

CLIMATE FINANCIAL RISK FORUM GUIDE 2023  
**CLIMATE DISCLOSURES DASHBOARD 2.0**

March 2023



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This chapter represents the output from the Data, Disclosures and Metrics (DDMWG) Working Group, part of the Climate Financial Risk Forum (CFRF).

This CFRF guide has been written by industry, for industry. The recommendations in this guide do not constitute financial or other professional advice and should not be relied upon as such. The PRA and FCA have convened and facilitated CFRF discussions but do not accept liability for the views expressed in this guide which do not necessarily represent the view of the regulators and in any case do not constitute regulatory guidance.

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## Acknowledgement

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## Executive Summary

The Climate Disclosures Dashboard 2.0 builds on the illustrative dashboard published by the CFRF in 2021. The updated Dashboard incorporates both recent regulatory developments and progress made by industry in preparing climate-related disclosures whilst retaining the user-friendly structure of the original.

The Dashboard is split into five categories of climate disclosures – **Transition risks, Physical risks, Financed emissions and portfolio alignment, Financing the transition** (previously Mobilising transition finance) and **Engagement**. These categories incorporate both the impact of climate change on a firm and the impact of a firm’s activities on climate change, building on the notion of ‘double materiality’. They are also consistent with expectations that firms take a long-term, strategic approach to a net-zero and climate-resilient economy.

For each category, the Dashboard proposes three levels of recommended metrics – **Foundation, Stretch and Advanced** – in recognition that disclosure approaches will naturally evolve over time, as firms expertise improves and is supported by continued progress in climate data, analytics and emerging practice. This approach is intended to inform firms at various stages of their disclosure journey, from helping them get started, identifying future direction of travel and supporting the most advanced firms continue to build on their disclosure approach.

In updating the Dashboard, the working group noted the following changes and points of continuity since 2021:

- Many, if not most, firms are disclosing a range of metrics in their [Task Force on Climate-related Financial Disclosures](#) (TCFD) and other climate-related reporting, although the purpose behind disclosing individual metrics could be

more transparent. This reinforces the dashboard/use-case approach adopted by the CFRF.

- Many of the metrics recommended in the 2021 Dashboard are now in wide use, reflecting efforts to coalesce on core metrics which best present climate-related risks and opportunities.
- There have been considerable improvements in data inputs, models and methodologies underpinning metrics to ensure they are robust, accurate and decision-useful, and can be integrated within business functions. In these cases, the updated Dashboard provides more detail regarding the disclosure expectations for these metrics, including level of granularity and new ways to present the information.

Significant progress has been made since 2021 on international standards for climate-related disclosures,<sup>1</sup> including emerging guidance on net-zero transition plans and the formation of the International Sustainability Standards Board (ISSB),<sup>2</sup>

The metrics proposed in draft guidance published by the [Transition Plan Taskforce](#) (TPT) align closely with the final three categories of the Dashboard – Financed emissions and portfolio alignment; Financing the transition; and Engagement – demonstrating that the Dashboard structure remains comprehensive and relevant to emerging practice. The Dashboard categories also fit closely with the approach taken in the [draft IFRS Sustainability Disclosure Standards](#) under development by the ISSB.

Table 1 sets out how the five categories of disclosures in the Dashboard relate to the impacts of climate change and align with TCFD, TPT and ISSB guidelines, together with examples of the metrics featured in the Dashboard.

<sup>1</sup> A summary of recent regulatory developments can be found on p. 13-15 of the [UNEP-FI's 2023 Climate Risk Landscape](#).

<sup>2</sup> Announced by the International Financial Reporting Standards (IFRS) Foundation at COP26 in Glasgow in November 2021.

**Table 1: Summary of Dashboard categories**

Impact	Category	Example metrics	Regulatory alignment <sup>3</sup>
<b>Impact of climate change on a firm</b>  	1) Transition Risks	Exposure to carbon-related assets  Transition risk heatmap  Anticipated financial impacts based on scenario analysis	TCFD Guidance on Metrics, Targets and Transition Plans Table C1  IFRS S2 Exposure Draft para 21(b)
	2) Physical Risks	Exposure to assets vulnerable to physical risk  Physical risk heatmap  Anticipated financial impacts based on scenario analysis	TCFD Guidance on Metrics, Targets and Transition Plans Table C1  IFRS S2 Exposure Draft para 21(c)
<b>Impact of the firm on climate change</b>  	3) Financed emissions and portfolio alignment	Financed emissions (historic & future)  Portfolio companies with targets/transition plans  Portfolio alignment metrics	TCFD Guidance on Metrics, Targets and Transition Plans Table C1  TPT Implementation Guidance s.4.3  IFRS S2 Exposure Draft para 21(a)
	4) Financing the transition	Climate solutions investment ratio (by revenue and capex)  Carbon return metric (avoided emissions)	TCFD Guidance on Metrics, Targets and Transition Plans Table A2.1  TPT Implementation Guidance s.4.2  IFRS S2 Exposure Draft para 21(d) & (e)
<b>Cross-cutting</b>  	5) Engagement	Company engagements  Collaborative engagements  Systematic engagements	TPT Implementation Guidance s. 4.1

<sup>3</sup> Links to relevant guidance documents can be found in the References section below.

# Introduction

## Background and purpose

Disclosing reliable and comparable climate-related data, and consistent and relevant climate-related metrics, continues to be a key theme for financial sector stakeholders seeking to properly price and manage climate-related risks.

In recognition of the importance of progress in the development and understanding of climate data and metrics, the Climate Financial Risk Forum (CFRF) established a working group on Data, Disclosures and Metrics (DDMWG) to address the topic as a key element of Session 3 of the CFRF's work.

During Session 2 of the CFRF's work, in October 2021 the CFRF published a cross-cutting report<sup>4</sup> on Data and Metrics published with the following findings:

- There is a wide range of climate disclosure metrics in use or recommended by regulators, standards bodies and other relevant organisations which vary according to their purpose and intent.
- While many of these metrics are helpful in developing a strategic response to climate change, there is a risk that the usefulness of the information disclosed may be undermined by:
  - a lack of clarity about how specific disclosures relate to different dimensions of climate-related risk;
  - failure to publish contextual information alongside the data disclosed (including why the form of the disclosure has been adopted and / or explaining its limitations);
  - and the breadth and variety of metrics and approaches disclosed in relation to any individual issue.

- It is not possible to capture or track exposure to climate-related risk in a single metric, given the multiple ways in which climate change affects the economy.
- A useful starting point for the CFRF's work in this area would be to identify a finite number of metrics addressing key climate-related risks which could be presented as a Climate Disclosures Dashboard, an illustrative example of which was published as part of the report.

Given the significant regulatory developments and industry experience in preparing climate-related disclosures since 2021, the DDMWG decided to set up a subgroup to update the 2021 Dashboard.

The Climate Disclosures Dashboard 2.0 is the output of that subgroup and incorporates recent developments and guidance from a number of external sources, most notably guidance from the Taskforce on Climate-related Financial Disclosures (TCFD) and the Glasgow Financial Alliance for Net Zero (GFANZ), and draft guidance from the Transition Plan Taskforce (TPT).

The Dashboard also fits closely with the approach taken in the draft IFRS Sustainability Standards under development by the the International Sustainability Standards Board (ISSB). These standards are due to be finalised later in 2023 and will apply to disclosures reported from 2025 onwards. The details of the ISSB standards (which include sector-specific requirements for AMs, banks and insurers) are still evolving and we encourage readers to review their final form carefully as they are likely to set the benchmark for future disclosures.

Links to relevant TCFD, GFANZ, TPT and ISSB guidance documents can be found in the Reference section below.

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<sup>4</sup> See "[CFRF Guide 2021: Climate Data and Metrics](#)", October 2021.

## Approach

### (1) Categories of metrics

We have used the same structure as in the 2021 Dashboard with five categories of metrics based on different use-cases for climate-related disclosures.

1. **Transition risks:** The transition to a net-zero economy presents financial risks which can arise from a range of factors, including changes in policy, regulation, technology and customer sentiment. Climate-related metrics are being used to understand, assess and disclose firms' exposure to these risks and potential impact on asset valuations.
2. **Physical risks:** Physical climate risks pose material and immediate risks to investors, lenders and insurers. Financial institutions (FIs) are using metrics to assess their exposures to these risks, which can vary according to the location and the vulnerability of their assets and supply chain to a range of acute and chronic climate events, and their financial effects.
3. **Financed emissions and portfolio alignment:** In line with disclosure recommendations, regulatory norms and industry best practice, information on financed emissions and other metrics related to portfolio decarbonisation, such as Portfolio Alignment metrics, should feature in disclosures by FIs.
4. **Financing the transition:** Mobilising finance into technologies and infrastructure needed to transition the global economy to net zero represents a substantial challenge – and a significant

commercial opportunity. Metrics are emerging to track progress in this area, such as capital allocated into climate solutions and reporting of 'avoided emissions'.

5. **Engagement:** The importance of engagement as a fifth use case has been reinforced by the reference to Engagement Strategy as a key pillar of financial institution transition plans by both GFANZ and the TPT. Engagement metrics need to reflect not only influence over management and strategic direction of an investee company or borrower but also partnership with industry peers and policy advocacy.

These categories cover both the impact of climate change on a firm's financing and investment (outside in), and the impact of the firm's financing and investment on climate change (inside out), building on the notion of 'double materiality'.<sup>5</sup>

Forum participants considered that all five of these uses cases were relevant to meeting the expectations of the Prudential Regulation Authority's (PRA) supervisory statement<sup>6</sup> for firms to take a long-term, strategic approach to managing the financial risks from climate change and steward the transition to a net-zero and climate-resilient economy.

Table 1 above summarises the relationship between these impacts and the five categories of disclosures in the Dashboard, together with example metrics featured in the Dashboard and the alignment between each category and guidance from TCFD, TPT and ISSB.

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<sup>5</sup> The ISSB has recently stated that it intends to remove the term 'enterprise value' from its standards and use the same definition of materiality as the IFRS Accounting Standards. It is generally accepted that this broad definition can accommodate 'double materiality' as described above.

<sup>6</sup> See "[PRA SS3/19: Enhancing banks' and insurers' approaches to managing the financial risks from climate change](#)", April 2019.

## (2) Levels of metrics

This guidance builds on the minimum standards for disclosure set by the TCFD and UK regulators, setting out recommendations for three categories of metrics (described further in Table 2). These reflect that each FI is at a different level of maturity when it comes to climate disclosures, as recognised by the [TCFD's annual status report](#).

The DDMWG recognises that some of the methodologies required to report against the

advanced metrics are still in development and may be more difficult for firms to calculate or use in public disclosures at this time. It also recognises that firms may be using a blend of all three measures in their reporting and our featuring of one as a case study is not a judgement on the holistic approach they may be adopting across the full range of their TCFD and associated Environmental, Social and Governance (ESG) disclosures.

**Table 2: Levels of metrics**

Foundation	Stretch	Advanced
<ul style="list-style-type: none"> <li>Widely used</li> <li>Methodologies are available today</li> <li>Metrics largely disclose the current situation</li> </ul>	<ul style="list-style-type: none"> <li>Some institutions use these metrics</li> <li>Methodologies are at early stage of development/acceptance</li> <li>Some forward-looking elements</li> </ul>	<ul style="list-style-type: none"> <li>Not widely used</li> <li>Methodologies not yet well developed/widely accepted but provide direction of travel for industry</li> <li>More forward-looking, holistic metrics, including financial impacts</li> </ul>

## (3) Scope

The Dashboard is focused on the disclosure of decision-useful metrics relating to the investment, financing and insurance activities of asset managers (AMs), banks and insurers.

The principles behind the Dashboard and its contents are intended to be 'jurisdiction-agnostic' and applicable in multiple regulatory environments. The development of the Dashboard was inspired by climate disclosure standards in jurisdictions from the EU and US, as well as the UK. However, in the interests of space, we have limited specific references to international standards (such as TCFD and ISSB) and UK regulations.

**Exclusions:** For a variety of reasons explained below, the Dashboard does not address the following:

**Asset classes:** The DDMWG recognises that the feasibility of its recommendations will differ across asset classes and that time will be required to develop consistent methodologies and drive further disclosures, particularly in the following asset classes:

- (a) Private Markets
- (b) Derivatives, short positions and short term/currency instruments
- (c) Sovereign bonds
- (d) Inter-bank or intra-Financial Services industry exposure

**Carbon credits:** Given the wide range of views on whether and how financial institutions should use carbon credits to achieve climate-related objectives and targets, the DDMWG considers that it is premature to recommend any particular disclosures on this issue.

**Nature and biodiversity:** While the Dashboard continues to be focused on climate-related disclosures, the DDMWG recognises that there is an expectation that firms should in future report nature-related financial disclosures.<sup>7</sup> The [Task Force for Nature-related Financial Disclosures](#) framework is in development and FIs will need to consider how these wider risks could impact them and their disclosures.

**Operational emissions:** While the DDMWG recognises that FIs should take action to minimise the operational emissions arising from their activities, the Dashboard deliberately focuses on the investment, financing and insurance activities of FIs rather than their operations.

**Targets:** Given the wide range of other initiatives focused on the selection and setting of climate-related targets, the DDMWG deliberately decided to focus its work in this area on the identification of decision-useful metrics rather than targets.

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#### (4) Structure of dashboard

For each of the five categories, the Dashboard:

- Identifies illustrative ‘foundation’, ‘stretch’ and ‘advanced’ metrics for firms to consider
- Explains the rationale behind the proposed approach, including where appropriate, the relationship between climate-related metrics and financial impacts
- Summarises methodology and data sources for calculating foundation, stretch and advanced metrics.
- Discusses specific considerations for AMs, banks and insurers. (NB: Advice

for AMs includes the asset management arms of insurance companies and banks)

- Provides real-world examples of disclosures relating to each use-case.

The selection of examples chosen for each category are purely demonstrative; many of these institutions publish metrics across foundational, stretch and advanced categories.

Although the real-world examples quoted are self-contained to some extent, we encourage readers to use the links provided to consider them in the context of the full underlying disclosure report, which will provide additional contextual information (e.g. the basis of preparation, assumptions, limitations and links to other related disclosures).

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#### Implementation guidance

**Use of external data:** FIs may choose to employ the services of an external vendor to support such analysis. If outsourcing this work, the FI should take ownership of the outputs. They should have a good understanding of the features of the scenarios used and why they have been chosen for analysis. This should include an understanding of how the model is calibrated and be able to assess whether the evaluated response is reasonable.

**Greenwashing:** FIs need to be aware of the high level of scrutiny given to climate-related disclosures by regulators and other stakeholders arising from concerns about greenwashing. These concerns relate to both understating the negative and overstating the positive impacts of investment, financing and insurance activities. We consider that they are best addressed by increased transparency on both methodologies and data (e.g. quality, limitations, assumptions, approach taken to filling data gaps etc.), including whether reported metrics have been subject to external assurance.

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<sup>7</sup> See Target 15 of the “[Kunming-Montreal Global Biodiversity Framework](#)” agreed at COP15 in CBD committing governments to encourage and enable business to ‘(r)egularly monitor, assess, and transparently disclose their risks, dependencies and impacts on biodiversity’.

