded assets risk in the context of their own portfolios, defining their beliefs and assessing current portfolio exposure.

Some of the issues that trustees and boards might take into account when considering the risk of stranded assets include:

- The extent to which climate policy and technology advancements place fossil fuel assets at risk
- Consumer trends that may impact on fossil fuel demand
- The role of geopolitics and the possible impact on re-pricing fossil fuel assets
- Assumptions around the utilization of negative emission technologies (e.g. afforestation, agricultural soil carbon sequestration, bioenergy and carbon capture and storage)
- The role and interplay of asset values with commodity price movements
- Consideration of the extent to which the market has priced in these uncertainties, the timing of when asset re-pricing may occur and the breakeven costs on new resource development projects



What are the physical risks of climate change that boards need to manage?

Action: Ask your CIO/management team, asset managers of active mandates and/or index providers of passive mandates (or relevant service providers) to identify the sectors and stocks/assets most exposed to the physical impact risks in your portfolio and disclose this in line with the TCFD recommendations (across a scenario of policy delay and greater than 2°C outcome).

The increased likelihood of severe, pervasive and irreversible impacts from climate change on people and ecosystems is well documented in the IPCC Fifth Assessment Report and subsequent scientific research³¹. Since the 1980s, insurance losses from weather-related events have risen fivefold³². The physical impacts of climate change, including floods and storms of increasing magnitude causes damage to infrastructure, agriculture and property, raising insurance premiums, affecting global supply chains and exposing certain sectors – such as coastal real estate – to losses in value. Without action, the costs of climate change could rise even further, to the tune of more than 5% of the world's GDP each year³³.

The TCFD recommendations³⁴ categorised the physical impact risks into:

- Acute risks: Event driven risks, including increased severity of extreme weather events, such as cyclones, hurricanes or floods.
- Chronic risks: Longer term shifts in climate patterns, such as changes in precipitation patterns, rising mean temperatures, rising sea levels.



What are some examples of climate-related risks across asset classes?

The nature and extent of the risks depend on the pace and scale of the policy measures and the attainment of the Paris Agreement goals, as well as the technology mix that ensues. Nevertheless, drawing from a range of sources, some examples of the type of transition and physical impact risks across different asset classes is summarised in Figure 13.

Figure 13	Examples of transition and physical risks across asset classes	
Asset class	Examples of transition risks	Examples of physical risks
Government bonds	Heavily dependent fossil fuel economies face higher budget deficits as a result of policy measures that reduce economic growth and tax revenues from fossil fuel industries. Potential decline in sovereign bond rating.	Countries with high exposure to climate-related weather events require greater public sector funds to finance adaptation. Potential decline in sovereign bond rating.
Corporate bonds	Reduced credit rating and potential default risk of issuers that finance high carbon assets and activities (where negative emissions technologies are not commercially deployed).	Eroded value of corporate debt that finances companies and assets which suffer repeated and persistent damage from climate-related weather events.
Listed equities	Depending on the degree of policy action and pre-emptive action taken by companies, energy inefficient and high carbon sectors of the economy (e.g. oil, gas, coal, utilities) decline in value. Risk of asset impairment and stranded assets in some fossil fuel energy stocks (where negative emissions technologies are not commercially deployed).	Eroded profitability and value of corporate assets in climate vulnerable locations, increased risks to supply chain, water scarcity, logistical operations, supply disruptions and loss of services. Increased insurance and regulatory costs erode asset values, particularly in companies that failed to respond and plan ahead.
Property	Core property that is poorly rated on energy efficiency standards is likely to underperform highly rated assets. Older property assets likely to need capital injection to improve energy efficiency, retrofit and migration to renewable energy sources.	Higher insurance costs and decline in value of property assets that are at high risk from climate-related weather events, including increased and persistent incidence of flood risk, cyclones, hurricanes, storm damage and fires.
Private equity and infrastructure	Policy and technology advancements could reduce the value of some private equity and infrastructure assets that are less suitable in a low carbon world, or in some cases it could render assets redundant (e.g. coal power not compatible with carbon capture and storage).	Higher insurance costs (in some cases uninsurable assets), lower valuation of assets located in climate vulnerable locations. Lower valuation of some assets due to higher investment and adaptation maintenance costs, particularly in those that failed to plan ahead.

