

# CLIMATE FINANCIAL RISK FORUM GUIDE 2021

## CLIMATE DATA AND METRICS

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This report presents the output of thematic work on data and metrics across all four industry working groups of the Prudential Regulation Authority and Financial Conduct Authority's Climate Financial Risk Forum.

The document shares the key insights from thematic work across the Forum and applies these insights to an illustrative climate disclosure dashboard, prepared by the Forum's Disclosure Working Group.

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## Acknowledgement

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Specifically, the creation of the Illustrative Climate Disclosure Dashboard section of this Climate Data and Metrics Report was led by Chris Dodwell (Impax Asset Management) with significant contributions from Ed Baker (PRI), Eva Cairns (abrdn), Kim Croucher and Joseph Pigott (Barclays), Daniel Eherer (Zurich Insurance Group), Kate Fowler (international business of Federated Hermes), Carlota Garcia-Manas (Royal London Asset Management), Mark Hoefield (BNP Paribas), Robert Howard (Charles Stanley), Chris Martin (Danske Bank) and Sam Tripuraneni (Blackrock), as members of the Disclosures Working Group of the Climate Financial Risk Forum. The Disclosures Working Group was chaired by Saker Nusseibeh, CEO, the international business of Federated Hermes, and co-ordinated by Ed Baker and Jodi-Ann Wang (Principles for Responsible Investment), and Kate Fowler and Gemma Corrigan (the international business of Federated Hermes). While all members were involved in the development of the Disclosures Working Group outputs, this document does not necessarily represent the views of all firms involved.

## Executive Summary

As noted by the Central Bank and Supervisors Network for Greening the Financial System (NGFS) in its May 2021 *Progress report on bridging data gaps*, reliable and comparable climate-related data, and consistent and relevant climate-related metrics are crucial for financial sector stakeholders to properly price and manage climate-related risks.

At its fifth meeting in November 2020, the CFRF noted the importance of progress in the development and understanding of climate data and metrics and established a thematic workstream to address the topic as a cross-cutting element of the Forum's 2021 agenda.

The Forum's work seeks to build on, and contribute to, a number of other related initiatives, such as the Task Force on Climate-related Financial Disclosures (TCFD), the Financial Stability Board's (FSB) work programme on climate data and metrics, the data and metrics work of the NGFS (as noted above) and the workstreams being taken forward by the Glasgow Financial Alliance for Net Zero (GFANZ).

The Forum's cross-cutting work has resulted in a number of key insights, discussed below and an illustrative climate disclosure dashboard, led by the Forum's Disclosure Working Group, which identifies basic, stretch and advanced metrics and provides practical guidance

### Key insights

- 1) The Forum identified that a wide range of climate-related metrics are currently in use by financial institutions for differing purposes. As a first step towards identifying a common set of core metrics, it found that these metrics were best organised into 4 primary use cases: i) transition risk, ii) physical risk, iii) portfolio decarbonisation and iv) mobilising transition finance with a fifth cross-cutting metric on engagement (as shown in Figure 1, along with example metrics). In doing so, the Forum has sought to build on, and align with, other classifications where possible, such as those discussed by the TCFD and NGFS<sup>1</sup>.
- 2) The need to address climate-related data gaps is widely recognised. There is no single solution: data gaps need to be addressed at a granular level, relevant to each of the 5 use cases referenced above. Progress is being made, though more needs to be done; the report identifies a range of data gaps and actions to address them.
- 3) The effective pricing of climate risks requires metrics that are forward-looking and financial in nature – carbon related metrics do not necessarily translate into financial impacts.
- 4) With increasing focus being placed on system-wide climate stress tests, frameworks and metrics to better size and understand system-wide risks, and the effectiveness of firms' actions to drive real economy outcomes, is an important area for future development.

### Climate-related metric use cases and example metrics

Category	Use case	Example Metrics
Impact of climate change on a firm	1) Transition Risks	Exposure to carbon-related assets Exposure by sector/technology/geography Financial impacts of the climate transition (e.g. scenario value-at-risk)
	2) Physical Risks	Proportion of assets exposed Physical risk heatmap by sector/geography Financial impacts of physical risk (e.g. scenario value-at-risk)
Impact of the firm on climate change	3) Portfolio decarbonisation	Financed emissions (historic & future) Portfolio alignment metrics
	4) Mobilising transition finance	Exposure to climate solutions Carbon returns/avoided emissions, Climate-related capex intensity

<sup>1</sup> While best efforts have been made to build on and align with other initiatives, given publication timings, more recent outputs will need to be more fully considered in the Forum's future work.