## Summary Dashboard

Table 3 summarises the core set of recommended metrics across each use case and category of metric, with key changes from the original 2021 Dashboard identified.

This is followed by a real-world example of a firm which has organised its climate disclosures using the approach proposed in the 2021 Dashboard.

**Table 3: Summary of Climate Disclosure Dashboard metrics**

Use cases	Foundation	Stretch	Advanced
Transition risks	Exposure to carbon-related assets (as % of portfolio/ underwriting activity)	Transition risk heatmap by sector/ technology/ geography under different scenarios (based on <b>granular assessment of different policy and technology-related risks</b> )	Anticipated future financial impacts based on results from scenario analysis ( <b>e.g. transition value at risk, or climate-adjusted probability of default</b> )
Physical risks	Exposure to assets vulnerable to acute and chronic physical risk, <b>split by sector and geography, surfacing particular 'hot spots' of identified material vulnerability</b>	Physical risk heatmap by sector, geography and hazard type under different scenarios ( <b>based on granular assessment of hazard-specific risks</b> )	Anticipated future financial impacts based on results from scenario analysis ( <b>e.g. physical value at risk, or climate-adjusted probability of default</b> )
Financed emissions and portfolio alignment	Financed emissions – historical/ current (absolute and intensity)	Financed emissions – historical/ current/ future (absolute and intensity)  <b>% of portfolio companies that have set or committed to setting science-based targets, or with transition plans</b>	Portfolio alignment metrics ( <b>e.g. implied temperature rise</b> )
Financing the transition	<b>Climate solutions investment ratio by revenue</b>	<b>Portfolio</b> carbon return metric (based on avoided emissions)	<b>Climate solutions investment ratio by capex<sup>8</sup></b>
Engagement	<b>Company engagements: objectives, activities and outcomes</b>	<b>Collaborative engagements: objectives, activities and outcomes</b>	<b>Systematic engagements: objectives, activities and outcomes</b>

### Table key

- Black text = Recommended metric unchanged from 2021 CFRF Disclosure Dashboard;
- Cyan text = Recommended metric in 2021 CFRF Disclosure Dashboard has been refined or further detail has been added to aid clarification;
- Green text = New recommended metric proposed for best practice disclosures.

<sup>8</sup> We expect this metric to move into the stretch and then foundation categories as capex data becomes more widely available under the EU Taxonomy disclosures later in 2023.

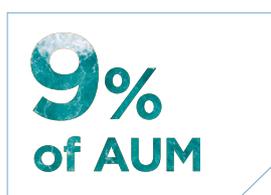
**Example of Climate Disclosures Dashboard:** [Impax TCFD Report 2022](#) (pages 16-19)

**Investment-Related Metrics**

The metrics and targets section of Impax’s TCFD Report 2022 was presented using the framework of the 2021 Disclosures Dashboard. Impax disclosed a mix of foundation and stretch metrics against each of the five Dashboard categories, while indicating an intention to move towards financial metrics wherever possible.

The [report](#) includes qualitative descriptions of the methodology used and detailed footnotes explaining individual figures which should be consulted before relying on any of the numbers quoted. The report also includes detailed disclosures on avoided emissions (a stretch metric relevant to Financing the Transition) for each of Impax’s strategies.

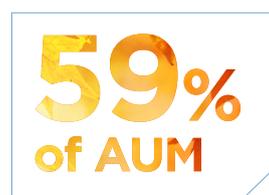
**Transition climate risks (investment-related)**  
Assets significantly exposed to carbon pricing



**Physical climate risks (investment-related)**  
Impax active listed equities strategies



**Financing the transition**  
Exposure to climate solutions



**FINANCED EMISSIONS**

Financed GHG emissions

	Unit	Listed equities
Scope 1 & 2 emissions	mtCO <sub>2</sub> e	3,6
Scope 3 emissions	mtCO <sub>2</sub> e	6,8
Carbon footprint	tCO <sub>2</sub> e / US\$1m invested	200
WACI (Scope 1, 2)	tCO <sub>2</sub> e / US\$1m revenue	150
WACI (Scope 1, 2 & 3)	tCO <sub>2</sub> e / US\$1m revenue	448

**ENGAGEMENT**

**Climate-focused engagements and outcomes**

Climate-related engagements during 2021\*

Total engagements focused on climate-related issues	23%
Companies engaged on climate issues by AUM**	18%

Positive engagement outcomes during 2021

Total engagements with a positive outcome***	47%
Climate-related engagements that achieved a positive outcome	66%

\* Source: Impax analysis, as at 31 December 2021. Please note that this data has not been externally assured.

\*\* AUM, as at 31 December 2021.

\*\*\* Positive outcomes are classified as “progress achieved” or “milestone achieved” as assessed by Impax against engagement objectives.

## Transition risks

Transition risks are business-related risks arising from the shift towards a net-zero future and any associated uncertainty it creates. These risks can be financially material but can have a varied effect on sectors and companies. FIs should disclose details of the financial impacts on their portfolios and financing activities of the transition to a low-carbon economy, considering both the risks faced and the opportunities presented.

Foundation	Stretch	Advanced
Exposure to carbon-related assets (as % of portfolio/underwriting activity)	Transition risk heatmap by sector, technology and geography. Results should reflect a granular assessment of different policy and technology-related risks  (Incorporate forward-looking projections where possible)	Anticipated future financial impacts based on results from scenario analysis (e.g. transition value at risk, or climate-adjusted probability of default)  (Ideally combined with financial impact of physical risks)

### Approach:

This section focuses on disclosures relating to transition risks; further discussion of opportunities arising from the transition can be found in the Financing the Transition section.

Risks to investee companies, borrowers and clients might arise from the implementation of transition policies including carbon pricing as well as potential legal and reputational risks under different forward-looking scenarios.

While there has been an increased level of reporting on transition-related risks in the financial sector, a lack of standardised measures and granular scenario pathways to use remains a barrier to widespread assessment and disclosure. Additional complexity arises out of the intersection of physical risk with transition risk. For example, natural disasters that are judged to have been exacerbated by climate change may accelerate policy responses to securing reductions in greenhouse gas (GHG) emissions, or enhance the business case for rapidly scaling lower carbon technologies.

- Our proposed foundation starting point is the disclosure of the amount and percentage of assets or business

activities vulnerable to climate-related transition risks (see ISSB Exposure Draft paragraph 21(b)).

- For a stretch metric, we recommend that the transition risks assessment is based on the exposure of investee companies/borrowers/clients to carbon prices under different scenarios and other policies, as well as their planned strategies to respond to such transition risks. FIs may wish to consider both external climate scenarios and their own perspectives of future climate and macroeconomic variables. Given the increasing prominence of climate-related litigation, we believe this approach should now, at least qualitatively, consider legal and reputational risk considerations.
- We consider it advanced practice to translate transition risks and opportunities under different climate scenarios into a quantitative impact on the portfolio, and to consider the financial impact on the firm. In doing so, firms can demonstrate their grasp of the potential impacts of different future scenarios on their investment or lending

strategy. While FIs may initially rely on third party vendors to calculate such impacts, as their approaches progress, they may wish to build out their own models to have more autonomy over the methodologies applied. FIs should

consider whether the outputs of this exercise can be aggregated with the outputs of climate scenario analysis for physical risks to provide a holistic assessment of climate-related risks for a given portfolio.

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## Methodology and data:

Transition risks will impact investee companies, borrowers, and clients directly, as well as via their supply chains and consumer markets. Current data availability on companies' value chains remains limited, representing a key barrier to a holistic transition risk assessment. However, in future, FIs should look to incorporate such impacts as far as possible.

For all metrics we suggest considering the anticipated risks over three timeframes, as relevant for the FI: short-term (present day), medium-term (typically 2030-35), and long-term (typically 2050). This allows the FI to consider climate risk considerations beyond traditional financial risk horizons, as suggested by regulators.

- **Foundation:** Exposure to Carbon-Related Assets is described by TCFD as "The amount or percentage of carbon-related assets in the portfolio, expressed in \$M or percentage of the current portfolio value."<sup>9</sup> The 2021 TCFD Annex suggests carbon-related assets should be defined as those tied to the four groups identified by TCFD i.e. Energy; Transportation; Materials and Buildings; and Agriculture, Food and Forest Products.<sup>10</sup>
- **Stretch:** A transition risk heatmap could be prepared by overlaying basic data on carbon-related assets (split by sector, geography etc.) with further risk categorisation based on degree of transition risk (e.g. by Low, Medium, High) (see Allianz's example below).

Exposure to investee counterparties with [Science Based Targets initiative](#) (SBTi) targets (as an indicator of resilience to transition risks) can be mapped by referencing SBTi's database or sourced via third party vendors.

- **Advanced:** The DDMWG advocates a 'learning by doing' approach in which FIs are encouraged to disclose the outputs of their scenario analysis exercises alongside the methodologies, data and assumptions used. One such example is the CFRF scenario narrative tool, which draws on data from the scenarios developed by the Central Banks and Supervisors for the NGFS. FIs should consider whether the outputs of this exercise can be aggregated with the outputs of climate scenario analysis for physical risks to provide a holistic assessment of climate-related risks for a given portfolio. These might be incorporated into a climate value-at-risk (CVaR) metric. Transition opportunities are also beginning to be included in this analysis. For example, through consideration of which companies and sectors are better placed to benefit from the climate transition, and which sectors are investing in low-carbon solutions.

FIs seeking detailed guidance on the wide variety of tools now available to support the assessment and reporting on transition risks may wish to consult UNEP FI's 2023 Climate Risk Landscape.<sup>11</sup>

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<sup>9</sup> The formula for this calculation is set out in Table 3 on p. 56 of the [2021 TCFD Annex](#).

<sup>10</sup> See Table 4 on p. 56 of the [2021 TCFD Guidance](#) for industries associated with the four non-financial groups.

<sup>11</sup> See Section 3 of [The 2023 Climate Risk Landscape](#), March 2023.

## Specific considerations for AMs, banks and insurers:

### Asset Managers



- In line with TCFD recommendations, AMs should disclose significant concentrations of exposure to carbon-related assets in relation to each product or investment strategy.
- Under the Financial Conduct Authority's (FCA) Policy Statement PS21/24,<sup>12</sup> AMs will have to produce product level TCFD reports which specify whether the product has 'concentrated exposures or high exposures to carbon intensive sectors'. These reports should also include a calculation for CVaR 'as far as reasonably practicable'.
- AMs should note that the draft ISSB disclosure requirements for their sector ([IFRS S2 Appendix B Volume B15 Asset Management & Custody Activities](#)) include metrics relating to Transition Risk and should review the requirements carefully once they have been finalised.

### Banks



- TCFD recommends provision of metrics relating to credit exposure, equity and debt or trading positions broken down by industry, geography, credit quality and average tenor.<sup>13</sup>
- For the foundation and stretch metrics, portfolio level metrics are considered most suitable (eg. a retail bank with mortgage exposure may wish to monitor and report the energy efficiency (as determined by their Energy Performance Certificate (EPC)<sup>14</sup>) ratings profile of their portfolio, split into EPC buckets A - G).
- At the advanced level, where the results of scenario analysis are being used, this could eventually encompass an analysis of the whole bank, including impacts on revenues as well as potential gains/losses in value within portfolios.
- Banks should note that the draft ISSB disclosure requirements for their sector ([IFRS S2 Appendix B Volume B16 Commercial Banks](#)) include metrics relating to Transition Risk Exposure and should review the requirements carefully once they have been finalised.

### Insurers



- Impacts for insurance portfolios from exposure to high transition risk assets will vary by asset class.
- Stretch disclosure may be split by sector and provide an indication of their sensitivity to transition risks and the impact on an insurers business. Insurers could consider, for example, whether developments in energy technology impact the risk profile and profitability of particular asset classes over time or whether market or regulatory developments impact the demand for insurance products.
- Metrics may describe the potential exposure of counterparties to changing climate or energy policy, the proportion of the portfolio screened to establish science-based target setting together with associated levels or type of engagement and potential impact on the insurer's business over time.
- Life insurers also fall under the FCA's PS21/24 and hence will have the equivalent disclosure requirements as AMs in their product level TCFD reports.
- Insurers should note that the draft ISSB disclosure requirements for their sector ([IFRS S2 Appendix B Volume B17 Insurance](#)) include metrics relating to Transition Risk Exposure and should review the requirements carefully once they have been finalised.

<sup>12</sup> See "FCA Policy Statement PS21/24: [Enhancing climate-related disclosures by asset managers, life insurers and FCS-regulated pension providers](#)", December 2021.

<sup>13</sup> See p. 29 of the [2021 TCFD Annex](#).

<sup>14</sup> An [EPC](#) gives a property an energy efficiency rating from A (most efficient) to G (least efficient) and is valid for 10 years. It contains information about a property's energy use and typical energy costs, and recommendations about how to reduce energy and save money.

### Priorities for further work:

- (1) Development of reference scenarios to support analysis of transition risk to assist comparability, including enhancing existing scenarios (e.g. NGFS, [International Energy Agency](#) (IEA)) with additional granularity and regional/sectoral coverage.
  - (2) Analysis around design choices and the calibration of parameters when evaluating CVaR; consistency in evaluation and reporting would encourage adoption.
  - (3) Further guidance on appropriate disclosures relating to climate-related litigation and reputational risks.
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### Real-world examples:

The following real-world examples provide a range of alternative approaches to assessing and disclosing transition risks across banks, insurers and AMs. The selection of examples we have

chosen here are purely demonstrative; many of these institutions publish metrics across the foundational, stretch and advanced categories.

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**Foundation metric:** [M&G Sustainability Report 2021/22](#) (page 45)

**High Risk and High Opportunity Exposures**

M&G has identified ‘fossil fuel’ and ‘green’ exposed counterparties as representing higher transition risk and higher opportunity investments respectively.

The table below provides a breakdown of the relevant exposure across asset categories and business lines. In the case of fossil fuel exposure, this metric is sub-divided into whether revenues.

are linked to power generation and materiality of different energy policies.

The below table (*excerpt from full table included in the disclosure*) articulates what the exposures show and how they drive change. Note that the below table should not be read as a full suite of transition risk exposures, but rather, key risks and opportunities on which M&G is proactively focusing.

Metric	Metric Value						What this shows
	AM			AO			
	Overall (EQ +FI)	Equities	Fixed Income	Overall (EQ +FI)	Equities	Fixed Income	
<b>Fossil Fuel Exposure (£ms) (excluding revenue from fossil fuel based power generation)</b>	8,487	4,370	4,117	4,782	2,835	1,947	An overall view of M&G's exposure to fossil fuels (Oil, Gas, Coal extraction value chains) excluding any company revenue derived from fossil fuel power generation. Whilst the economies rely on these today, they represent higher climate mitigation exposures in a transition to 1.5 degrees in the medium to longer term.
<b>Fossil Fuel Exposure (%) (excluding revenue from fossil fuel based power generation)</b>	4.6%	6.0%	3.7%	4.7%	5.3%	4.7%	As above, adds context to the amount whilst being comparable to peers.
<b>Fossil Fuel Exposure (£ms) (revenue from fossil fuel based power generation)</b>	1,029	300	730	580	192	388	M&G's exposure to companies who derive part of their revenue from fossil fuel based power generation.
<b>Fossil Fuel Exposure (%) (revenue from fossil fuel based power generation)</b>	0.8%	0.4%	0.9%	0.6%	0.4%	0.8%	As above, adds context to the amount whilst being comparable to peers.
<b>Green Exposure (£ms)</b>	6,980	3,976	3,004	3,580	2,882	697	This is the "good news" side of the equation, giving an initial and incomplete picture of the proportion of our AUM that are identified as climate opportunities, either through corporates that sell solutions (estimated revenues) or through our opportunity to finance climate transition capital/assets such as Green Bonds.  It does not include climate solutions investments in some private funds such as Catalyst or Infrastructure.