Source: Compiled by the IIGCC drawing on a number of sources including: IEA WEO (2017); IPCC AR5 (2014); Mercer Climate Change Scenarios (2011;2016); OECD Pension Fund Investment in Infrastructure (2013); Ceres Clean Trillion report (2014;2018); Carbon Tracker Initiative (various reports)

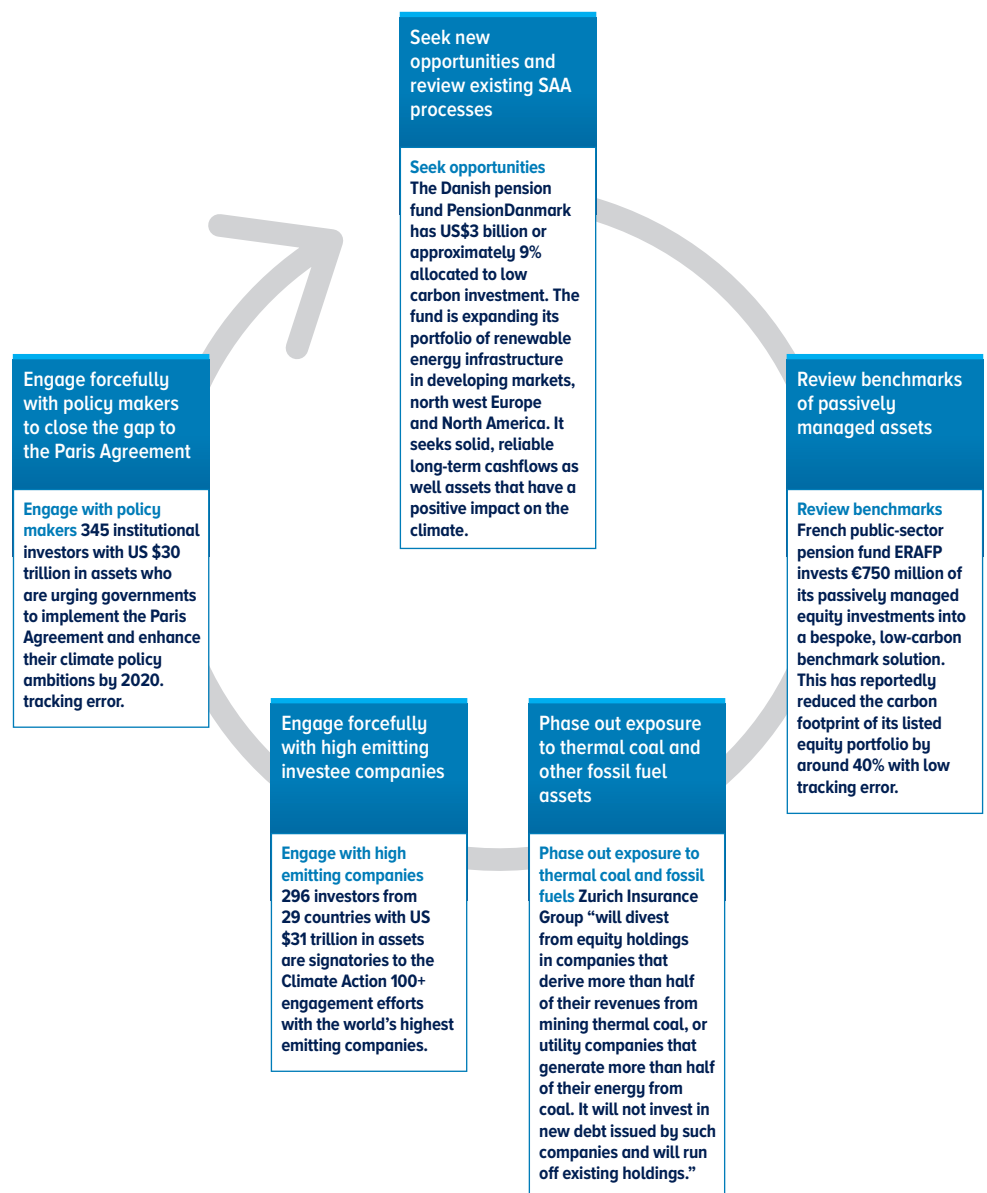
What are the options for reducing portfolio-wide exposure to climate-related risks?