Cross-cutting	5) Engagement	Proportion of climate-related engagements Engagements with positive progress Speaking at AGMs, co-filing resolutions etc
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### Practical guidance: an illustrative Climate Disclosure Dashboard

To provide practical guidance and support convergence towards a set of common and consistent climate metrics, the second half of the report presents an illustrative climate disclosure dashboard, building on the five use cases identified above and existing initiatives such as TCFD.

While best efforts have been made to make the illustrative dashboard as specific and practical as possible, including providing example disclosures, the nascent and evolving nature of climate metrics also lends itself to a principle-based approach at this stage of development. References have been provided to more detailed guidance, including external reports and case studies from across the forum.

## Key insights on climate-related data and metrics

### 1. A range of climate-related metrics across 5 different use cases

A mapping of climate-related metrics identified over 70 metrics being used for a range of purposes, relevant to different asset classes (e.g. debt vs. equity) and sectors (e.g. banking, insurance). For example, the metrics required for an asset manager to understand the impact of a portfolio on the climate, such as carbon footprint, can differ to those required for banks and insurers to measure the physical or transition risk exposure to their assets and liabilities.

Four primary purposes or use cases<sup>2</sup> were identified, with a fifth cross cutting use case on engagement relevant to the other four.<sup>3</sup> Each of these is described further below:

- 1. Transition risk:** 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 firm's exposure to these risks and potential impact on asset valuations.
- 2. Physical risk:** Physical climate risks pose material and immediate risks to investors, lenders and insurers and can also give rise to sentiment risk. Financial institutions are using metrics to assess their exposures to these risks, which can vary according to location of assets and supply chain activities and the vulnerability of these assets and activities to a range of acute and chronic climate events and their financial effects.
- 3. Portfolio decarbonisation:** With the welcome momentum behind the UN's Race to Zero and the Glasgow Financial Alliance for Net Zero catalysing further action, financial firms are increasingly using climate-related metrics to monitor progress against Net Zero commitments and the alignment of portfolios with the decarbonisation goals of the Paris Agreement.
- 4. Mobilisation:** 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 (to support adaptation and resilience as well as decarbonisation).
- 5. Engagement:** Engagement was identified as an important fifth use case, relevant across the other four. Influence over management and strategic direction of an investee company can be applied directly (e.g. via discussion with the Board), or indirectly via voting activity. A number of metrics are emerging to help monitor, and disclose, engagement activity.

<sup>2</sup> Climate metrics are rapidly evolving, and, as noted earlier, the Forum's work has been completed in parallel to multiple other initiatives. For example, in its recent guidance (October 2021) on Metrics, Targets and Transitions plans, the TCFD have set out several metrics categories for all sectors: GHG Emissions, Transition Risks, Physical Risks, Climate-related Opportunities, Capital Deployment, Internal Carbon Price and Remuneration. And the NGFS has previously set out a classification with six metric categories; footprints, transition sensitivity, physical vulnerability, alignment, mobilization and combined metrics (ESG). The Forum has sought to build on these approaches, with a focus on organising based on the underlying intent for which a metric is being used and the application of financial metrics where possible. For example, the TCFD category of internal carbon price would fit within transition risk, GHG emissions within portfolio decarbonisation (or basic proxy for transition risk). And the NGFS categories of footprint and alignment have both been considered as part of 'portfolio decarbonisation' on the basis they are both focused on the decarbonisation goals of the Paris Agreement.

<sup>3</sup> The use cases are not limited to those that respond to incoming disclosure requirements in respect of climate-related financial risk at group or entity level under Listing Rules or UK regulation.



As shown in Figure 1, further categorising these use cases into 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) can provide a helpful organising framework, building on the notion of 'double materiality'.

At the same time, CFRF participants noted that these two categories are also interconnected. For example, to the extent they drive outcomes in the real economy, actions taken to decarbonise portfolios, mobilise transition finance and engage with corporates on transition plans (use cases 3, 4 and 5) can in turn reduce system-wide risks and minimise the future financial impacts from climate change facing an individual firm.

In this regard, forum participants viewed all of the five of these uses cases having relevance to meeting the expectations of the PRA's supervisory statement<sup>4</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.

Participants also noted the benefit of being clear for what purpose a metric is being used<sup>5</sup>; as discussed further (in point 3), while measures relating to portfolio decarbonisation, such as carbon footprint, can be helpful to understand the impact a firm has on the climate, they do not necessarily translate directly into financial impacts to an individual firm from either physical or transition risks or fully represent a firm's activities to mobilise finance, or engage with real economy firms, to accelerate an orderly transition<sup>6</sup>.