**Stretch metric:** [Citi TCFD Report 2021](#) (page 53)

### Climate risk heatmap by sector

Citi established a formal methodology for determining the vulnerability scores assigned to each portfolio sector. The climate risk heat mapping categorizes sectors under one of four vulnerability scores (ranging from “low - 1” to “high - 4”).

The table below is an excerpt from a more comprehensive table disclosed in Citibank’s TCFD Report 2021. It provides a list of Citibank’s current

credit exposures; exposures the bank is proactively identifying as areas of focus, rather than imminent risks to existing exposures. For each sub-sector identified, the table details the level of risk for both physical and transition climate-related risks. The Energy & Commodities sector has been identified as one of the sectors with the highest transition risk.

CLIMATE RISK HEAT MAP AND CREDIT EXPOSURE		2020				Climate Risk <sup>1</sup>	
		Total \$ Exposure	% of Total Exposure	Funded	% of Funded Exposure	Transition Risk	Physical Risk
<b>\$ in Millions</b>							
<b>Energy &amp; Commodities<sup>2</sup></b>	<b>49,524</b>	<b>6.3%</b>	<b>15,086</b>	<b>4.4%</b>			
Integrated Oil & Gas	13,332	1.7%	2,844	0.8%	4	2	
Oil & Gas Exploration & Production	13,316	1.7%	4,380	1.3%	4	2	
Oil & Gas Storage & Transportation	7,169	0.9%	1,808	0.5%	4	2	
Oil & Gas Refining & Marketing	6,976	0.9%	2,632	0.8%	4	2	
Oil & Gas Equipment, Services and Drilling	4,914	0.6%	1,082	0.3%	4	2	
Other	3,816	0.5%	2,340	0.7%	4	2	
<b>Power</b>	<b>26,916</b>	<b>3.4%</b>	<b>6,379</b>	<b>1.9%</b>			
Alternative Energy	2,011	0.3%	1,015	0.3%	1	2	
Electric Utilities	6,430	0.8%	2,373	0.7%	3	3	
Gas Utilities	1,497	0.2%	571	0.2%	3	2	
Independent Power Producers & Service Operators	2,449	0.3%	591	0.2%	3	3	
Multi-Utilities	12,117	1.5%	1,343	0.4%	3	3	
Water Utilities	986	0.1%	134	0.0%	2	3	
Other	1,426	0.2%	353	0.1%	3	3	



Real World Example

**Advanced metric:** AXA 2022 Climate and Biodiversity Report (page 56)

**Dashboard capturing Climate Value at Risk (CVaR) metrics related to Physical Risk Cost, Transition Cost and Green Revenues**

AXA applied a CVaR model, developed by MSCI, to all its investment portfolios (corporate bonds and listed equities) under +1.5°C, +2°C and +3°C scenarios using an average and an aggressive physical scenario. According to this methodology, the climate change impact on the valuation of the companies in which AXA invests represents an aggregated risk of 11.34% of the market value of

AXA’s investment portfolio under the best scenario (+1.5°C).

Note that “Warming Potential” reflects the impact that AXA’s investments may have on the climate and “Green Share” represents “level of greenness” of investments.

**Climate Metrics Full Dashboard <sup>(1)</sup>**

		Total Assets					
		AXA Portfolio			Benchmark		
		FY 2019	FY 2020	FY 2021	FY 2019	FY 2020	FY 2021
<b>Warming Potential (°C)</b>		2.79	2.75	2.62	3.22	3.20	2.96
% Coverage		77%	77%	90%	85%	86%	97%
<b>Green Share (%)</b>		18.5%	18.8%	17.1%	0.13	13.1%	13.3%
% Coverage		86%	85%	97%	96%	96%	100%
<b>Aggregated Climate Risks (CVaR)</b>	Best Scenario	-12.15	-11.47	-11.34	-13.20	-12.02	-13.25
	Worst Scenario	NA	NA	-8.04	NA	NA	-8.81
% Coverage		48%	47%	64%	76%	77%	92%
<b>Physical Risk Cost (CVaR)</b>	Average Scenario	-6.15	-5.96	-5.73	-6.31	-6.02	-5.80
	Aggressive Scenario	-7.72	-7.40	-7.07	-8.23	-7.80	-7.53
<b>Transition Cost (CVaR)</b>	Scenario 1.5°C	-10.33	-9.53	-9.53	-10.78	-9.69	-11.72
	Scenario 2°C	NA	NA	-6.77	NA	NA	-8.58
	Scenario 3°C	NA	NA	-1.17	NA	NA	-1.48
<b>Green Revenues (CVaR)</b>	Scenario 1.5°C	4.34	4.02	3.92	3.88	3.69	4.27
	Scenario 2°C	NA	NA	1.77	NA	NA	1.90
	Scenario 3°C	NA	NA	0.20	NA	NA	0.20
<b>ESG Score</b>		5.89	5.88	6.40	5.50	5.51	6.12
% Coverage		94%	94%	93%	98%	98%	98%
<b>Carbon Intensity (tCO<sub>2</sub> per \$mn. revenue)</b>		201	192	163	278.69	265	253
% Coverage		85%	81%	88%	95%	96%	97%
<b>Carbon Intensity (tCO<sub>2</sub> per €mn. EV)</b>		66	70	47	NA	NA	NA
% Coverage		78%	72%	78%	NA	NA	NA
<b>Absolute Carbon Emission (tCO<sub>2</sub>)</b>		10,015,565	9,617,567	6,996,315	NA	NA	NA
% Coverage		78%	72%	78%	NA	NA	NA

Benchmark: MSCI World ACWI (equities), ICE BofAML Global Broad Market corporate (corporate debt), JPM GBI Global (sovereign debt).

(1) The benchmarks of reference in the “Climate Metrics Full Dashboard” are the indices most representative of AXA’s investment portfolio. However, AXA does invest General Account assets outside the scope of these benchmarks of reference. As data providers prioritize the coverage of the benchmarks’ scope by default, the coverage rates for AXA’s investment portfolio are lower than the benchmarks.



**Advanced metric:** [Schroders TCFD Disclosure 2021](#) (pages 18-19)

**Assessment of both physical and transition risks**

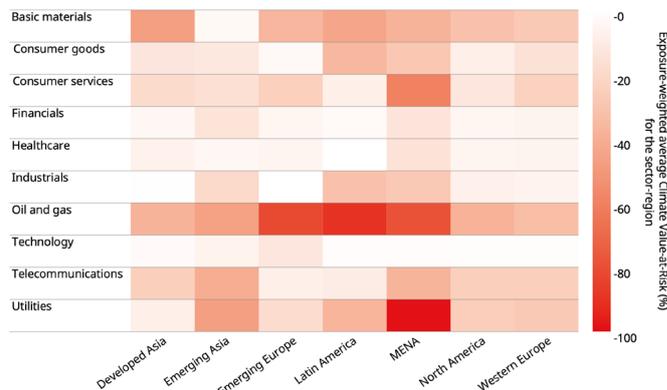
Schroders conducts scenario analysis at the aggregated level across climate transition risks, technology opportunities and physical risks, but also looks at the results for each climate risk and opportunity independently. MSCI’s Climate Value at Risk (VaR) dataset is used to explore the climate risks and opportunities for multiple scenarios, and estimates the financial impacts associated with each.

Schroders reports the sectoral and regional impacts of aggregated physical and transition risks, using MSCI’s Climate VaR under both 3°C (hot house world) and 1.5°C scenarios, to

demonstrate regions that might experience losses or gains from the transition. For example, in the 1.5°C scenario, oil and gas in Emerging Europe, Latin America and MENA, represent a larger risk to Schroders.

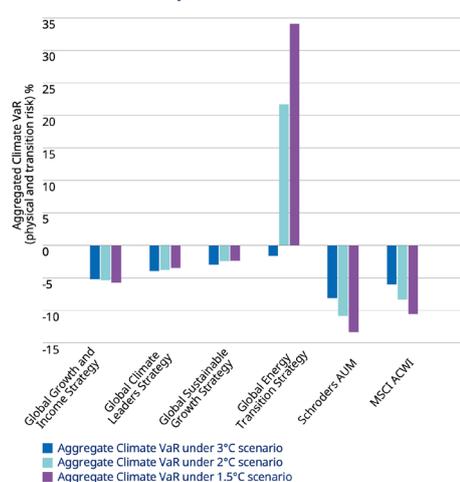
Furthermore, Schroders outlines the performance of their funds relative to benchmarks across the different scenarios. For example, four climate thematic funds show less potential loss than Schroders group AUM and the MSCI ACWI, and one fund even shows potential positive value opportunities in the 2°C and 1.5°C scenarios.

**Aggregated Climate VaR under 1.5°C**



Source: Schroders analysis of the sectoral and regional impact of aggregated physical and transition risks, using MSCI Climate VaR, under 3°C and 1.5°C scenarios.

**Schroders sustainable strategies under Climate VaR vs all in-scope AUM vs MSCI ACWI<sup>3</sup>**



Sources: 3. Climate risk exposure of a selection of Schroders sustainable strategies, an illustrative Schroders equity portfolio and the MSCI ACWI.



## Physical risks

The financial and humanitarian costs of physical climate change are rising and are projected to increase substantially. The crystallisation of these risks and how they could evolve over time varies significantly by geography and so the development of appropriate physical risk monitoring tools is essential for effective financial risk management.

Foundation	Stretch	Advanced
Exposure to assets vulnerable to acute and chronic physical risk, split by sector and geography, surfacing particular 'hot spots' of material vulnerability	Physical risk heatmap by sector, geography and hazard type. Results should reflect granular assessment of hazard-specific risks  (Incorporate forward-looking projections where possible)	Anticipated future financial impacts based on results from scenario analysis (e.g. physical value at risk, or climate-adjusted probability of default)  (Ideally combined with financial impacts of transition risks)

### Approach:

The complexity and diversity of physical climate risks means that it has the potential to be the most technically complex climate risk to assess and report on. Even the most sophisticated approaches do not yet capture broader system-wide risks associated with disruptions to utilities or supply chains, or the non-linearities in climate scenario modelling. Although we recognise the challenges associated with measuring and managing physical risks, we encourage FIs to report on their physical risk profile in a quantitative manner, and we have selected the recommended metrics to assist them in that process.

- Given the firm and location specific aspects of physical climate risk, the foundation metric focuses on the identification of 'at risk' financial exposures as the crucial first step. Exposures are defined as being affected by either 'acute' hazards (for example, wildfires, heatwaves, floods and storms) or 'chronic' hazards (for example, droughts, sea level rise, landslides, variability of precipitation). FIs should initially focus on improving

the geographic granularity of input data (such as asset location) and identifying key hot-spots of material vulnerability.

- The stretch metric builds on this by suggesting further analysis of high/medium/low risk sectors and geographies (by materiality), and information on the specific climate impacts to which they are exposed across different climate scenarios. Where possible, firms should include risks arising from the exposure of value chains to climate impacts. Forward-looking projections, based on alternative future pathways, should be considered where possible.
- As an advanced metric, we recommend that firms should strive to report future financial impacts of physical risks on their business under multiple climate scenarios. Outputs might include: financial metrics such as CVaR, average annual loss, annual expected loss or probably maximum loss for asset managers; or climate adjusted probability of default (PD), loss given default (LGD),

and expected credit losses for banks. FIs should consider whether the outputs of this exercise can be produced in conjunction with climate scenario analysis for transition risks and aggregated to provide a holistic assessment of climate-

related risks for a given portfolio. At the very least, FIs should consider undertaking a proper comparison of relative magnitude between transition (carbon and financial) and physical risks to equivalent scenarios.

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## Methodology and data:

For all metrics we suggest considering three timeframes, as relevant for the FI: short-term (present day), medium-term (typically 2030-35), and long-term (typically 2050).

- Foundation:** Key inputs for an analysis of vulnerability to physical risks are asset location for company sites and asset classes. These can then be combined with basic climate information, for example from the [CFRF climate scenario analysis narrative tool](#), which detail the extent and geographic scope of expected changes to climate variables. This analysis will identify where the largest risks in a portfolio may manifest for any financial services firm.
- Stretch:** We recommend that FIs then seek to build more granularity into their analysis by looking at exposure of individual property location, sectors and geographies, across a range of climate scenarios and physical risk types. Firms could, for example, assess their most material exposure by value against the list of physical climate hazards that feature in the Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report (AR6) The Physical Science Basis<sup>15</sup>.
- Advanced:** FIs should undertake scenario analysis using at least two scenarios (e.g. [NGFS scenarios](#)). Recognising that methodologies for calculating future financial impacts are still being developed, as a first step firms could focus on building an understanding of past and recent climate impacts which can form the baseline against which projected financial impacts can be compared.<sup>16</sup> Assumptions based data is available in the market, such as from the Moody's climate-adjusted PD model and the MSCI climate VaR product. Financial institutions should, at least, enable proper comparison of relative magnitude between transition and physical risks to equivalent scenarios or, ideally, disclose financial impacts of both physical and transition risks using the same metric, for example CVaR.<sup>17</sup>

FIs seeking detailed guidance on the wide variety of tools now available to support the assessment and reporting on physical risks may wish to consult UNEP FI's 2023 Climate Risk Landscape.<sup>18</sup>

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<sup>15</sup> See [IPCC Sixth Assessment Report. Working Group 1: The Physical Science Basis](#), 2021.

<sup>16</sup> For an example of how scenario analysis can be used to model financial impacts, see Santander [Climate Finance Report 2021 - June 2022](#) (page 11).

<sup>17</sup> For an example of a combined Climate VaR, see Aviva plc [Climate-related Financial Disclosure 2021](#).

<sup>18</sup> See Section 4 of [The 2023 Climate Risk Landscape](#), March 2023.

## Specific considerations for AMs, banks and insurers:

### Asset Managers



- As recommended by TCFD, AMs should describe metrics used to assess climate-related risks and opportunities at entity level.
- AM also face new FCA requirements to provide, 'as far as reasonably practicable', CVaR results covering both transition and physical risks.
- AMs should consider the asset classes and companies they invest in which have the most material physical risk exposures, as well as vulnerabilities within company supply chains. For example, from an asset class perspective, commercial real estate investments or infrastructure project finance are likely to have greater potential vulnerability to physical climate risks.
- Advanced physical risk scenario modelling should demonstrate regional variations in extreme weather patterns and evaluate the different impacts of acute vs chronic physical risk impacts. Equipped with this knowledge, AMs can identify the most vulnerable assets, sectors, companies and regions, and understand the potential financial impacts for consideration in their investment and engagement strategies.