As part of their strategic review, trustees and boards need to discuss and agree the preferred range of actions they will take to reduce the portfolio's exposure to climate-related risks. The main options to consider as part of this strategic review are summarised in Figure 14.

Action: Discuss at the Board level the strategic options for reducing portfolio-wide exposure to climate-related risks, agree the preferred approach(es) and embed these into the governance, investment strategy, risk management and reporting processes.

Figure 14

Examples of transition and physical risks across asset classes



How can trustees and boards evaluate the performance of their external asset managers in managing climate change risks?

Trustees and boards need to be able to evaluate how well their external asset managers (and/or internal managers) are managing climate-related risks, and engage forcefully with those managers where there is potential to improve standards and reduce risk across portfolios. Some questions that trustees and boards can ask their managers, along with some guidance as to how to interpret their responses, are provided in Figure 15.

Figure 15

Evaluating asset managers in managing climate-related risks

Examples of Questions	Responses – Graded from Poor to Excellent			
	Poor	Fair	Good	Excellent
Do you incorporate climate-related risks into your valuation and portfolio construction processes? If so, please provide examples to illustrate this.	No formal process or examples exists.	Integration of some climate-related risks in an ad-hoc manner, with limited evidence.	Integration of some climate-related risks (transition risks only) in a systematic way, with some evidence.	Integration of all climate-related risks (transition and physical) in a systemic way, with strong evidence.
Do you measure the carbon footprint of your portfolio, and if so, can you include this as part of your reporting on an annual basis?	No, and no intention to pursue this.	No, not measured at the portfolio level but willing to consider and discuss this further.	No, not measured at the portfolio level but is considered for some stocks and assets, willing to discuss this further.	Yes, measured and reported at the portfolio level on an annual basis.
Do you know the exposure of your fund to fossil fuel assets, and are you willing to disclose this?	No, not relevant or meaningful.	No, too costly to pursue, case-by-case potential.	No, don't specifically measure the fossil fuel exposure but are willing to explore this and disclose.	Yes, the fossil fuel exposure is assessed and reported.
Have you estimated the potential risk of portfolio assets becoming stranded in a <2°C climate scenario? If not, would you be willing to undertake this exercise and report the outcomes?	No, not relevant or meaningful.	No, have considered this and concluded that the approach is too costly and not helpful.	Yes, willing to consider undertaking such analysis in the future.	Yes, considered this and willing to report it.
Do you undertake scenario analysis as part of your investment process, and if so, would you be willing to extend this to incorporate climate-related impacts, including alignment with the Paris Agreement?	No, not relevant or meaningful.	No, have considered this and concluded that the approach is too time consuming and not helpful.	Yes, willing to consider undertaking such analysis in the future.	Yes, already undertaking such analysis and willing to report.
What other initiatives or activities are you involved in to proactively mitigate the risk of climate change to the investment portfolio?	None specified.	Mention activities that impact on broader industry standards and practices.	Mention activities that impact on the organisation-wide approach, not specific to the portfolio.	Mention activities that directly relate to the way the portfolio is invested.
Have you considered the risk of any of the assets held in your portfolio against the physical impacts of climate change? If not, would you be prepared to undertake such an analysis going forward and report this?	No, not relevant or meaningful.	No, have considered this and concluded that the approach is too costly and not helpful.	Yes, willing to consider undertaking such analysis in the future.	Yes, have measured some of the most at risk assets and willing to report findings.



Further resources:

- **International Finance Corporation** - Climate Risk and Business Practical Methods for Assessing Risk
- **CERES and Carbon Tracker Initiative** - Carbon Asset Risk: From Rhetoric to Action
- **Mercer Investment Consulting** - Asset allocation and climate change
- **2°C Investing Initiative** - 2°C portfolio alignment research and tool
- **Schroders Climate Progress Dashboard** - Tracking climate action
- **CICERO** - Shades of climate risk: Categorizing climate risk for investors
- **427** - Measuring Physical Climate Risk in Equity Portfolios
- **Transition Pathway Initiative** - evaluates how companies' future carbon performance would compare to the international targets and national pledges made as part of the Paris Agreement
- **Moody's Investor Services** - (various reports) evaluate sovereign credit exposure to climate-related transition and physical risks, including 2°C scenario
- **University of Oxford, Smith School of Enterprise and the Environment** - (various reports) Revolution not evolution: examines the transformation that is needed in the fossil fuel industry as part of the transition to a low carbon economy
- **Ceres A Framework for 2°C scenario analysis: A guide for oil and gas companies and investors for navigating the energy transition**
- **Potsdam Institute for Climate Impact Research (PIK) and Carbon Delta (forthcoming)** - translate climate policy and physical climate impact risks into company risk assessments
- **IIGCC** - Climate change investment solutions - A guide for asset owners. 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 2°C or less outcome
- **University of Cambridge, Institute for Sustainability Leadership** - Unhedgeable risks: How climate change sentiment impacts investment
- **Asset Owners Disclosure Project** – ranking of investors' approach to climate risks by sector