Further to Mark Carney's seminal speech on 'Breaking the Tragedy of the Horizon' and the Financial Stability Board establishing the TCFD, the effective pricing of the financial risks and opportunities arising from climate change, supported by ambitious climate policy, will be key to achieving an orderly transition to a net zero and climate resilient economy.

**Figure 1: Summary of Climate Metric uses cases and example metrics**

Category	Use case	Example Metrics
Impact of climate change on a firm	1) Transition Risks	Exposure to carbon-related assets Exposure by sector/technology/geography Financial impacts of the climate transition (e.g. scenario value-at-risk)
	2) Physical Risks	Proportion of assets exposed Physical risk heatmap by sector/geography Financial impacts of physical risk (e.g. scenario value-at-risk)
Impact of the firm on climate change	3) Portfolio decarbonisation	Financed emissions (historic & future) Portfolio alignment metrics
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Cross-cutting	5) Engagement	Proportion of climate-related engagements Engagements with positive progress Speaking at AGMs, co-filing resolutions etc

<sup>4</sup> PRA SS3/19: Enhancing banks' and insurers' approaches to managing the financial risks from climate change, April 2019.

<sup>5</sup> The Forum notes a similar focus on the 'why' – the underlying purpose – is also being called for in relation to broader ESG measures. For example: [Responsible Investor](#): Investor motivations are being ignored in ESG.

<sup>6</sup> See [The Investor's Guide to Impact](#) for further discussion of academic research on investor impact

## 2. Climate-related data gaps best addressed at a granular level

The need to address climate-related data gaps is widely recognised, for example, in the recent report by the Financial Stability Board. Efforts to address these gaps are being taken forward by a range of organisations, both in the UK (e.g. by the Centre for Greening Finance and Investment) and internationally (e.g. by the Network for Greening the Financial System).

CFRF participants noted data gaps are best discussed and addressed at a granular level. For example, the data required for risk management and scenario analysis can differ to that required to monitor progress against net zero commitments or mobilise finance to support an economy-wide transition. Figure 2 outlines some of the key challenges, solutions and options to accelerate progress.

**Figure 2: A selection of climate-related data gaps, actions and options**

<b>Climate-related Data Gaps</b>	Information relating to corporate transition plans to support forward-looking assessment of risk and alignment.  Sector, and geography, specific transition plans to help assess transition risk exposures  Physical risk data on vulnerability of assets as well as hazard and exposure.
<b>Actions being taken to address these</b>	Central Banks and Supervisors, for example, through NGFS are providing more granular parameters to support scenario analysis  Financial firms are starting to request information on transition planning from corporate clients. This will be accelerated further through initiatives such as GFANZ and implementation of new guidance from TCFD.
<b>Options to accelerate progress</b>	Continued development of bottom up, granular approaches to climate risk and analytics, including probabilistic scenarios and open data approaches  Increased engagement with Governments on sovereign risk assessment and publication of sector and jurisdiction specific transition pathways  Accelerating development, and harmonisation, of approaches to assess the robustness of corporate transition plans (e.g. Transition Pathway Initiative, Climate Transition Pathways) <sup>7</sup>  Greater availability, and accessibility, of physical risk data, particularly relating to vulnerability as well as exposure, and the impact of chronic as well as acute climate hazards.

The Forum guide, “Managing legal risk in relation to climate-related reporting requirements applicable to UK financial institutions” provides further guidance on how firms are dealing with some of the liability concerns arising from disclosing climate metrics given current data gaps.

To accelerate progress on these issues, the Forum will be convening a workshop with public and private sector stakeholders, in partnership with the UK’s Centre for Greening Finance and Investment (CGFI), to discuss the use cases identified and take forward tangible actions to improve the availability, accessibility and quality of climate-related data.

<sup>7</sup> [Transition Pathway Initiative](#); [Climate Transition Pathways](#)



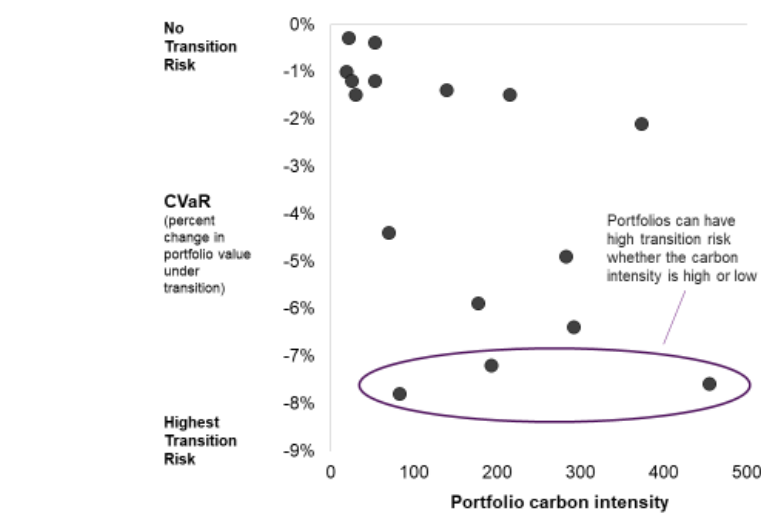
### 3. The need for forward-looking financial metrics