### Banks



- Where lending is for general corporate purposes, banks should assess the entire physical risk profile of clients, who may own assets in different locations.
- Where lending by the bank is asset-linked (e.g. asset/project finance or mortgages) it may be easier for the bank to assign physical risk rating to the exposure without these third-party aggregators, but there will still be a need to map assets/locations to physical risk information. Some data is publicly available; for example, UK mortgage lenders can source current flood hazard data from the Environment Agency.
- For Stretch and Advanced metrics, retail banks should be looking to progress beyond flood risk metrics into risks such as subsidence and coastal erosion. The ISSB's draft Sustainability Disclosure Standard includes specific examples of metrics for mortgage lenders.<sup>19</sup>
- The LGD channel is expected to be more relevant for physical risks than PD. Estimates can be based on climate-adjusting existing models, where available, or producing assumption-based LGD estimates outside for existing models, for example, by assuming properties that have permanent flood damage lose a proportion of their value. This aligns with the outputs of the Bank of England's (BoE) Climate Biennial Exploratory Scenario (CBES).<sup>20</sup>

<sup>19</sup> See "[Draft] IFRS S2 Climate-related Disclosures Volume B19 Mortgage Finance", March 2022.

<sup>20</sup> See BoE's "Results of the 2021 Climate Biennial Exploratory Scenario", May 2022.

## Insurers



- Historical claims data may assist with creating a profile of the aggregated risk exposure to weather-related catastrophes of an insurer’s property business over the near-term; assessing longer-term impacts is more complex.
- Climate variables (either simulated – based on available climate scenario pathways, or projected – based on extending historical loss time series) can underpin ‘stretch’ disclosure to demonstrate differential exposures by geography and climate hazard, as well as show probable maximum losses (PMLs) at a specific return period, or to report against a range of periods.<sup>21</sup> The approach taken will depend on suitability with respect to type of hazard, the scientific basis for expected projected changes and stationarity.
- Fully integrating climate change effects into the catastrophe models used by insurers is a complex science in the early stages of development, with limited market testing or validation applied to forward looking models and advanced disclosure, and will not be generally applicable to indirect risks, such as supply chain, or non-property risks. Stress tests of ‘present day’ catastrophe loss event distributions can be undertaken to give a high-level view of potential future changes to loss frequencies. Methodologies and models will become more advanced over time.

### Priorities for further work:

- |                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(1) Open access data on climate and natural hazard risks with consistent metrics at local to global scale.<sup>22</sup></p> <p>(2) Developing standardised methodologies for calculating financial impacts (e.g. on revenue, costs and asset value).<sup>23</sup></p> | <p>(3) Further work on how FIs should report on adaptation activities intended to mitigate physical risks (e.g. investing in adaptation solutions and projects, encouraging companies to prepare effective adaptation plans).<sup>24</sup></p> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### Real-world examples:

The following real-world examples provide a range of alternative approaches to assessing and disclosing physical risks across banks, insurers and asset managers. The selection of examples we

have chosen here are purely demonstrative; many of these institutions publish metrics across the foundational, stretch and advanced categories.

<sup>21</sup> For example, “[Draft] IFRS S2 Climate-related Disclosures Volume B17 - Insurance” include that the entity should disclose the PML using, at a minimum, three likelihood of exceedance scenarios: (1) 2% (1-in-50); (2) 1% (1-in-100); (3) 0.4% (1-in-250).

<sup>22</sup> [The Global Resilience Index Initiative \(GRII\)](#) is intended to meet this need by providing open-source reference data on climate and natural hazard risks.

<sup>23</sup> See GRII [use case on Climate-related Financial Disclosure by Asset Owners and Asset Managers](#) developed by Oxford Sustainable Finance Group and Impax Asset Management.

<sup>24</sup> See for example IIGCC’s proposed [Climate Resilient Investment Framework](#).

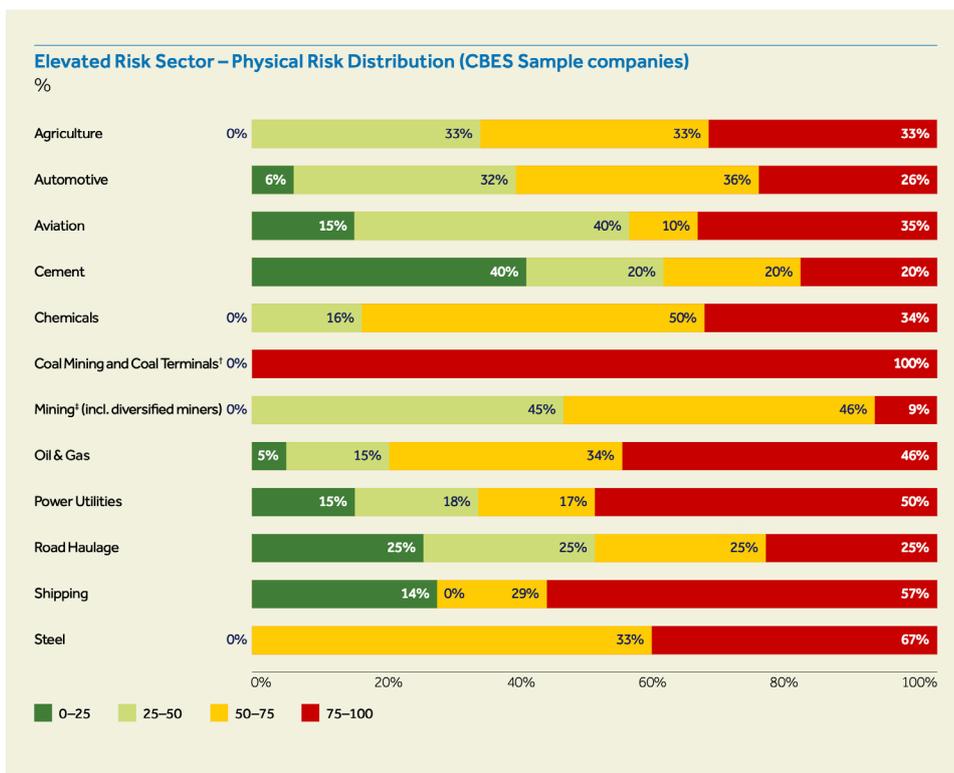
**Foundation metric:** [Barclays TCFD Report 2021](#) (page 27)

**Physical risk scores for wholesale corporate portfolio**

Barclays’ use Moody’s Four Twenty Seven physical risk scores to assess the physical risks associated with a sample population of their largest and most climate-sensitive wholesale corporates. The analysis is conducted for each counterparty in the same using granular geolocation data. Where scores provided by the data vendor were unavailable, a benchmarking approach based on industry and country was used.

The model scores companies for physical risk by aggregating site-level climate hazard exposure across their known facilities, ranging from manufacturing sites and warehouses to offices

and retail stores. The scoring process accounts for the fact that facilities will be affected differently by climate hazards based on their activities. For example, a manufacturing plant that has heavy water and energy inputs will be more sensitive to heat stress and water stress than an office in the same location. Facility scores for each hazard are aggregated to company level and scaled by percentile with respect to the reference universe of companies to derive a hazard risk score for each company between 0 (low risk) and 100 (high risk). The graph below highlights the proportion of counterparties across different Moody’s Four Twenty Seven physical risk categories.



\*The analysis is based on the sample population of corporates assessed at counterparty level for the CBES exercise and thus coverage differs across sectors. For example, the Agriculture sector includes only a small number of global Agriculture firms and does not include our UK Farming portfolio, which is not currently covered by Moodys 427.

In some instances, the Moodys universe did not include counterparties required for counterparty level modelling. To ensure coverage, a benchmarking approach based on industry and country combination was followed using the country and industry level averages of the entire Moody’s 427 universe.

† Coal Mining and Coal Terminals relates to one client predominantly engaged in metallurgical coal mining.

‡ Diversified miners with minority interests in thermal coal mining are included in this category.



**Stretch metric:** [Zurich, Annual Report 2022](#) (page 137)

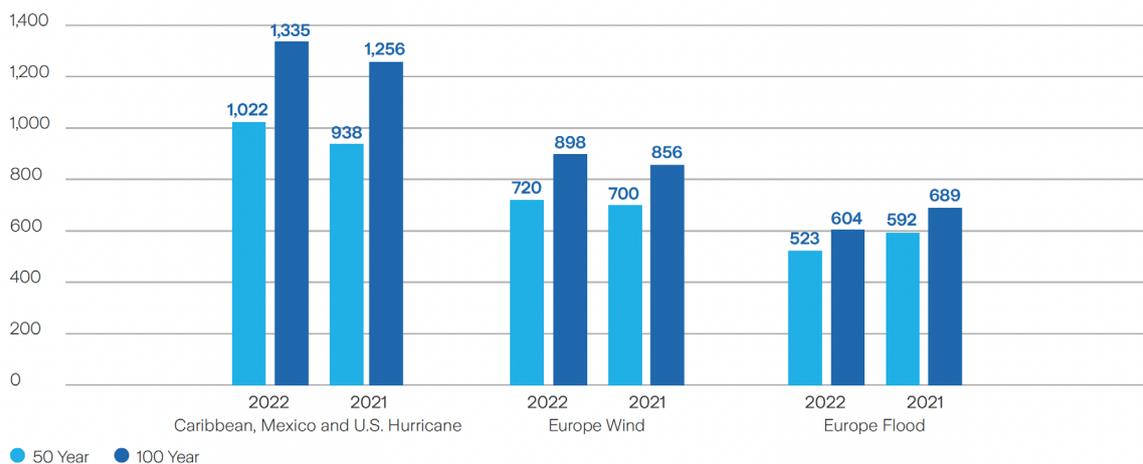
**Probable maximum loss by top three peril regions**

Zurich Re presents its current exposure to physical risk in its Property & Casualty portfolios through probable maximum loss (PML), which is a tail metric that looks at severe, unexpected but still possible outcomes of natural catastrophes at a defined probability of occurrence.

This analysis reflects the current top three ‘peril regions’ (i.e. those regions likely to be most impacted by climate change and by what weather hazard) and net of reinsurance.

The net aggregate 50- and 100- year PML are shown for the top three peril regions, as measured by total capital contribution. The 2021 results are compared with the 2020 position to demonstrate change over time. Zurich Re identify limitations in the current approach within the footnotes, for example due to catastrophe models currently not being available for chronic diseases, droughts and extreme heat. This is considered good practice.

**Probable maximum loss by top three peril regions<sup>1</sup>**  
in USD millions



<sup>1</sup> PML excludes Farmers Re increased participation in the Farmers Exchanges’ all lines quota share treaty from 1.75% to 8.50% as of 31 December, 2022. This increased Zurich Group’s PML for US hurricane exposure by USD 54 million for the 50-year PML and by USD 61 million for the 100-year PML.



**Stretch metric:** [NatWest Group 2022 Climate-related Disclosures Report](#) (page 70)

**Proportion of properties at high and very high risk of flooding, by region**

NatWest conducted a flood risk assessment based on the proportion of UK residential mortgages properties at high and very high risk of flood events, as percentage of the total UK mortgage lending. The analysis covers c.97% of the UK mortgage portfolio and is based on present

day levels. The data has been obtained through a third-party vendor and the analysis includes frequency and depth of surface, coastal, river and groundwater flooding at a national level. Flood scores are allocated per property based on the potential flood damage to the property.

Introduction   Governance   Strategy and Climate transition plan   Risk Management   **Metrics and Targets** 

### UK residential mortgages – energy efficiency and flood risk assessment continued

**Flood risk**

The map opposite represents the proportion of UK residential mortgage properties at high and very high risk of flood, as a percentage of the total UK mortgage lending. The flood analysis presented is based on present day risk levels which take into account the probability of flood events occurring. This analysis covers c.97% of the UK mortgage portfolio.

On a total volume basis, present day UK mortgages at high risk of flooding are 2.9% of the portfolio and those at very high risk are 0.1% of the portfolio. This is comparable to the overall UK volume-based analysis with high of 3.0% and very high of 0.1%.

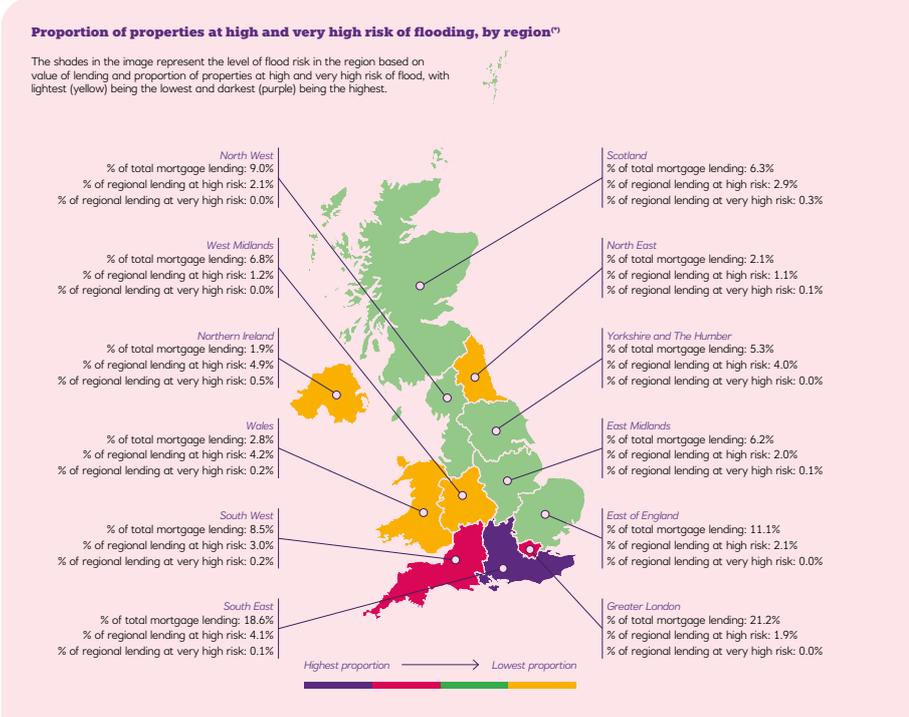
**Data for flood risk analysis:** Flood risk data is obtained through our third-party vendor, Airbus, and their flood risk analysis includes surface flooding, rivers, ground water as well as coastal flooding and clay-related shrink-swell. Airbus gathers multiple geospatial datasets, derived from industry specialists including Ordnance Survey, JBA Risk Management and Property Risk Inspection. It also calculates the physical risks to properties now and as global temperatures rise using climate data from the UK Climate Projections 2018.

**Flood scores:** JBA model flood hazard by looking at the four different types of flooding (surface water, ground water, coastal and river) and calculating the frequency and depth of flooding nationally to derive flood maps. Flood defences are considered where available. Flood scores are allocated per property based on the potential flood damage to property dependent on the type, frequency and depth of flooding modelled across different return periods. The scoring ranges from 0 to 53, with 0 being lowest and 53 being the highest risk. We consider a score of 11 and above to be high risk and properties with a score of 31 and above within the very high risk category after flood mitigants are taken into account. JBA's flood scores in the UK are widely used by insurers, lenders, property search/conveyancers and valuation surveyors, providing a consistent view across the whole homebuying and property management process.

(\*) Within the scope of EY assurance. Refer to page 10.

**Proportion of properties at high and very high risk of flooding, by region<sup>(\*)</sup>**

The shades in the image represent the level of flood risk in the region based on value of lending and proportion of properties at high and very high risk of flood, with lightest (yellow) being the lowest and darkest (purple) being the highest.