Metrics and Targets

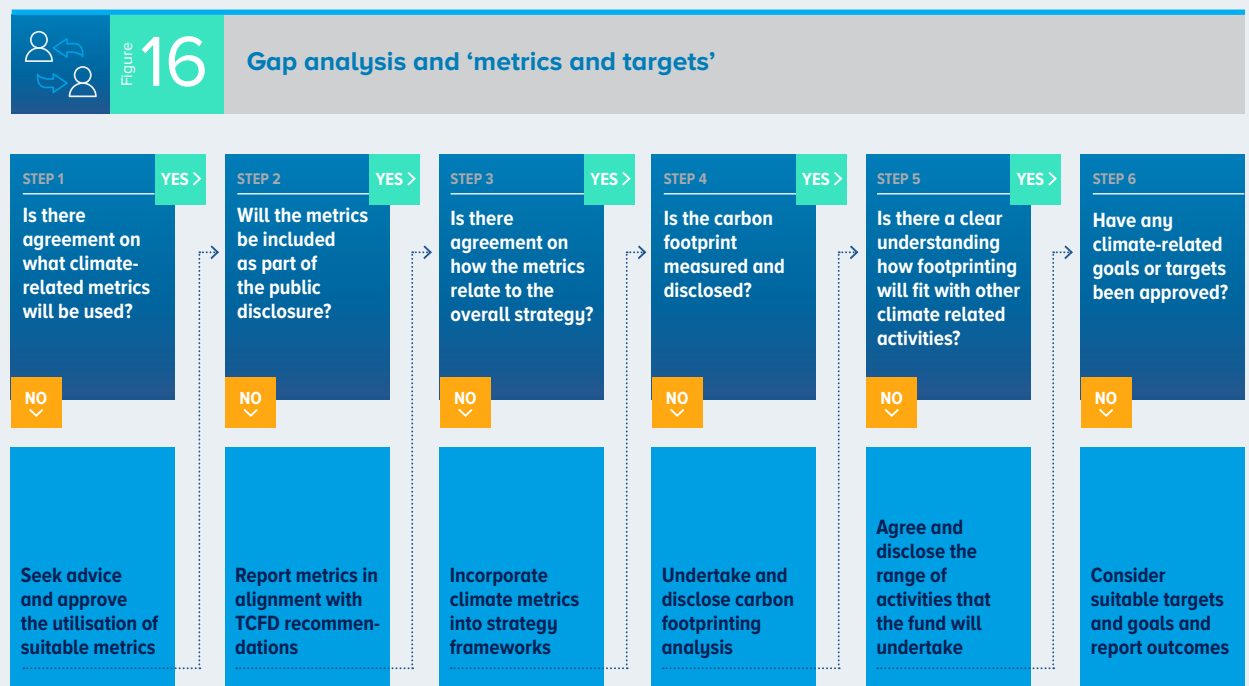
METRICS AND TARGETS

06

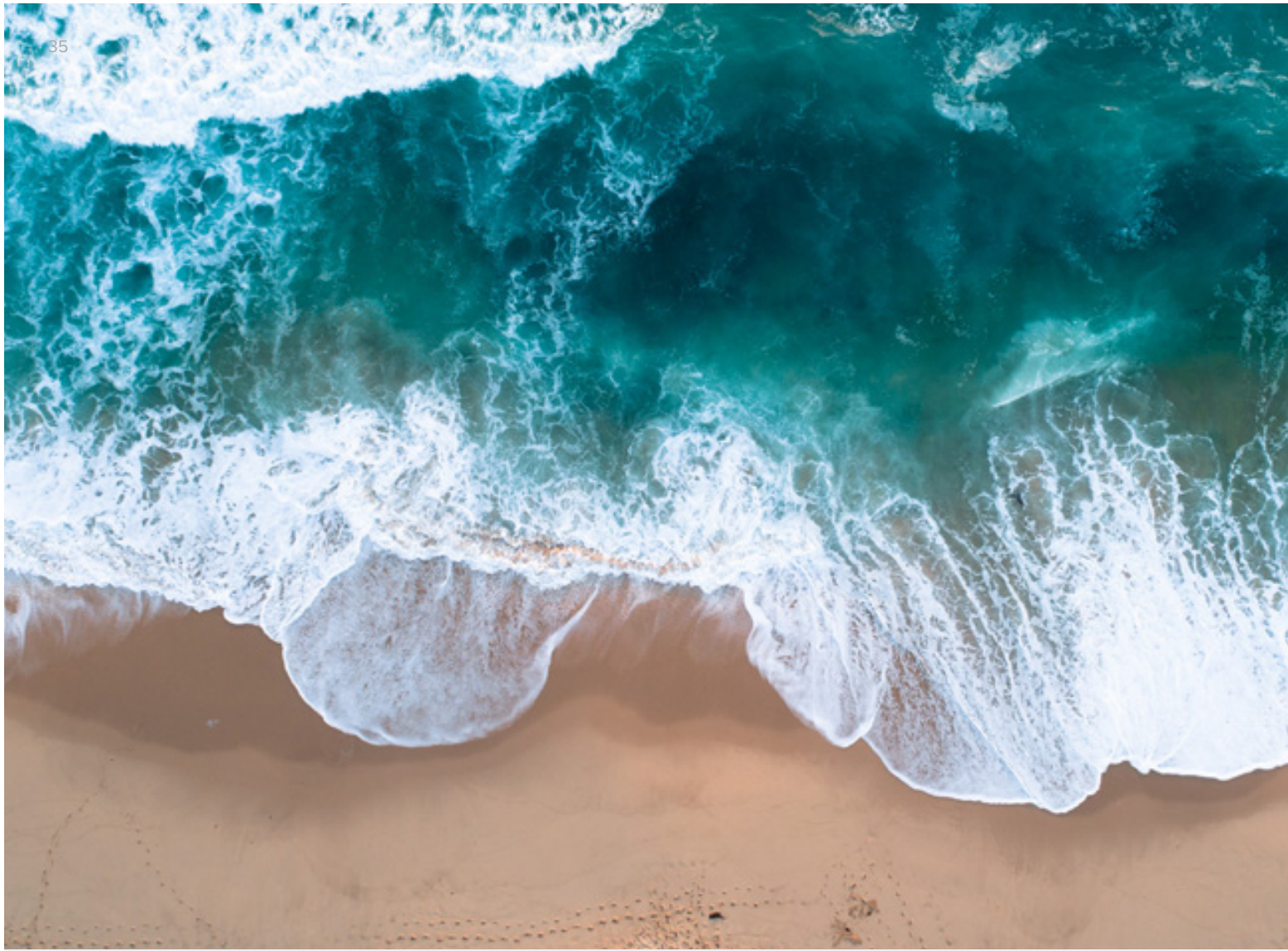
The metrics and targets that can be used to assess and manage relevant climate-related risks and opportunities³⁵ were also included as part of the TCFD recommendations, across three topics:

- a) Use of metrics – describe the metrics used to assess climate-related risks and opportunities
- b) Measurement of GHG emissions – disclose GHG emissions and related risks
- c) Setting targets – describe targets to manage climate-related risks and opportunities and performance against targets

A simplified gap analysis that trustees and boards can use to incorporate the utilisation of appropriate metrics and targets into investment processes and reporting frameworks is provided in Figure 16.



Source: Adapted from the FSB TCFD Recommendations of the Task Force on Climate-related Financial Disclosures



Measure and manage impacts

Climate-related metrics provide an additional level of information to support trustees and boards in their efforts to measure, manage and disclose their climate-related impacts. Indeed, the industry is moving towards greater disclosure and transparency in terms of actions and outcomes, as evidenced by the widespread support for the TCFD recommendations. Far from being a niche concern, financial institutions responsible with over US\$80 trillion of assets – as much as annual global GDP – are now supporters of the TCFD.³⁶ Metrics and targets can thus provide trustees and boards with more precise information about their exposure to climate-related risks and opportunities to assist with internal planning and assessing the efficacy of their implementation efforts, while at the same time bolster their communication with beneficiaries and stakeholders.