In line with guidance from the TCFD, metrics also differ to the extent they are historic, or forward-looking, and climate or financial in nature. As models and tools evolve, the contrast between climate-related metrics, such as carbon intensity, with measures of the financial impact on the valuation of assets under a 'well below' 2C transition is becoming more apparent.

As shown in Figure 3, climate-related metrics, such as carbon intensity, do not necessarily directly translate into financial impact from a well-below 2C transition. For example, in some industries – those with an inelastic demand or those that are regulated (e.g. utilities), an additional carbon price can be passed through to consumers via higher prices, with little impact on asset valuation. In other cases, particularly where low-carbon alternatives are readily available, relatively small carbon prices could have a significant impact. In addition, the carbon footprint of a company doesn't necessarily provide insight into the extent to which its revenues are derived from high carbon sectors. For example, a professional services or software firm may well report a relatively small carbon footprint even if a large proportion of its revenues are derived from serving clients in carbon intensive industries. And clearly a firm's carbon footprint provides little indication of the physical risk exposure within a given portfolio.

As illustrated through case studies<sup>8</sup> and guidance in the more detailed working group reports, understanding, and disclosing, metrics which provide information on the financial impacts from climate risks, and opportunities, such as scenario value-at-risk will be important to integrating climate-related factors into financial decision making and supporting an orderly transition.

**Figure 3: Differences between Climate (carbon intensity) vs Financial (CVaR) metrics for sample of European investment portfolios – January 2021\***



\*Source: WTW, FactSet. Analysis based on granular bottom-up modelling of changes in commodity prices (e.g. oil) and other climate transition factors of a 'well below 2C' scenario on asset valuations within an investment portfolio. For further information, see [presentation](#) on pricing climate risk effectively at Willis Towers Watson's [Climate Risk and Financial Stewardship](#) summit in May 2021.

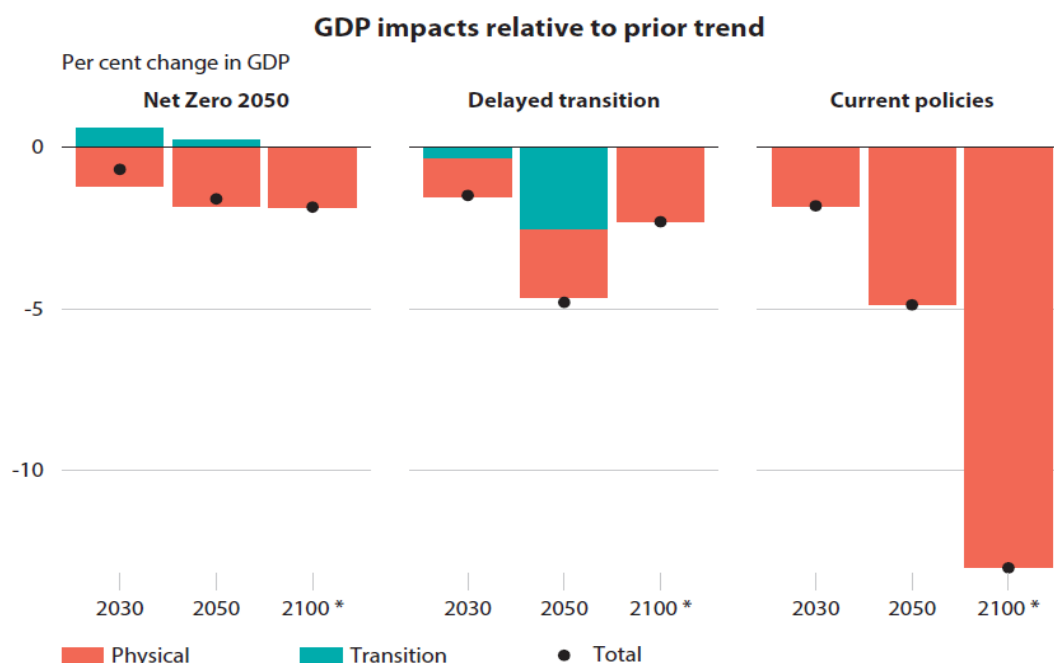
<sup>8</sup> For example, the case studies in the scenario analysis working group report provide guidance on using physical and transition factors as inputs to understand the financial impact on valuations and credit ratings, or insured losses.