Region	% of total mortgage lending	% of regional lending at high risk	% of regional lending at very high risk
North West	9.0%	2.1%	0.0%
West Midlands	6.8%	1.2%	0.0%
Northern Ireland	1.9%	4.9%	0.5%
Wales	2.8%	4.2%	0.2%
South West	8.5%	3.0%	0.2%
South East	18.6%	4.1%	0.1%
Scotland	6.3%	2.9%	0.3%
North East	2.1%	1.1%	0.1%
Yorkshire and The Humber	5.3%	4.0%	0.0%
East Midlands	6.2%	2.0%	0.1%
East of England	11.1%	2.1%	0.0%
Greater London	21.2%	1.9%	0.0%

Highest proportion → Lowest proportion

NatWest Group plc | 2022 Climate-related Disclosures Report 70

**Advanced metric:** The [Bank of England’s climate-related financial disclosures 2022](#)

**Basis point increase in PD by sector due to physical risk**

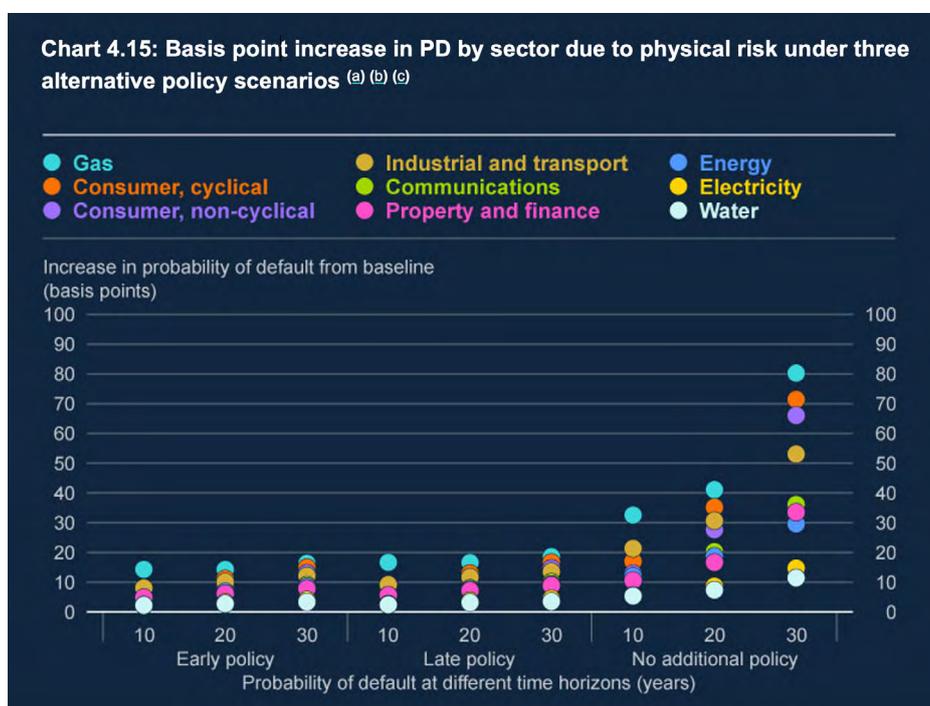
The Bank of England utilised Moody’s proprietary physical risk methodology to assess the potential impact of physical risks on their corporate bond portfolio. This analysis aims to capture physical risks that occur over longer time horizons than are typically considered in most traditional financial models.

Three alternative climate scenarios were assessed, which are based on the ‘early action’, ‘late action and ‘no additional policy action’ scenarios provided by the NGFS. The world experiences different levels of emissions, temperature increases and different levels of ‘economic damages’ under each of these scenarios. Scenario-specific, firm-level estimates of climate damages are then converted into implied PDs for each company, using estimates of the

historic impact of climate damage on asset price volatilities.

The chart shows the average basis point increase in PDs by sector, to illustrate the extent to which PDs could increase in these different scenarios. It shows that increases in PDs are, unsurprisingly, highest under the ‘no additional policy action’ scenario and over the longest time horizon. These impacts worsen at longer time horizons as the physical impacts of climate change are expected to intensify if no further action is taken. In contrast, physical risks in the early and late policy scenarios are more muted and broadly similar in magnitude across time horizons. This analysis provides a starting point for assessing the potential financial risks associated with different future physical risk pathways.

**Chart 4.15: Basis point increase in PD by sector due to physical risk under three alternative policy scenarios (a) (b) (c)**



Sources: Moody’s Analytics and Bank calculations.  
 (a) The PD estimates only estimate potential increase in risk due to physical risks. They do not factor in the potential impact of transition risks under each of these scenarios.  
 (b) This chart plots the forward PD at 10, 20, 30 year time horizons. The forward PD measures the expected PD of the company, assuming it survives to that year.  
 (c) This analysis covers 63% of the portfolio.

## Financed emissions and portfolio alignment

In line with disclosure recommendations, regulatory norms and industry best practice, information on financed emissions and other metrics related to portfolio decarbonisation, such as Portfolio Alignment metrics, should feature in disclosures by FIs.

Foundation	Stretch	Advanced
Financed emissions – historical/ current (absolute and intensity)	Financed emissions – historical/ current/future (absolute and intensity)  % of portfolio companies that have set or committed to setting science-based targets, or with transition plans	Portfolio alignment metrics (e.g. implied temperature rise)

### Approach:

Across financed emissions and portfolio alignment measures, methodologies continue to rapidly evolve and FIs are refining their approaches to ensure metrics are robust, accurate and decision-useful.

- Within the foundation category, FIs have substantially advanced the reporting of their historic and current financed emissions, following updated methodological guidance such as that provided by TCFD and [the Partnership for Carbon Accounting Financials](#) (PCAF). Many FIs now have in place better data collection mechanisms for investee companies, clients and counterparties, and have developed reasoned proxy approaches where data remains unavailable, particularly for scope 1 and 2 emissions.
- Within the stretch category, FIs could include information on projected financed emissions given the development in methodologies supporting emissions forecasting approaches. This might support progress with respect to any decarbonisation

targets set by the FI. We also see FIs incorporating some more straightforward portfolio alignment measures, such as portfolio exposure (in %) to companies that have set or committed to setting science-based targets, or % portfolio exposure of entities with transition plans.

- Portfolio alignment models and methodologies, such as Implied Temperature Rise (ITR), are increasingly being included in FIs’ disclosures to demonstrate alignment with net zero. Where these metrics are disclosed, FIs should ensure they link to their disclosures on both financing the transition and their own transition plan. Financed emissions and FIs’ work to achieve emission reductions in the real economy are both important (see Financing the Transition, below). Portfolio alignment models are also generally provided by third party data vendors and can lack transparency, so the general precautions applicable to outsourcing apply (see page 9). As FI’s approaches become more advanced,

they might incorporate a detailed assessment counterparty transition plans (either quantitative or qualitative) in both emissions forecasting and portfolio alignment techniques.

Challenges remain in developing and advancing the reporting of these metrics. There remains differing methodologies for calculating intensity-based financed emissions. The CFRF recommends FIs consider which measures are considered most appropriate for their business profile and

portfolio characteristics. As with other metrics, data availability and quality remain a barrier, with scope 3 modelling approaches varying widely based on estimation method.

The DDMWG concluded that, considering the approaches taken by different regulators and the rapidly evolving landscape in relation to methodologies, disclosure of financed emissions (both absolute and intensity-based) should focus on methodologies already widely in use for AMs, banks and insurers.

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## Methodology and data:

AMs, banks and insurers should note that the draft ISSB industry-based disclosure requirements for their respective sectors (see volumes B15, B16 and B17 of [IFRS S2 Appendix B Industry-based disclosure requirements](#)) include absolute and intensity metrics for financed emissions and should review the requirements carefully once they have been finalised.

- **Foundation:** Suggested formulae for calculating financed emissions including Weighted Average Carbon Intensity, Total Carbon Emissions and Carbon Intensity can be found in 2021 TCFD Annex. Further guidance, including on recommended incorporation of Scope 3 financed emissions for material sectors, can be found in the PCAF Global GHG reporting mechanism.
- **Stretch:** Financed emissions assessment (both emissions and intensity) is extended to incorporate a future view. This additional forward-looking element could consider the aggregate impact of emission reduction targets or estimated emissions of assets or borrowers over a future horizon. This could be considered relative to a portfolio target,

risk appetite position or expected performance relative to a benchmark portfolio. The GFANZ technical report sets out a range of approaches to future emissions estimation that should be considered. When considering whether companies' have science-based targets, DDMWG suggests considering the third-party verification of such targets (e.g. by Science Based Targets Initiative) as indicators of strong performance.

- **Advanced:** An updated full technical review of a range of methodological approaches for assessing portfolio alignment can be found in the GFANZ technical report. This includes best practice approaches across the detailed methodological assumptions that comprise such metrics and how models should converge and harmonise over time, allowing for greater usefulness for communication and decision-making. The TPT guidance framework encourages the consideration and assessment of investee companies, clients and counterparties' transition plans.
-

## Specific considerations for AMs, banks and insurers:

### Asset Managers



- Metrics should be disclosed in relation to each product or investment strategy, and, where there is one, versus a representative benchmark.
- Under the FCA's Policy Statement PS21/24, asset managers will have to produce product level TCFD reports with an ITR metric 'as far as reasonably practicable'.
- AMs reporting to clients depends on client's requirements and types of investment made. For example, a mutual fund investor might receive a "fund fact sheet" including the carbon footprint of the portfolio against a stated benchmark. An investor in a segregated account might receive more detailed, climate-related information, including the aggregate carbon intensity of the portfolio compared with a benchmark, and insight into portfolio positioning under different climate scenarios.<sup>25</sup>

### Banks



- When considering activities that are in scope for a bank's financed emissions, it would be important to prioritise based on materiality of the activity (e.g. lending, capital markets facilitation, underwriting etc.) and the activity's impact on emissions.
- The DDMWG recognised that widely accepted methodologies are not yet available for all of these activities, but reporting should cover all assets with an accepted PCAF methodology, and in particular the FIs energy and power portfolios, and endeavour to extend coverage over time as further guidance is released and more data becomes available.
- PCAF has also recently launched a consultation for facilitated emissions<sup>26</sup> which banks involved in brokerage and investment banking activities should review and adopt.

### Insurers



- For insurance underwriting portfolios, the link between an insurer's emissions and insurance premium is less direct than for investments (i.e., facilitated versus financed emissions).
- Common methodologies for calculating attribution and disclosing insured emissions and transition pathway targets have only recently emerged. This includes the PCAF methodology for measuring GHG emissions from insurance underwriting activities<sup>27</sup>, and the recently launched Net Zero Insurance Alliance (NZIA) 'Target-Setting Protocol'.<sup>28</sup> The NZIA protocol is designed to help firms begin to set science-based, intermediate targets for their underwriting portfolios in line with a net-zero transition pathway.

<sup>25</sup> See p. 31 of the "[2022 TCFD Status Report](#)", October 2022.

<sup>26</sup> See [PCAF's article on public consultation on Capital Markets Facilitated Emissions methodology for more details](#).

<sup>27</sup> See [PCAF's article on launching the Global GHG Accounting and Reporting Standard for Insurance-Associated Emissions](#), November 2022.

<sup>28</sup> See "[NZIA Target-Setting Protocol Version 1.0](#)", January 2023 for further details.

### Priorities for further work:

- (1) Approaches supporting the standardization of Scope 3 modelling could help to address key data quality and availability issues for financed emissions and portfolio alignment measures. This will likely be supported by increasing disclosure requirements.
- (2) Further work could be undertaken on how to incorporate considerations around the quality and achievability of transition plans into emissions forecasting and portfolio alignment approaches.
- (3) Developers of portfolio alignment models, such as ITR, will likely continue to revise their methodologies in line with the latest GFANZ guidance. Continued development in the approach to these metrics could help result in more reliable and robust metrics going forward. This would allow further use of these metrics as decision-making and communication tools.

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### Real-world examples:

The following real-world examples provide a range of alternative approaches to assessing and disclosing financed emissions and portfolio alignment across banks, insurers and asset

managers. The selection of examples we have chosen here are purely demonstrative; many of these institutions publish metrics across the foundational, stretch and advanced categories.

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**Foundation metric:** [Abrdn TCFD Report 2022](#) (page 32)

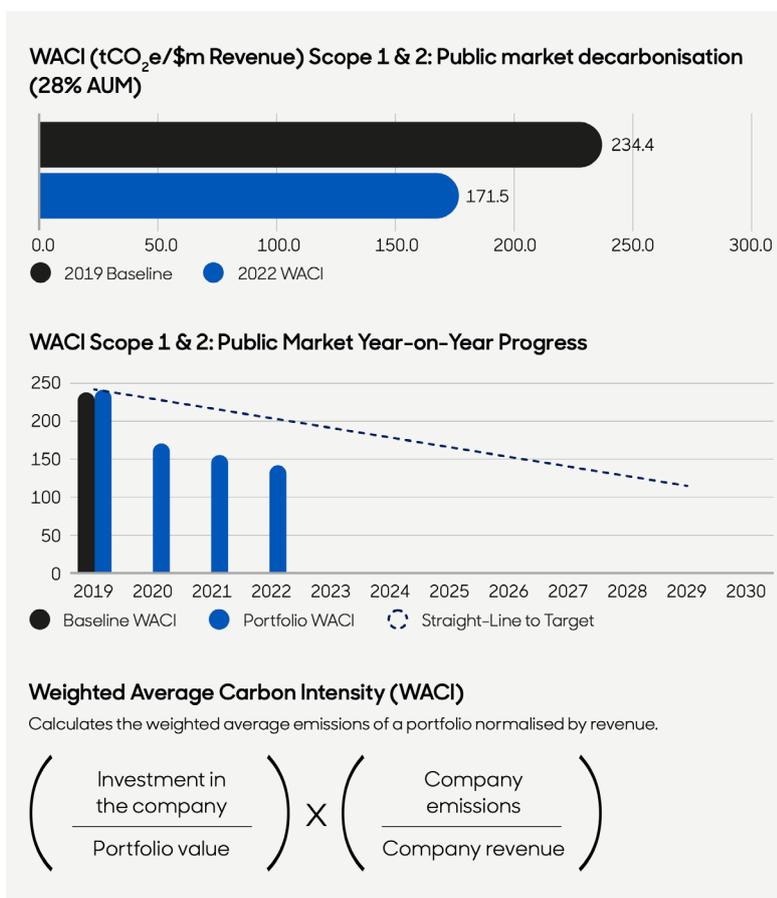
**Current and historic WACI**

Abrdn reports on the weighted average carbon intensity (WACI), as a tool to monitor their portfolio companies’ carbon efficiency per dollar of revenue earned.

The WACI is presented relative to a 2019 baseline to monitor progress against Abrdn’s decarbonisation target – to reduce the WACI of the assets invested in by 50% by 2030 vs that baseline. By including a straight-line to target, the chart below demonstrates that portfolio WACI is broadly on track to meet their interim checkpoint of at least a 20% reduction in carbon intensity by 2025.

Abrdn acknowledge the materiality of Scope 3 emissions within the disclosure text but consider the reliability and comparability of data to remain too limited to report on or incorporate within the target as yet. As data quality and availability improves, FIs will likely become more comfortable in reporting Scope 3 estimates for their portfolios.