The assessment of climate-related impacts is a fast-evolving field of research, with new tools and reporting efforts contributing to greater quality of data availability and comparability. While there are still some data gaps and measurement challenges across some regions and asset classes, there are some new tools, sources of data and examples of how different investors are utilising these approaches that trustees and boards can draw from as part of their ongoing efforts.

What are some examples of different climate-related metrics that are available?

Action: Discuss at the board level the different climate-related metrics that are available and agree what will be incorporated into the fund's activities and outcomes and how this is likely to evolve over time, in line with the TCFD recommendations.



Some of the different metrics that can support trustees and boards in their efforts to measure climate-related risks and opportunities across their investments are summarised in Figure 17.

Figure 17

Examples of climate-related metrics for portfolio analysis

Metric	Relevance for Trustees and Boards
Carbon footprinting	Boards can measure the carbon emissions of the investment portfolio, which can then be used to compare portfolio emissions to global benchmarks, identify priority areas for reduction including the largest carbon emitters and the most carbon intensive companies, and to engage with fund managers and companies on reducing carbon emissions and improving disclosure standards ³⁷ .
Green/brown exposure	Boards can measure the exposure to green (low carbon/climate positive) versus brown (high carbon/climate-negative) assets held in the investment portfolio ³⁸ . A range of related indices have been developed that some investors are using for their passive portfolios ³⁹ . Asset owners can support the Investor Agenda initiative ⁴⁰ , where the 'investment' actions component of this initiative includes a commitment to report existing and new low carbon investments.
Company engagement	Asset owners can monitor engagement outcomes, focusing in particular on whether companies are providing satisfactory responses to investor concerns and assessing how long engagement dialogue should continue for and what investment decisions which will be taken if companies provide an unsatisfactory response ⁴¹ . Asset owners can support the 'corporate engagement' actions through (for example) supporting the Climate Action 100+ initiative ⁴² .
Ratings and research	Asset owners can utilise the outputs from one or more of the various data, research and ratings service providers as part of their assessment of climate-related risks and opportunities. Given the proprietary nature of some of the models upon which the climate-related scores and research are based, some asset owners may choose to complement these metrics with other outputs and indicators of climate-related risks, including qualitative interpretations of the data and outputs ⁴³ .
Scenario analysis	As the TCFD recommendations highlighted, asset owners can undertake a range of scenario analyses to assess the resilience of their investment portfolios to future possible climate-related outcomes, including a less than 2°C scenario that is aligned with the Paris Agreement. The 'Strategy' section of this guide provided practical examples of the how some asset owners are utilising scenario analysis. Asset owners can also utilise the emerging tools and resources through third party providers ⁴⁴ .
Impact metrics	Asset owners can assess the extent to which their investment actions have made a positive impact on the portfolio and climate-related outcomes. Examples of such metrics include avoided GHG emissions, increased exposure to renewable energy, improvements in energy efficiency, improved water and waste management outcomes ⁴⁵ . The growing interest and commitment of some asset owners to the SDGs has also provided additional impetus for some investors to develop and apply relevant metrics, including climate-related impacts ⁴⁶ .
Adaptation metrics	Asset owners can assess the preparedness of investee companies and entities to the physical impact risks associated with climate change ⁴⁷ . There are also new investment opportunities related to adaptation impacts that asset owners could consider as part of their strategy discussions ⁴⁸ . In terms of adaptation risks, an assessment could be undertaken through bespoke research on assets that have been identified as 'high-risk', through aggregate analysis of climate vulnerability scoring by research providers, as well as through engagement with fund managers.

What are the tools available to assess portfolio alignment with less than 2°C scenario?

Tools to assess less than 2°C alignment

Various tools have been developed across the industry to support investors in the assessment of 2°C portfolio alignment, including the open source Paris Agreement Capital Transition Assessment tool, Trucost/S&P Energy transition toolkit, and Mercer's portfolio analysis under a 2°C transformation scenario.

Asset owners can undertake this analysis in-house, where the capabilities and resources are available to utilise such tools. They can also request that their service providers – including their asset managers – undertake this analysis and report the results and outcomes on an annual basis to them in line with the TCFD recommendations.