#### 4. Frameworks and metrics to address system-wide risks are a key area for development

CFRF members noted financial firms are joining the ‘Race to Zero’ and expectations from regulators to understand the system-wide risks from climate change, for example, through climate stress tests are becoming increasingly relevant.

As recognised by the Bank of England, NGFS and the FSB, the financial risks from climate have distinctive characteristics<sup>9</sup>. The risks are far-reaching in breadth and magnitude, uncertain yet foreseeable in nature and require actions today to address future financial risks, such as those that could arise from a disorderly transition or a future ‘hot-house’ world. As indicated in Figure 4, future impacts from climate change will be minimised through an early and orderly transition to a net zero economy.

**Figure 4: The benefits of an early and orderly net zero transition**



Source: IIASA NGFS Climate Scenarios Database, NiGEM based on REMIND. IAM data and damage estimates from Kalkuhl & Wenz (2020).

Managing the financial risks from climate change therefore requires a strategic, long-term approach, one that:

- Integrates physical, transition and liability risks into existing financial risk management practices, as with other sources of financial risks;
- Takes into account the distinctive elements of climate risk and sets out the actions being taken today to minimise future risks and steward the transition to a net zero and climate resilient economy.

Considering metrics relating to portfolio decarbonisation, mobilisation and engagement, as well as financial risk exposures, can be helpful in providing a more holistic view of a firm's long-term, strategic response to climate change.

At the same time, the frameworks and metrics required to understand the effectiveness of firms' actions in delivering real economy outcomes – and supporting an orderly, economy-wide transition - are still at an early stage. In these circumstances, care needs to be taken by firms in how they deploy this information and by policy makers to safeguard firms from increased liability risk while they work to develop metrics responsive to these new drivers. The Forum will consider the opportunity to develop these further as part of its work plan for its third year, including building on the pilots being undertaken by the Forum's innovation working group.

<sup>9</sup> [See Leading the Change: climate action in the financial sector](#) (Sarah Breeden, Bank of England)

## Practical guidance: an illustrative climate disclosure dashboard

As discussed earlier, there is a wide range of climate disclosure metrics currently in use or recommended by regulators, standards bodies and other relevant bodies. These metrics vary according to their purpose and intent and, while many can be helpful in developing a strategic response to climate change, there is a risk that the usefulness of the information disclosed may be undermined by, inter alia:

- (a) a lack of clarity about how specific disclosures relate to different dimensions of climate-related risk;
- (b) failure to published sufficient contextual information alongside the data disclosed; and
- (c) the breadth and variety of metrics and approaches disclosed in relation to any individual issue.

A key aim of the Disclosure Working Group (DWG) in the second year of the CFRF was to consider how to simplify the disclosure of climate-related information by financial institutions. It is generally accepted that 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. Therefore, the starting point for this work was to consider whether it was possible to identify a finite number of metrics addressing key climate-related risks which could be presented as a proposed “climate disclosure dashboard”. Members of the DWG developed a set of criteria which were used to shortlist more than 70 metrics recommended or suggested identified by a variety of bodies, including the Disclosures Chapter of the CFRF 2020 Guide, for inclusion in the dashboard.

Building on the five high level use cases and in consultation with the Forum’s other working groups, an illustrative climate disclosure dashboard is presented in the next section for financial firms to consider.

In developing the Dashboard, the CFRF has considered the need for a strategic, long-term approach to climate change, as outlined earlier, as well as the evolving nature of climate data, analytics and emerging practice. For example, metrics being used today may not be the same as those which may be used in the next three to five years as models and methodologies evolve. With this in mind, and to help firms ‘get started’ whilst highlighting future issues, the dashboard proposed metrics in three categories: basic, stretch and advanced (see further below). The DWG recognised that some of the methodologies required to report against the advanced metrics are still in development and may be more difficult to for firms utilise or use in public disclosures at this time.

Care has also been taken to build on the approach set out in the TCFD’s 2021 guidance on Climate-Related Metrics, Targets and Transition Plans,<sup>10</sup> in particular the TCFD’s intention to build on progress in the disclosure of climate-related metrics to encourage improved disclosure of the financial impacts and its publication of a clear set of characteristics of effective climate-related metrics.<sup>11</sup>

Given the strong synergies between the shortlisting criteria used by the DWG and the TCFD’s characteristics, we have amalgamated them into the list of characteristics set out below which were used to develop the Dashboard (additions underlined):

Characteristic	Extracts (with CFRF additions underlined)
<b>Decision-Useful</b>	Climate-related metrics help organizations understand potential impacts of climate risks and opportunities over a specified time period, including financial impacts and the operational consequences. <u>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, portfolio decarbonisation and transition financing. 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.</u>
<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. <u>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.</u>
<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. <u>Metrics should ideally be</u>

<sup>10</sup> [TCFD Guidance on Metrics, Targets and Transition Plans \(October 2021\)](#)

<sup>11</sup> The TCFD final guidance incorporates a number of changes to these characteristics including some suggested by members of the DWG in their consultation responses, based on the shortlisting criteria developed for the purposes of the Dashboard.