Abrdn describe how their carbon footprint reporting informs part of their wider climate change toolkit for investments and inform climate-related risk management, set out the scope of coverage and comment on the reliance on third-party data providers clearly within the disclosure text. This is considered good practice.

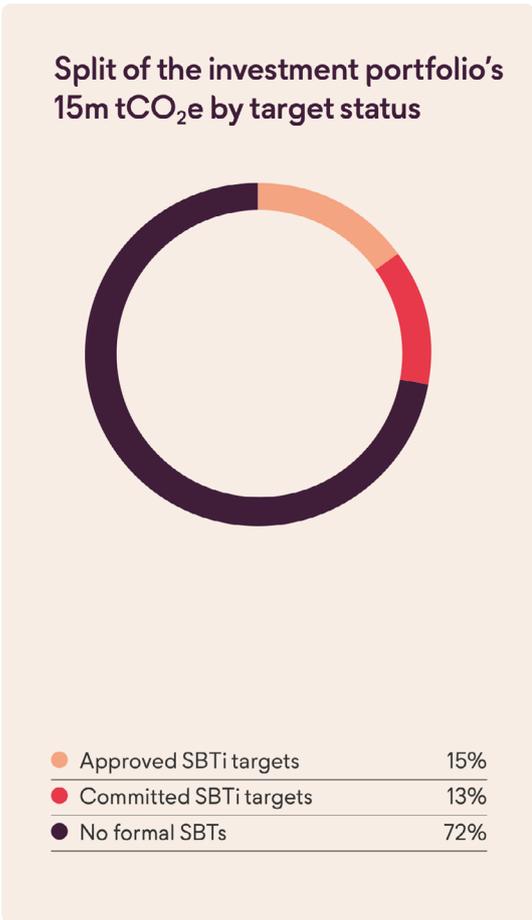


**Stretch metric:** [Phoenix Group Climate Report 2021](#) (page 43)

**Portfolio exposure to companies that have set SBTi targets**

Phoenix Group has measured the climate-alignment of its portfolio by considering the proportion of the listed assets portfolio invested in companies that have set or are in the process of setting science-based targets. This is measured based on whether an investee company has affiliated itself with SBTi, and either set or

committed to setting science-based targets. While this is a static measure, it incorporates the forward-looking science-based decarbonisation ambitions of investee companies and in doing so provides an indication of the level of net-zero alignment within the listed assets portfolio.

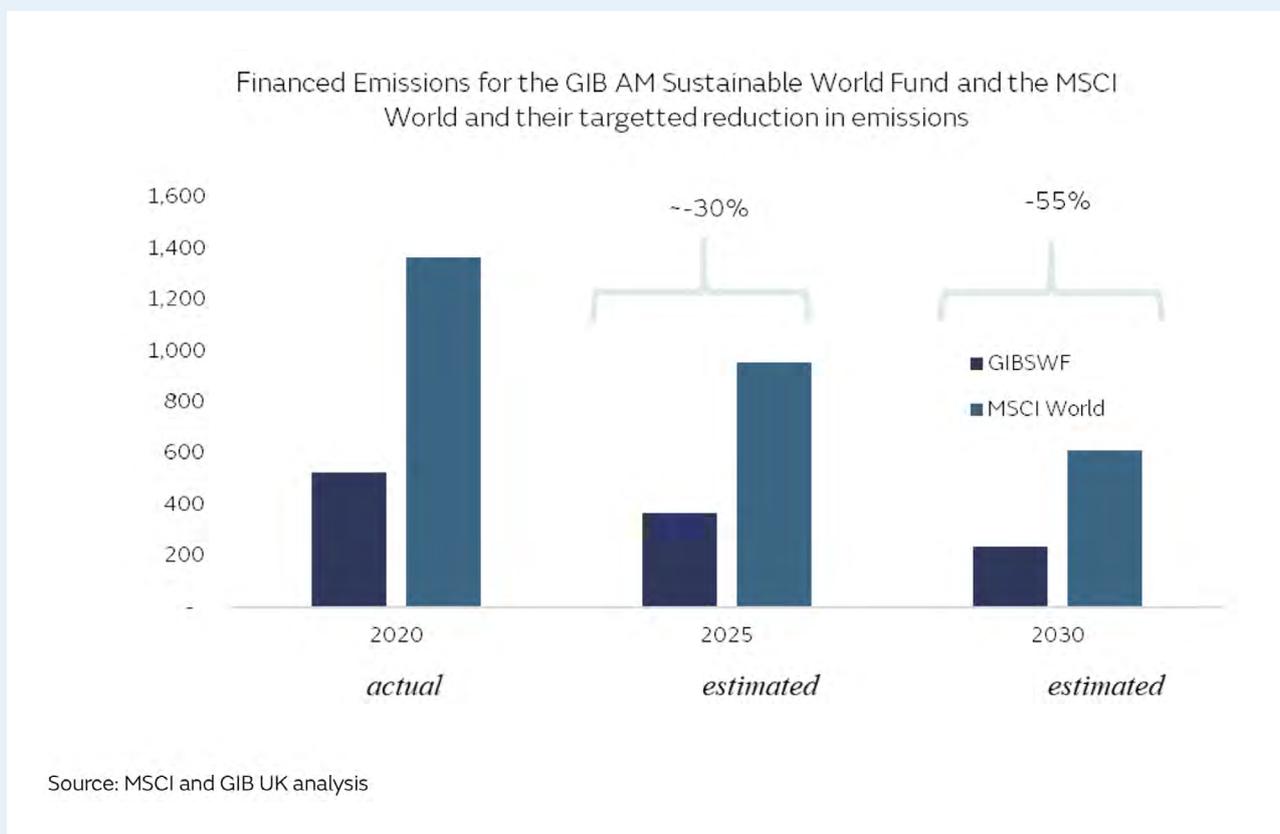


**Stretch metric:** [GIB Asset Management Climate-related Financial Disclosures 2021](#)  
(page 16)

**GIB UK disclosure of Financed Emissions**

GIB Asset Management present the financed emissions of their portfolios relative to an industry benchmark (MSCI World). Their portfolio targets are tied to benchmarked Financed Emissions, which are calculated and grossed to the same size as each portfolio for comparability. Financed emissions for

GIB AM's Sustainable World portfolio is estimated out to 2025 and 2030, providing a forward-looking view of the emissions profile of this portfolio over time. GIB UK indicate that they have primarily focused on methodological improvements since their last disclosure in 2020.

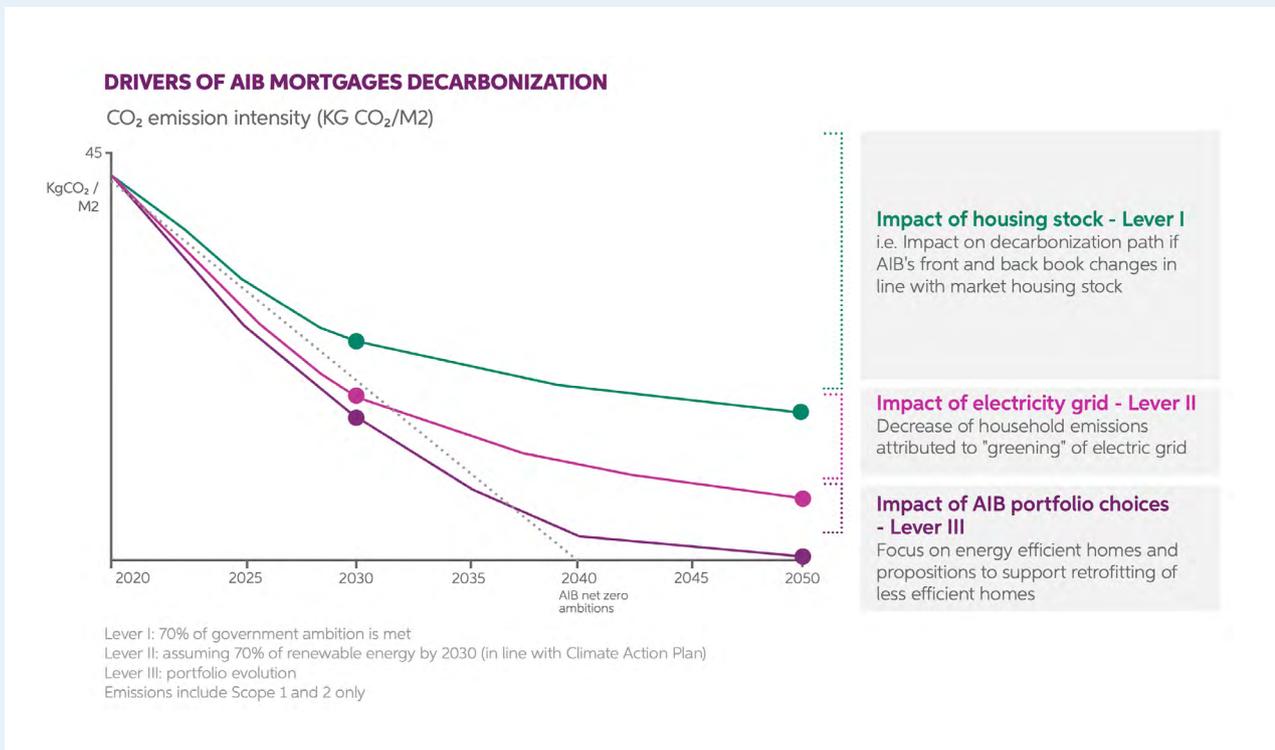


**Stretch metric:** [AIB Group plc Sustainability Report 2021](#) (page 47)

**AIB, Residential mortgages decarbonisation**

AIB assess the forward-looking CO<sub>2</sub> emissions intensity of their mortgage portfolio relative to a target based on standard industry decarbonisation pathways produced by the IEA. The residential mortgages portfolio was prioritised for emissions target-setting due to its materiality, given it constitutes around 50% of the AIB group's balance sheet.

AIB have outlined three levers they are using to decrease emissions intensity over time: broader energy efficiency of the housing stock, impact of electricity grid and AIB portfolio choices (shifting the portfolio mix towards energy efficient homes). All three are expected to reduce emissions by half by 2030. For each lever, they have forecasted the emissions reductions expected out to 2050 relative to their ambition to net zero by 2040.

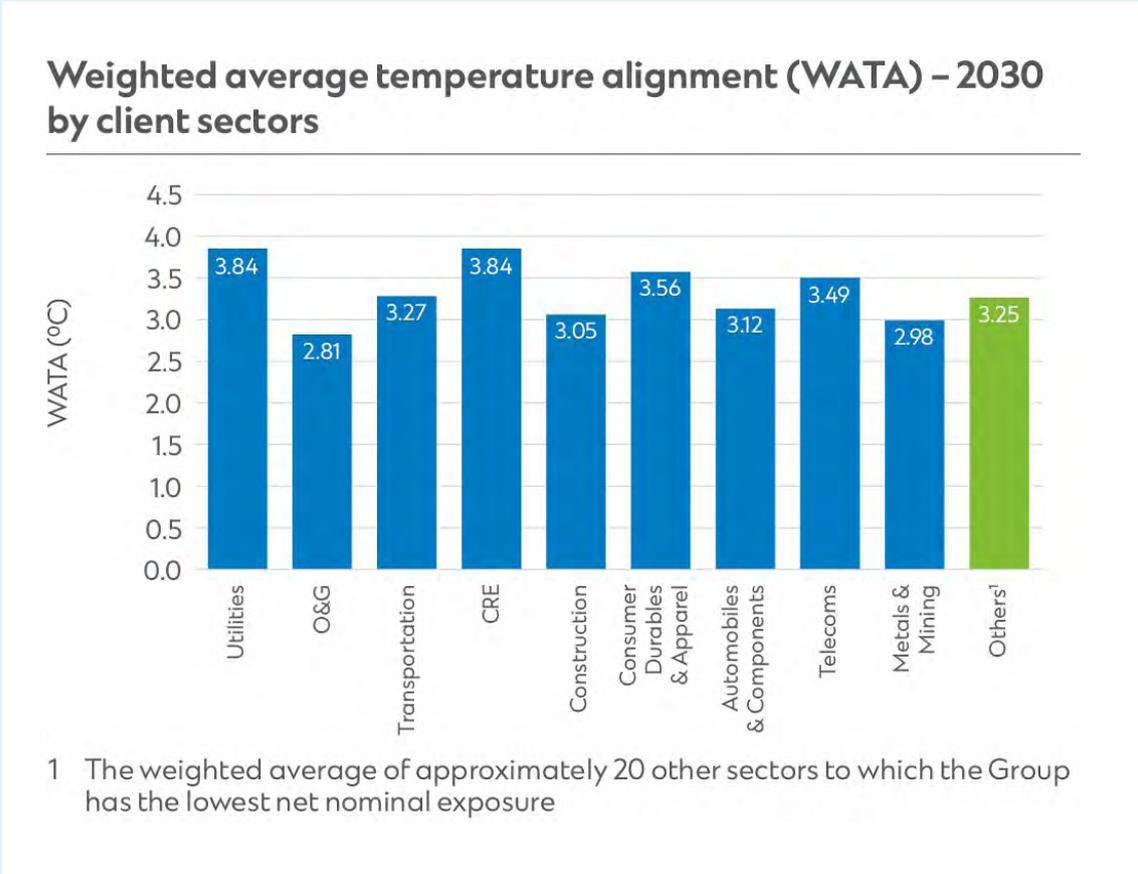


**Advanced metric:** [Standard Chartered, Annual 2022](#) (page 108)

**Weighted Average Temperature Alignment of corporate portfolio, split by sector**

Standard Chartered uses a temperature alignment metric to consider their impact on climate change and to estimate the forward-looking emissions profile of the bank’s clients. The bank also feeds this into client-level climate risk assessments. The model is created with a third-party data vendor. The ‘Weighted Average Temperature Alignment (WATA) set out in the chart below is calculated for each company and aggregated to portfolio level, with temperature scores based on current and forecasted values for companies’ emission intensities and volumes of hydrocarbon production (where applicable).

The below figure represents the WATA of the bank’s clients by high-carbon sector, projected to 2030. The chart illustrates that the temperature alignment of the bank’s portfolios ranges from 2.81°C to 3.84°C. Further insights not presented graphically but discussed in the disclosure text include comparisons with the score for the previous year and of portfolio performance relative to average sector temperature alignment. Standard Chartered also highlights the weaknesses in current temperature alignment metrics and how it has dealt with data gaps, both of which are considered good practice.