How to get started with measuring the carbon footprint of our investments?

Carbon footprinting assesses a portfolio's exposure to carbon-intensive companies, and can be calculated in different ways. For example, as weighted average carbon intensity, expressed in tons of CO₂e⁴⁹ /million dollars of revenue (this metric is recommended by the TCFD). It has the advantage of being easily applicable across sectors, and of taking company efficiency into account. Asset owners should ask their designated managers to see if they have the necessary resources for this analysis. Alternatively, they can seek this information from third party providers⁵⁰.

What are the limitations of carbon footprinting?

There are some limitations of carbon footprinting that trustees and boards need to be aware of⁵¹. These are not a reason for inaction, as the tools and data gaps are constantly improving. It is important that trustees and boards participate in the process and have the knowledge to assess the outputs as the metrics continue to improve. Nevertheless, some of the open questions include:

- Backward rather than forward-looking?
- Not readily available for unlisted assets?
- Includes Scope 1 and Scope 2 emissions, typically does not include Scope 3 financed emissions (although estimates are available on a bespoke basis from service providers)?⁵²
- Varying denominators being used for carbon intensity measurement?
- May not capture stranded asset risk associated with carbon reserves?
- Gaps in company reporting and varying estimation methodologies?

In view of these limitations, how can we best disclose our carbon footprint?

Action: Agree to measure and publicly disclose the carbon footprint of the fund's assets to the extent possible, understanding its limitations and integrating the analysis into engagement efforts with asset managers and companies.

Trustees and boards can undertake and disclose carbon footprinting analysis alongside other activities, such as:

- Encouraging disclosure of carbon emissions and information on how companies are managing climate risks in line with the TCFD recommendations
- Engaging with fund managers and investee companies to encourage better management of climate risk, focusing efforts on the highest GHG emission contributors to the portfolio
- Considering joining investor collaborative efforts to bolster engagement efforts with the highest GHG emitting companies, such as the Climate Action 100+ initiative

Should asset owners set climate-related targets?

Action: Agree to consider the suitability of different climate-related targets and adopt the most relevant and highest priority targets that best fit with the board's agreed strategy and risk management framework.

Some asset owners are setting targets as part of their implementation and reporting plan on climate-related issues. Target setting in relation to climate change is certainly a widely utilised tool for governments and corporations, although investors have only recently begun to demonstrate more commitment in this regard. The TCFD recommendations included target setting as one of the recommended actions.

Broadly speaking, setting targets could help trustees and boards to consolidate and solidify internal processes to focus on achieving a certain goal or outcome, it can also send a strong message to external agents, including companies, fund managers, governments and beneficiaries on the prioritisation that has been given to managing climate-related risks and opportunities.

Trustees and boards need to assess what targets are most appropriate for their fund, describe why they have chosen a certain target and also how performance will be measured and monitored over time. Importantly, any target also needs to be closely aligned with the fund's investment strategy and risk management processes, with clear governance and oversight responsibility to clarify who is responsible for measuring, reporting and assessing performance over time. Some areas where asset owners might consider setting targets, both qualitative or quantitative, are provided below.

Examples: Targets and goals in relation to climate change

% AUM invested in **mandates with climate-related features** or explicit considerations (clearly noting the taxonomy and basis for defining what is used as the measurement unit)

% of **external managers undertaking engagement on climate-related issues**

% of **external managers with climate policy and beliefs aligned to the Fund's policy and beliefs**

% of **external managers reporting** on climate-related risks and opportunities in line with the TCFD recommendations

Align portfolio and investments with the **Paris Agreement** goals of less than 2°C outcome

Reduce the **carbon intensity** of a portfolio by a future date

Reduce exposure to **coal and fossil fuel assets** by a future date

Integrate climate-related risks and opportunities into **investment decisions and valuations**

Set a strategic priority to **identify and evaluate** investment opportunities into low carbon, energy efficient and climate resilient assets on an ongoing basis

Invest a portion of the fund's assets into low carbon, energy efficient and climate adaptation opportunities across different asset classes

Set a goal to **engage with the 'high risk' companies**, fund managers and/or mandates to achieve specific improvements in the carbon exposure and preparedness of the underlying companies and entities, by a future date

Set targets for all high carbon intensive companies to **disclose** their climate-related risks and opportunities in line with the TCFD recommendations, by a future date

Set targets for high carbon intensive companies to achieve specific **carbon reductions** and energy efficiency improvements, by a future date

Set a goal to **file climate-related resolutions** and exercise voting rights on climate change proxies 100% of the time

What are some examples of target setting by other investors?