	<u>based on (a) robust, credible transparent methodologies and (b) robust and accessible data (or transparent estimates where this is not available). 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>12</sup> Wherever possible, metrics should not be solely reliant on 'black box', proprietary methodologies or data.</u>
<b>Consistent over Time</b>	<u>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.</u>

As regulatory authorities and reporting entities become more familiar with climate-related financial risk reporting, and specifically the use of metrics, the reporting regime may need to adapt. In particular, current annual reports and accounts focus on the disclosure of matters material to the investor in the undertaking or group. In engaging with and providing metrics that address other issues, such as carbon intensity or metrics going to contribution to systemic risk, reporting firms will need to be clear as to whether or not these are material in the traditional sense or are broader disclosures not directly germane to investment decisions relating to the reporting entity. This is discussed in more detail in the Forum Guide, "Managing legal risk in relation to climate-related reporting requirements applicable to UK financial institutions".

Taking all of this into account, the Climate Disclosure Dashboard is presented in the next section.

## **An Illustrative Climate Disclosure Dashboard**

For each of the five uses cases identified by the Forum – transition risk, physical risk, portfolio decarbonisation, mobilisation and engagement, the dashboard:

- Identifies illustrative 'basic', 'stretch' and 'advanced' metrics for firms to consider (see further below)<sup>13</sup>
- Explains the rationale behind the proposed approach, including where appropriate the relationship between climate-related metrics and financial impacts
- Discusses specific considerations for asset managers (AMs), banks and insurers. (NB Advice for AMs includes the asset management arms of insurance companies and banks.)
- Summarises methodology and data sources for calculating basic metrics, plus any issues relating to stretch and advanced
- Includes cross-references to external sources including TCFD
- Provides real-world examples of disclosures relating to each use-case.

This guidance builds on the minimum standards for disclosure set by the TCFD and UK regulators, setting out recommendations for three categories of metrics:

- Basic metrics: widely used; methodologies are available today (and largely disclose the current situation)
- Stretch metrics: some use; methodologies are at an early stage of development/acceptance in the market
- Advanced metrics: offer a more forward-looking and holistic assessment, including where possible financial impacts; methodologies are not yet well developed/widely accepted but provide a direction of travel that industry can work towards.

<sup>12</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"

<sup>13</sup> The CFRF acknowledges that the feasibility of the recommendations will differ across asset classes and management styles; and that time and industry collaboration will be required to develop consistent methodologies and drive further company level disclosure. The DWG recommends continued industry collaboration to set guidance and appropriate timelines for these areas, which include but are not limited to:

1. Private Markets – a timeframe is required to promote a formal disclosure regime for private companies that will allow them to disclose important metrics in line with public companies but considerate of their size and operations
2. Derivatives, short positions and short term/currency instruments – industry standards are required to allow for consistent reporting of such instruments to ensure comparability for investors of climate related risks
3. Sovereign bonds – an industry standard is required for sovereign bonds, particularly in institutional portfolios, which considers both the aspiration of the recommendations but also the advancement of a just transition

**Table 1: Summary of Climate Disclosure Dashboard metrics**

Use cases	Basic	Stretch	Advanced
<b>Transition risk exposure</b>	Exposure to carbon-related assets by sector (as % portfolio/ underwriting activity)	Transition risk heatmap by sector/technology/ geography	Anticipated financial impacts of the climate transition based on scenario analysis
<b>Physical risk exposure</b>	Proportion of investing or financing activities vulnerable to physical risk	Physical risk heatmap by sector/geography	Anticipated financial impacts of physical risks based on scenario analysis
<b>Decarbonising portfolios</b>	Financed emissions – historical/current (absolute and intensity) <sup>14</sup>	Financed emissions – current/historical/future (absolute and intensity)	Portfolio alignment metrics
<b>Mobilising transition finance</b>	Exposure to climate-related opportunities (as % overall portfolio/ underwriting activity)	Carbon return metric (e.g. avoided emissions)	Climate-related capex intensity (capex on climate solutions as % of total capex)
<b>Engagement</b>	Proportion of engagement meetings (total <u>and</u> by portfolio) on climate risk/ opportunity, by theme	No./% of engagements where positive progress achieved against objectives	No./% of advanced interventions

<sup>14</sup> Also relevant to Transition Risk (see pages 14).