## Financing the transition

Mobilising finance towards the new and upgraded technologies and infrastructure needed to transition the global economy to net zero remains a challenge which must be met to minimise the risks of climate change and associated economic, financial, and real-world impacts. Since the original CFRF Dashboard was published in 2021, FIs have come under increased scrutiny about how their activities are supporting the net-zero transition in the real economy, most notably through calls for the publication of detailed, credible transition plans.<sup>29</sup>

Foundation	Stretch	Advanced
Climate solutions investment ratio by revenue	Portfolio carbon return metric (based on avoided emissions)	Climate solutions investment ratio by capex <sup>30</sup>

### Approach:

A common feature of emerging guidance on transition plans for financial institutions is the need to focus on emission reductions across the economy, rather than focus exclusively on net-zero targets which may have unintended consequences, such as the “paper decarbonisation” of investment portfolios with limited real-world impact.<sup>31</sup> This guidance recognises that transition plans may need to include the disclosure of less well-established metrics in order to demonstrate efforts to finance technologies that reduce emissions. For example, companies which are developing climate solutions in hard-to-abate sectors may fail to deliver material reductions in their Scope 1, 2 and 3 emissions despite their obvious contribution to an economy-wide transition.<sup>32</sup>

The DDMWG believes that financial institutions should start to develop their own transition plans and make disclosures on this topic now on a ‘learning by doing’ basis, including transparent

information on methodologies used and treatment of data gaps. Continued efforts to disclose this information will lead to improved standardisation and avoiding the potential for ‘greenwashing’ which will, in turn, help more sustainable solutions, greater emissions reductions in the real economy and reduce system-wide risks.

While guidance on the precise content of transition plans is still evolving, it is clear that they will need to include both financial institutions’ plans for directing capital into net-zero transition activities and the financial metrics used to monitor their progress.<sup>33</sup>

To date, the most detailed analysis of financial metrics relating to climate solutions and transition finance is the IIGCC Climate Investment Roadmap<sup>34</sup> which defines a ‘climate solution’ as an investment in an economic activity, good or service that contributes substantially to emissions

<sup>29</sup> See HM Government “[Green Finance: A Roadmap to Sustainable Investing](#)”, October 2021; HM Treasury “[Net Zero Review Final Report](#)”, October 2021; GFANZ “[Financial Institution Net-zero Transition Plans](#)”, November 2022.

<sup>30</sup> We expect this metric to shift towards stretch and foundation following disclosure rules entering force in 2023 meaning that capex data will become available.

<sup>31</sup> See p. 1 of GFANZ “[Financial Institution Net-zero Transition Plans](#)”, November 2022 and p. 11 of TPT “[Disclosure Framework](#)”, November 2022.

<sup>32</sup> See p. 11 of TPT “[Disclosure Framework](#)”, November 2022.

<sup>33</sup> See categories of metrics on p. 80 of GFANZ “[Financial Institution Net-zero Transition Plans](#)”, November 2022 and financial metrics on p. 43 of TPT “[Implementation Guidance](#)”, November 2022.

<sup>34</sup> See Chapter 4 of IIGCC “[Climate Investment Roadmap](#)”, April 2022.

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reductions required by a 1.5C pathway, including low-carbon, transitional and enabling climate solutions.<sup>35</sup> The roadmap recognises that no existing metric is a silver bullet for the multiple objectives of disclosures in this area, i.e. helping investors track their investment portfolio's contribution to climate mitigation efforts; assessing a portfolio's Paris alignment; informing capital reallocation; and identifying priorities for engagement.

Building on the approach taken in 2021, we have updated the proposed metrics to reflect recent guidance from GFANZ and TPT as well as the IIGCC Roadmap:

- A foundation approach might be an FI's investment in climate solutions as defined by an internally developed or externally-specified taxonomy (referred to by the IIGCC as a 'climate solutions investment ratio'), expressed as a % of total revenues. While relatively easy to

measure today, such an approach is still dependent on existing taxonomies and does not show the relative impact of assets on the transition to net zero.

- To advance the approach to 'stretch', FIs could disclose a carbon return metric (based on avoided emissions) which quantifies the relative impact of an investment on emissions reductions based on corporate activities, products and services and recognises that not all climate-aligned activities are equivalent.
- Once capex data becomes more widely available, FIs should advance their approaches by calculating and disclosing the ratio of investment in climate solutions by capex. This provides forward looking indicator of emissions and can help substantiate the credibility of corporate transition plans for industries in transition (e.g. steel).

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## Methodology and data:

Given the evolving nature of metrics in this area, firms should provide further details about their selection of metrics to ensure they are decision-useful and understandable, including underlying definitions (e.g. categorization of low-carbon products and services, referencing appropriate taxonomies) and types of measurement used to derive metrics (including whether data comes from reported data from other entities, proxy indicators or estimates).

- **Foundation – Climate Solutions Investment Ratio:** Exposure to climate solutions activities calculated by dividing revenue from green activities of investee companies, borrowers or counterparties as defined by a taxonomy (e.g., [EU Taxonomy](#), [FTSE Green Revenues](#) or

bespoke taxonomies such as [EBRD Green Economy Transition](#)) by total revenues of assets in portfolio/product<sup>36</sup>. Data on revenues can be obtained from third party providers.

- **Stretch – Portfolio Carbon Return Metric:** i.e. measuring the emissions abatement for each dollar invested or lent. Further guidance on reporting of avoided emissions can be found on GHG Protocol website.<sup>37</sup> While some financial institutions are already disclosing avoided emissions by product or strategy (see example Nordea below), more work is needed to develop standardised approaches to methodological challenges such as emission factors, business-as-usual

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<sup>35</sup> For simplicity, we have used this definition in this document.

<sup>36</sup> See formula in Box 4 on p. 90 of IIGCC "[Climate Investment Roadmap](#)", April 2022.

<sup>37</sup> See formula in Box 6 on p. 94 of IIGCC "[Climate Investment Roadmap](#)", April 2022.

scenarios, double-counting and how to plug data gaps. Any reporting of avoided emissions should be clearly separated from (a) reporting of financed emissions and (b) avoided resulting from offset projects or credits must be reported separately in line with GFANZ guidelines.

- **Advanced – Climate Solutions Investment Ratio by Capex:**<sup>38</sup> As

a forward-looking metric, climate-related capex intensity has the potential to provide more actionable insights to guide engagement and capital reallocations to best-in-sector companies.<sup>39</sup> However, given the current lack of capex data, it is best viewed as an aspirational metric until data becomes more widely available under the EU Taxonomy disclosures in 2023.

### Specific considerations for AMs, banks and insurers:

#### Asset Managers



- In line with TCFD recommendations, AMs should provide metrics at the level of each product or investment strategy. Otherwise, many of the principles described above have been pioneered by AMs so there are no special considerations needed.
- AMs are increasingly recognising that analysis of avoided emissions is necessary to complete the picture for a portfolio's exposures to and impact on the climate transition.<sup>35</sup>

#### Banks



- Banks should provide the amount (%) of lending and other financing (products and services) that support transition towards a low-carbon economy. For example, banks could disclose the value of mortgage loans with low energy efficiency ratings, or with high flood risk, as well as the proportion of those loans supplemented with additional lending for financing energy improvement or flood defences.

#### Insurers



- Insurance portfolios for retail and corporate insurance also present opportunities to actively facilitate the transition to a climate-resilient economy. Therefore, insurers could disclose their premium for products that facilitate the transition to a low-carbon economy with the definition chosen, and any assumptions taken in calculating low-carbon revenue disclosed.
- Insurers also play an important role in building adaptation and resilience to physical climate-related financial risks through product design, risk engineering and claims services, and the availability of such products may be included in the disclosure.
- The methodological challenges applicable to financed emissions calculations also apply to calculation of avoided emissions for insurance portfolios; there are high levels of variability in availability, quality and access to the insured emissions data. As a result the DDMWG are not recommending calculation of avoided emissions in this context at this point.

<sup>38</sup> See Capital Deployment section on p. 24 of the [2021 TCFD Annex](#).

<sup>39</sup> See [A framework for Avoided Emissions analysis](#) (Schroders November 2021).

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### Priorities for further work:

- (1) Exploring ways to report avoided emissions that are appropriately strict, but allow FIs to disclose how their activities are contributing to an economy-wide transition.
- (2) Address data gaps relating to corporate capital expenditure on climate solutions.
- (3) Further development of sector-specific guidance on transition plans.

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### Real-world examples:

The following real-world examples provide a range of alternative approaches to assessing and disclosing financed emissions and portfolio alignment across banks, insurers and asset

managers. The selection of examples we have chosen here are purely demonstrative; many of these institutions publish metrics across the foundational, stretch and advanced categories.

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**Foundation metric:** WHEB Asset Management [Annual Impact Report Jan-Dec 2021](#)  
(page 57)

### Proportion of portfolio invested in climate solutions

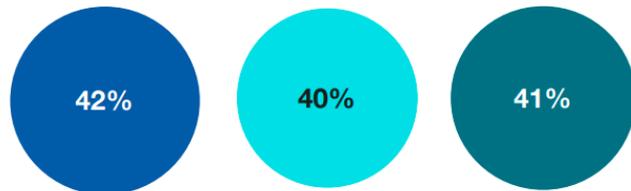
Within its disclosure, WHEB presents the historic and current proportion of the portfolio invested in climate solutions based on WHEB's own 'thematic classification'. This includes companies in WHEB's Cleaner Energy, Resource Efficiency and Sustainable Transport themes.

WHEB outlines alongside the presentation of these metrics its clear intention to invest in companies

that provide solutions to critical sustainability challenges and states its target relative to this goal, as follows: "As part of its commitments under [the Net Zero Asset Managers initiative](#), in 2021 WHEB set a target that by 2025 more than 30% of its portfolio would be invested in companies offering climate solutions (and expected to be EU taxonomy eligible)".

#### Proportion of portfolio invested in climate solutions

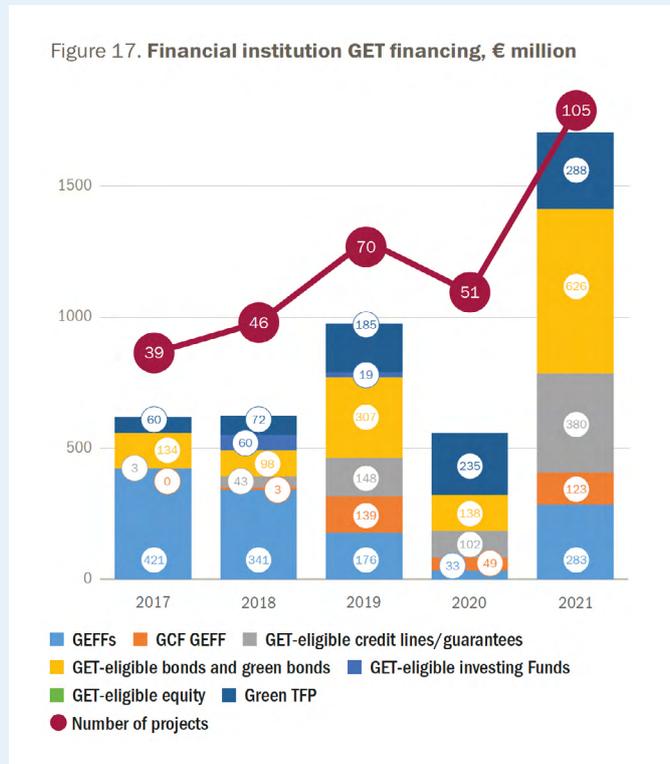
Based on WHEB's thematic categorisation.



**Foundation metric:** [EBRD Green Economy Transition approach - EBRD TCFD Report 2021](#) (page 35)

**Progress on investments in climate solutions**

The EBRD’s Green Economy Transition approach is intended to help economies where the EBRD works build green, low carbon and resilient economies and to track how the EBRD is meeting its target of increasing green financing to more than 50% of annual business volume by 2025. The EBRD also aims to reach net annual GHG emissions reductions of at least 25 million tonnes from 2020 to 2025 period. The Green Economy Transition approach includes a range of environmental, climate mitigation and resilience themes, including: greening the financial sector, energy systems, industrial decarbonisation, cities and environmental infrastructure, sustainable food systems, green buildings and sustainable connectivity. The EBRD has published progress over time broken down by a range of asset classes (see Figure 17 to the right).



**Stretch metric:** [Nordea Green Bond Report 2021](#) (page 8)

**Nordea – Impact total portfolio**

Nordea’s report covers all of the green bond operations of Nordea Bank Abp and its subsidiaries. Impacts are published at the aggregate level and split by category of investment. Their impact calculations are based on the latest externally verified green bond asset

portfolio figures. The avoided CO<sub>2</sub> emissions and other impacts are reported in accordance with Nordea’s debt financing share. It is assumed that new energy capacity crowds out fossil fuel-based generation. Further details of the methodology used can be found in the report.

<b>Impact, total portfolio</b>			
<b>Category</b>	<b>Sub-category</b>	<b>Green Bond Asset portfolio amount, EURm</b>	<b>Annual emissions avoided, tCO2e</b>
Clean transportation	Electric cars	87	4 193
	Electric ferries	2	3 200
	Electric Trains	285	908 520
	<b>Subtotal</b>	<b>373</b>	<b>915 913</b>
Energy Efficiency	Energy Efficiency	1	40
	<b>Subtotal</b>	<b>1</b>	<b>40</b>
Green Buildings	Green Buildings	1 857	6 712
	<b>Subtotal</b>	<b>1 857</b>	<b>6 712</b>
Renewable energy	Hydro	569	645 831
	Solar	0	198
	Wind	341	452 242
	<b>Subtotal</b>	<b>911</b>	<b>1 098 272</b>
Pollution Prevention and control	Waste to Energy	385	377 514
	Water and Waste Water Treatment	229	
	<b>Subtotal</b>	<b>614</b>	<b>377 514</b>
<b>Grand Total</b>		<b>3 756</b>	<b>2 398 451</b>

# Engagement

Over the last two years, the financial sector has recognised that over and above prudent management of the financial risks from climate change, financing of the climate transition and tracking of financed emissions, FIs also have an important role to play in engaging regularly and effectively with a wide number of stakeholders. The stakeholders might be clients, the industry at large, regulators, governments or other policy influencers such as non-governmental organisations. Active and targeted engagement activity can raise awareness about the qualitative aspects of climate risk management, e.g. management, strategy or governance, and further accelerate climate action. In the spirit of greater transparency, the level of engagement undertaken by FIs should also be demonstrated through enhanced external disclosures.

Foundation	Stretch	Advanced
<p><b>Company Engagement</b> (by individual FIs).</p> <ul style="list-style-type: none"> <li>Setting objectives and timelines for climate engagements.</li> <li>Climate engagements as % of total engagements and share of portfolio.</li> <li>Reporting of outcomes (ideally at company and portfolio level).</li> </ul>	<p><b>Collaborative Engagement</b> (via industry associations or with other FIs).</p> <ul style="list-style-type: none"> <li>Identifying collaborative climate engagement theme.</li> <li>Identifying objectives, format and participants.</li> <li>Reporting of outcomes (ideally at company, portfolio and theme levels).</li> </ul>	<p><b>Systematic Engagement</b> (with companies, standard-setters, policy makers).</p> <ul style="list-style-type: none"> <li>Identifying climate engagement themes benefiting from broad stakeholder engagement.</li> <li>Identifying objectives, format and participants.</li> <li>Reporting of outcomes (ideally at company, portfolio and theme level).</li> </ul>

## Approach:

The proposed metrics for engagement enable an FI to demonstrate how engagements on climate issues are being managed and prioritised, and to report on the extent and effectiveness of engagement activities.

To date, reporting of engagement metrics has been largely activity rather than outcome-based, supported by contextual information such as examples or case studies. Increasingly, FIs are disclosing the processes used to identify targets for climate-related engagement (e.g. companies without science-based targets or in carbon-intensive sectors). Complex multi-faceted engagements, often over longer timescales and where the relationship of an entity with an asset may differ depending on the category of business, may also be difficult to capture through a single metric. FIs' engagement with their own staff on climate topics is also noteworthy and becoming more commonly disclosed.