Examples: Target setting by investors

Caisse de Depots: In the short term, committed to a 50% increase in low carbon investments by 2020 and in the medium term, committed to a 25% decrease in GHG emissions per dollar invested by 2025 (supported by integration into investment decisions and engagement activities).

NZ Super Fund: Reduce the carbon emission intensity of the Fund by at least 20% and reduce the carbon reserves exposure of the Fund by at least 40% by 2020.

Environment Agency Pension Fund: Invest 15% of the fund in low carbon, energy efficient and other climate mitigation opportunities by 2020, as part of the fund's wider target to invest at least 25% of the fund in clean and sustainable companies and funds, across all asset classes.

PFZW: Increase sustainable investments 4x to at least €16bn by 2020. Within this period, also committed to reducing the carbon footprint of its entire portfolio by 50%.

CalSTRS: Increase clean energy and technology investments from \$1.4 billion to at least \$3.7 billion by 2019 across all asset classes, including investing \$2.5 billion in low-carbon stock indexes.

APG: To have €5 billion of assets investment in renewable energy and reduce the carbon footprint per invested euro of its listed equity portfolio (\$139 billion) by 25 percent by 2020 (versus 2016 baseline).

FRR: Reduce the carbon intensity and the fossil fuel reserve exposures of passive equity investments by at least 50%.

AP4: Decarbonise its entire listed equity portfolio of US\$20 billion.

ERAFFP: Aims to invest €50 million between now and the end of 2017 into international equity funds aimed at combating climate change.

Allianz: To double infrastructure equity investments in photovoltaic and wind parks in the medium term.

Church of Sweden: To have zero investments in coal, oil and gas.

Hermes: To reduce the absolute and relative-to-area carbon emissions from Hermes' real estate portfolio by 40% by 2020, from a 2006 baseline.

Japan's Government Pension Investment Fund will raise ESG allocations to 10% of its holdings.

PensionDanmark aim to invest 10% of assets in direct equity investments in renewable energy assets and a further 10% in loans to infrastructure projects.

Source: Publicly available material, various websites and newswire services; Portfolio Decarbonisation Coalition (2017) Annual Progress Report, pp. 14-16



Disclose in line with the TCFD

How can the climate-related metrics and targets be publicly disclosed?

Action: Agree to report the fund's climate-related activities in line with the TCFD recommendations, including the agreed and most suitable metrics and targets to utilise.

Asset owners can disclose the metrics and targets associated with their climate strategies as part of their annual reporting to beneficiaries, on their websites, as part of industry surveys and reporting frameworks including the PRI annual reporting process, and/or as part of bespoke reports on ESG or responsible investment issues more broadly. The sort of information that can be included in these reports and some principles for best practice reporting are set out in the TCFD guidance and follow the four pillars of action that have been discussed at length in this guide, namely governance, strategy, risk management and metrics and targets. In addition to the TCFD recommendations, further resources are available on the appropriate content and structure of such disclosures⁵³, including a forthcoming IIGCC report.



Further resources:

- 2° Investing Initiative / PRI Paris Agreement Capital Transition Assessment (PACTA)
- TCFD Knowledge Hub
- Science-Based Targets Initiative - Methodology for setting corporate emission reduction targets in line with climate science: Draft for Public Consultation
- The GHG Protocol Corporate Accounting and Reporting Standard
- Heidrick & Struggles and Legal & General Investment Management – A guide to better corporate reports, offers practical suggestions for reporting on sustainability issues
- ShareAction – The Engagement Deficit
- 2° Investing Initiative - Climate Strategies and Metrics Exploring Options for Institutional Investors
- IGCC/AIGCC (2017) Transparency in Transition: A Guide to Investor Disclosure on Climate Change
- IGCC (2017) Road to Return: Institutional Investors and Low Carbon Solutions
- IGCC/NCCARF/JCU/Eureka (2017) From Risk to Return: Investing in Climate Change Adaptation
- PRI Reporting on climate change in accordance with TCFD

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