## 1) Exposure to transition risks

Basic	Stretch	Advanced
Exposure to carbon-related assets split by sector (as % of portfolio <sup>15</sup> /underwriting activity)  <i>Financed emissions (see further section 3 on Portfolio Decarbonisation)</i>	Transition risk heatmap by sector/technology/geography (reflecting own assessment of carbon prices, policies, corporate strategies etc.)	Anticipated future financial impacts (e.g. transition value at risk, or climate-adjusted probability of default) based on scenario analysis

**Approach:** Ultimately, FIs should be encouraged to disclose details of the financial impacts of transition risk on portfolios and financing activities arising from implementation of carbon regulation and other transition risk factors, under different regulatory scenarios. Methodologies for calculating these impacts are becoming more common but lack of standardised scenarios are still a barrier to widespread uptake.

Our proposed starting point is the TCFD's recommended disclosure of the amount and extent of the financial institution's investing or financing activities vulnerable to carbon-related transition risks (see below for more details on definitions and methodology).

Recognising that metrics relating to financed emissions are commonly being used as a proxy for transition risk and that disclosure of these metrics will likely be required by the Financial Conduct Authority,<sup>16</sup> we have noted that this can also be considered a possible Basic metric for transition risk. Discussion of methodological and other issues relating to financed emissions are covered in more detail in section 3 on Portfolio Decarbonisation for which they are a closer fit, given that the relationship between financed emissions and transition risk is not linear.<sup>17</sup>

Understanding an FI's exposure to transition risks will require further assessment based on the exposure of investee companies/borrowers/clients to carbon prices and other policies as well as their planned strategies to respond to transition risks and opportunities. We have therefore recommended that these should be incorporated into disclosure as a stretch metric of more detailed information on the proportion of investing or financing activities materially exposed to transition risks split by sector, technology, geography. Heatmaps showing climate sensitivities to sectors/areas/lines of business and materiality to portfolio can be a useful visualisation of the impacts.

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

- Asset Managers: In line with TCFD, AMs should disclose significant concentrations of exposure to carbon-related assets in relation to each product or investment strategy.
- Banks: TCFD recommends that banks provide metrics relating to credit exposure, equity and debt or trading positions broken down industry, geography, credit quality and average tenor.<sup>18</sup> For the Basic and Stretch metrics, these are most suitable as portfolio level metrics. 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).
- Insurers: Impacts for insurance portfolios from carbon-related assets vary by lines of business. Stretch disclosure should be split by lines of business and provide indication of sensitivity of lines of business to identified transition risks.

### Methodology and data:

- Basic: 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>19</sup> The 2021 TCFD Annex suggests carbon-related assets should be defined as those tied to the four non-financial groups identified by TCFD i.e. Energy, Transportation, Materials & Buildings, and Agriculture, Food & Forest Products.<sup>20</sup>
- Stretch: A transition risk heatmap could be prepared by overlaying basic data on carbon-related assets (split by sector etc) with further risk categorisation based on degree of transition risk (e.g. by

<sup>15</sup> In line with TCFD, 'portfolio' in this context means 'product or investment strategy' for AMs and 'lending and other financial intermediary business activities' for banks (see [2021 TCFD Annex](#) p.56).

<sup>16</sup> See Table 1: Core metrics in [FCA Consultation Paper CP21/17](#): Enhancing climate-related disclosures by asset managers, life insurers and FCA-regulated pension providers (page 32)

<sup>17</sup> As discussed earlier in the report, in some industries the impact of carbon prices can be passed through directly via higher prices, with little impact on asset valuation and in others, where margins are low or low-carbon alternatives are readily available, relatively small carbon prices could have a significant impact.

<sup>18</sup> See [2021 TCFD Annex](#) p. 29.

<sup>19</sup> The formula for this calculation is set out in Table 3 on p.56 of the [2021 TCFD Annex](#).

<sup>20</sup> Table 4, p. 56 of [2021 TCFD Guidance](#) for industries associated with the four non-financial groups.



Low, Medium, High) (see example from Allianz below).

- **Advanced:** The calculation of financial impacts from the climate transition is a rapidly evolving field but it is currently hampered by the lack of standardised scenarios and common tools and methodologies. The Forum therefore advocates a 'learning by doing' approach whereby FIs are encouraged to disclose the outputs of their scenario analysis exercises – for example, through scenario or climate transition value-at-risk metrics - alongside the methodologies, data and assumptions used.