Since the original dashboard was produced in 2021, there have been calls for FIs to adopt a 'systematic engagement' approach which leverages more effectively their influence with companies, standard setters and policy makers and thereby helps reduce systemic risk by achieving real-world decarbonisation. This approach is set out in more detail in the UN Net-Zero Asset Owner Alliance paper '[The Future of Investor Engagement](#)' which calls for asset owners to proactively identify stewardship opportunities (such as corporate engagement and proxy voting), pursue new means of collaborative engagement (including sector/value chain engagement) and 'influence the rules of the game' through policy engagement.

The industry-wide drive towards development of credible transition plans reinforces the important role which FIs can play in supporting the transition to net zero by engaging with a wide range of stakeholders beyond traditional targets of investee

companies and clients. GFANZ<sup>40</sup> identifies three main engagement approaches for FIs:

- 1) Engage with clients and portfolio companies (to encourage development of transition plans).
- 2) Engage with peers and associations (to tackle common challenges and engage more effectively).
- 3) Engage with governments (on policy needed to support an orderly transition to net zero).

The TPT's draft Implementation Guidance<sup>41</sup> goes further by proposing detailed disclosures for each of these approaches as well as metrics for

engagement activities including: the amount of funding spent on lobbying governments on climate-related legislation; number and types of climate-related engagement activities; outcomes, such as percentage of climate-related engagements that led to a material positive change in company operations/activities; and number of advocacy engagements with governments and policymakers on climate-related policies and outcomes.

The metrics proposed in this section have been adjusted to reflect these developments, in particular to stress the importance of setting objectives for engagement and reporting of outcome-related metrics.

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## Methodology and data:

While reporting by FIs on engagement activities may illustrate a commitment to engagement, it does not necessarily mean that positive progress has been achieved. FIs should therefore give greater emphasis towards reporting of real-economy outcomes arising from chosen engagement activities. These may require a combination of quantitative and qualitative elements of reporting.

Metrics should ideally support the most important elements of effective engagement. As such, regard should be given to the following:

- **Setting measurable engagement objectives** e.g. achieving net zero alignment or physical climate risk management:
  - Number or % of portfolio companies to be engaged.
  - Timeline for objectives.
- **Effective prioritisation of companies or policymakers for engagement:**
  - Engagement with a share of portfolio companies with the highest climate risk exposures and weakest risk management (% of total).
- **Establishing the most suitable process for engagement:**
  - Individual company engagement (% of total engagements).
  - Collaborative engagements, as part of escalation, including where leading versus participating in collaborative engagements (% of total engagements).
  - Systematic engagement, including policy advocacy, to address structural impediments to climate transition progress (% of total engagements).
- **Robust measurement and reporting of real-economy outcomes:**
  - Identifying % of climate engagement where no progress, some progress or full progress is achieved compared to the climate engagement objectives set.
  - Where engagement outcomes lack progress towards the objectives set, FIs should outline any escalation steps, such as continued engagement or voting practices where applicable.

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<sup>40</sup> See Engagement Strategy (p.61ff) [GFANZ Financial Institution Net-zero Transition Plans](#), November 2022.

<sup>41</sup> See p.42 of [TPT draft Implementation Guidance](#), November 2022.

## Specific considerations for AMs, banks and insurers:

## Asset Managers



- TCFD includes an express recommendation that AMs disclose engagement activity with investee companies on climate-related risks and transition to a low-carbon economy.<sup>42</sup>
- AMs (and asset side of insurers) should also consider disclosing their voting activities i.e. no. and % of shareholder resolutions on climate voted, breakdown (%) of votes against management by theme, no./% of votes against management at companies for failure to implement climate risk management measures (e.g. TCFD disclosures).

## Banks



- While the TCFD does not specify engagement disclosures for banks, there are several ways in which they can engage with stakeholders, with the engagement approach driven by the type of service which the banks are providing and the type of customer.
- **Retail Banking:** Customer engagement generally revolves around educating customers on how to reduce GHG emissions by improving home or business energy efficiency. Whilst there are no common metrics reported in this area, banks have included case studies within the annual or ESG report on the actions taken to inform customers. Potential metrics banks could explore include disclosing the number of customers who have engaged with specific tools and initiatives and the number of customers who have then acted as a result.
- **Corporate and Business Banking:** Banks are increasingly proactive with their engagement of small and medium enterprises, and larger corporate customers. Observed examples include the use of questionnaires for specific sectors or customers. This engagement can help inform customers on the topic of climate change and how their business is impacted by the risks and opportunities that climate presents. In future banks may require borrower representations in loan/credit documentation on commitment to a transition plan and disclose quantitative metrics on progress.

## Insurers



- TCFD recommends that insurers should disclose climate-related client engagement including supporting quantitative information where available.<sup>43</sup>
- Disclosure could comprise qualitative description of their associated policies, including on exclusions, and approaches to engagement, both at the individual and sectoral level, together with the time horizons linked to the expected impact of their engagement strategies.
- Insurers can engage with companies both via their underwriting and investment activities. Where companies are both insurance customers and investees, an aligned engagement will increase the effectiveness of the interactions, while noting that any disclosures be mindful of any potential double-counting.
- The Net-Zero Insurance Alliance's recently published Target-Setting Protocol<sup>44</sup> includes two different types of engagement targets (1) a **portfolio coverage approach (PCA)** which seeks to increase the share of clients who have set their own science-based targets and (2) **focused engagement** with selected clients regarding their transition plans and decarbonisation strategies. The measure of success for the PCA should be 'outcome-based' (i.e. how many clients actually set science-based targets). The Protocol also includes a table of examples of outcome-based metrics to track the effectiveness of focused engagement.

<sup>42</sup> See p.46 and p.48 (footnote 89) of the [2021 TCFD Annex](#).

<sup>43</sup> See p.33 of the [2021 TCFD Annex](#).

<sup>44</sup> See section 4.2 of [NZIA Target Setting Protocol](#), March 2023.

### Priorities for further work:

- (1) Development of systems for measuring engagement outcomes that are sufficiently robust and transparent to address real and perceived concerns around greenwashing and double-counting.
- (2) Development of approaches for attributing outcomes arising from collective engagement, recognising the distinction between leading and participating in such engagements.
- (3) Further development of approaches for systematic engagement including how best to identify the most pressing topics that benefit from multi-stakeholder engagement and how to measure outcomes.

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### Real-world examples:

The following real-world examples provide a range of alternative approaches to assessing and disclosing physical risks across banks, insurers and asset managers. The selection of examples

we have chosen here are purely demonstrative; many of these institutions publish metrics across the foundational, stretch and advanced categories.

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**Foundation metric:** [RLAM Climate Report 2021](#) (page 27)

**RLAM Net zero engagement framework**

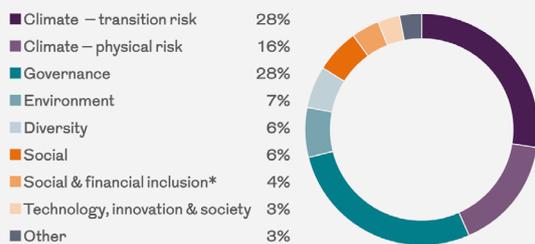
RLAM set out their total engagements on climate since 2021, split by companies and meetings (Figure 27). They indicate that they spoke to at least 70 companies in one-to-one meetings on climate transition risk, the range of themes spoken to (Figure 28) and the outcome achieved (Figure 29). Within the disclosure text, RLAM describe how they selected the 70

companies by largely focusing on companies which contributed significantly to total WACI and warming potential, as well as those in high emitting sectors. They also note how this engagement activity forms part of their overall strategy to deliver on their commitment to decarbonising their investment portfolio to net zero by 2050.

**Figure 27:**  
Total RLAM engagements on climate 2021

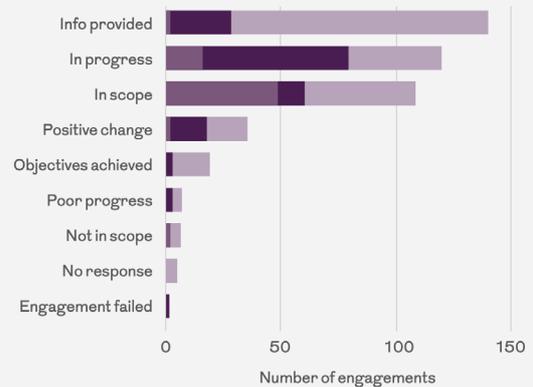


**Figure 28:** Engagement by topic, 2021



\*Includes engagement in support for a just transition.

**Figure 29:** RLAM climate engagement by outcome 2021



Where engagement fails, we follow our engagement escalation process, which can be read in our responsible investment policy



**Foundation metric:** [Virgin Money UK Annual Reports & Accounts 2022](#) (page 261)

**Spotlight on engagement with certain business banking customers**

Virgin Money provide an overview of their approach on engagement with business customers. They document a tool they have developed, in conjunction with a third party, which aims to educate customers on their sustainability

credentials and offers practical advice. Climate surveys are also a key part of Virgin Money’s engagement approach with business customers. Virgin Money disclose the purpose of the surveys and provide a breakdown of responses by sector.

**Sustainable Business Coach and climate surveys**

During FY22, the Group introduced a requirement for customers with higher value lending balances and the potential to have the highest exposure to climate change risk, to complete a climate survey alongside the Sustainable Business Coach application, through our relationship with the Future-Fit Foundation. The climate survey and Sustainable Business Coach tool were completed by our customers and/or their Business Relationship Manager aimed at providing more detailed insight on how customers are responding to climate risk and their ESG credentials.

The responses from the climate survey have been analysed to aid our understanding of how customers are responding to climate change risks and how the future business models or strategies of those businesses may change over time. It has also provided an understanding of the preparation our customers are making to tackle the risks resulting from climate change and how the Group can support customer’s transition as the climate change landscape evolves.

Questions from the survey focused on: whether our customers were operating with a specific climate change policy; were materially exposed to transition or physical risks relating to climate change; have taken action over the last two years to tackle climate change; whether specific climate data was being captured (e.g. GHG emissions) by their business; and if there were plans in place to reduce emissions in the next five years.

To date, 74% of Business customers that were selected have completed the Sustainable Business Coach benchmarking tool and climate survey which equates to £4bn of lending.

The benchmarking tool and climate survey will continue to be developed and enhanced over time as more data becomes available, and customer awareness of climate risk evolves.

**Climate survey responses**

The table below summarises customer responses to the questionnaire across our top five lending sectors:

30 September 2022	Agriculture	Business Services	Healthcare	Hospitality	Manufacturing
Businesses with a climate strategy integrated into business strategy	61%	48%	26%	55%	50%
Physical risks from climate change assessed as a key risk	75%	30%	23%	24%	35%
Transition risks from climate change assessed as a key risk	73%	39%	26%	27%	39%
GHG emissions arising from operations calculated (i.e. Scope 1 and 2 emissions)	32%	42%	13%	15%	35%
GHG emissions arising from value chains calculated (i.e. Scope 3 emissions)	9%	27%	8%	3%	18%
Proportion of businesses with a plan in place to reduce GHG emissions over next five years	70%	55%	42%	42%	58%
Emission reduction target(s) set to align with a recognised climate standard or initiative	20%	33%	13%	18%	31%
Businesses that have taken action to reduce GHG emissions in the last two years	39%	55%	28%	42%	52%



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**Stretch metric:** [Federated Hermes Limited Stewardship Report 2021](#) (pages 36-38)

**Advocacy and involvement in industry initiatives**

Federated Hermes Limited indicates that, via these initiatives, they engage with others both within and beyond the investment industry to promote responsible investment, including ways that the industry and investees can respond to market-wide and systemic issues such as climate change. In their Stewardship Report, Federated

Hermes Limited categorised their memberships into three tiers: Tier 1 leadership roles, Tier 2 active participation and Tier 3 light-touch participation (see extract below). This explanation effectively accompanies the data presented in Figure 13 below.

**Figure 13.** Investment and stewardship organisational memberships

Tier 1	Tier 2	Tier 3
Asia Investor Group on Climate Change	30% Club	Asian Corporate Governance Association
Associação de Investidores no Mercado de Capitais	Best Practice Principles Group for shareholder voting research (BPPG)	Association of Property Lenders
Association of Foreign Investors in Real Estate	Better Buildings Partnership	British Academy Future of The Corporation Project
Banking Standards Board	Biopharma Sustainability Roundtable	British Council for Offices
British Private Equity & Venture Capital Association	CDP	British Property Federation
CECP: The CEO Force for Good	Ceres	Canadian Coalition of Good Governance
CFA UK		Dansif

Source: Federated Hermes Limited, as at 30 April 2022.



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<sup>45</sup> In particular, see [Volume B15 for Asset Management & Custody Activities](#), [B16 – Commercial Banks](#), [B17 – Insurance](#), [B18 – Investment Banking & Brokerage](#) and [B19 – Mortgage Finance](#).

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## Appendix: Characteristics of effective climate-related metrics

Given the strong synergies between the shortlisting criteria used by the DDMWG and the TCFD's characteristics, we have combined them into the list of characteristics set out below:

Characteristic	TCFD Position	CFRF recommended additions
<b>Decision-Useful</b>	Climate-related metrics help organisations understand potential impacts of climate risks and opportunities over a specified time period, including financial impacts and the operational consequences.	<p>Metrics should be linked to the four main use-cases identified by the CFRF for climate-related financial disclosures produced by financial institutions, assessment of physical risk, transition risk, financed emissions/portfolio alignment and financing the transition.</p> <p>Where it is not possible to disclose financial impacts and climate-related information is recommended in its place, links between that information and potential financial impacts should be clearly stated.</p>
<b>Clear and Understandable</b>	Disclosure of climate-related metrics is most effective when metrics are presented in a manner that aids understanding (e.g., both aggregated and disaggregated, where useful, clear labelling), including clear articulation any limitations and cautions.	Disclosure of metrics should be, wherever possible, contextualised by publication against comparable baselines and benchmarks (e.g. global economy, relevant peers, or a publicly available emissions pathway), in particular to make metrics accessible to non-specialists/retail investors.
<b>Reliable, Verifiable and Objective</b>	Climate-related metrics support effective internal controls for the purposes of data verification and assurance. Metrics should be free from bias and value judgement so they can yield an objective disclosure of performance.	<p>Metrics should ideally be based on (a) robust, credible transparent methodologies and (b) robust and accessible data (or transparent estimates where this is not available).</p> <p>Financial firms will most likely wish to accompany metrics by a supporting explanation that acknowledges data gaps, methodology issues, reliance on proprietary data etc and describes their reasonable efforts to obtain consistent data.<sup>47</sup> Wherever possible, metrics should not be solely reliant on 'black box', proprietary methodologies or data.</p>
<b>Consistent over Time</b>	Climate-related metrics are most effective when the same item is reported across time periods.	Where changes to methodologies or data are required, a clear explanation and rationale for the changes should be provided.

<sup>47</sup> This issue is addressed in more detail in section 5 of the Forum Guide, "Managing legal risk in relation to climate-related reporting requirements applicable to UK financial institutions"