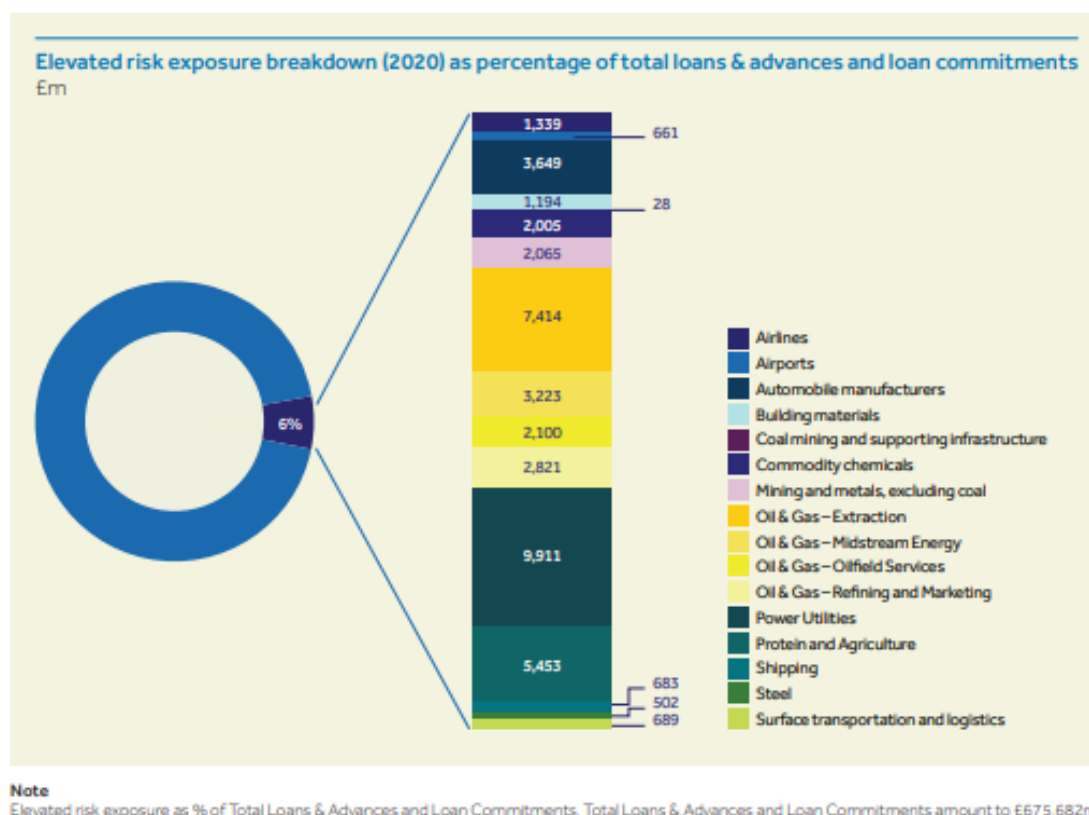
**External references:** [TCFD 2021 Guidance on Metrics, Targets and Transition Plans](#)<sup>21</sup>, Climate Risk Financial Forum Guide 2021 – Scenario Analysis Chapter

**Recommendations for further work:** development of standard reference scenarios to support calculations of transition value-at-risk and assist comparability.

**Real-world examples:**

**Basic metric:** [Barclays Climate-related Financial Disclosures 2020](#) (page 17)

Elevated risk exposure by sector (with accompanying rationale)



<sup>21</sup> See in particular Transition Risks (p.21) and Example Disclosures (p. 61).

**Stretch metric:** [Allianz Group Sustainability Report 2020](#) (page 85)

Assets and business impact under transition scenarios

Assets and business impact under transition scenarios (source: Allianz, excerpt)

Global		2°C					1.5°C				
		2020	2025	2030	2035	2040	2020	2025	2030	2035	2040
Energy	Integrated oil and gas	(M)	(M)				(M)				T
Energy	Oil and gas storage and transportation										
Energy	Coal and consumable fuels				T, P	T, P				T, P	T, P
Materials	Fertilizers and agricultural chemicals	(T)	(T)	(T)	(T)	(T)	(T)	(T)	(T)	P	
Materials	Aluminium										
Materials	Steel										
Industrials	Industrial conglomerates										
Industrials	Airlines	(T)	P				(T)	P			
Consumer discretionary	Auto components										
Consumer discretionary	Automobiles			P	P, T	T		P	P	P, T	P, T
Utilities	Electric utilities	P	(M)		P	P	P	(M)		P	P
Utilities	Renewable electricity				T	T				T	T

**Risk enhancer:**  
P = policy  
T = substitution technology  
M = related market forces

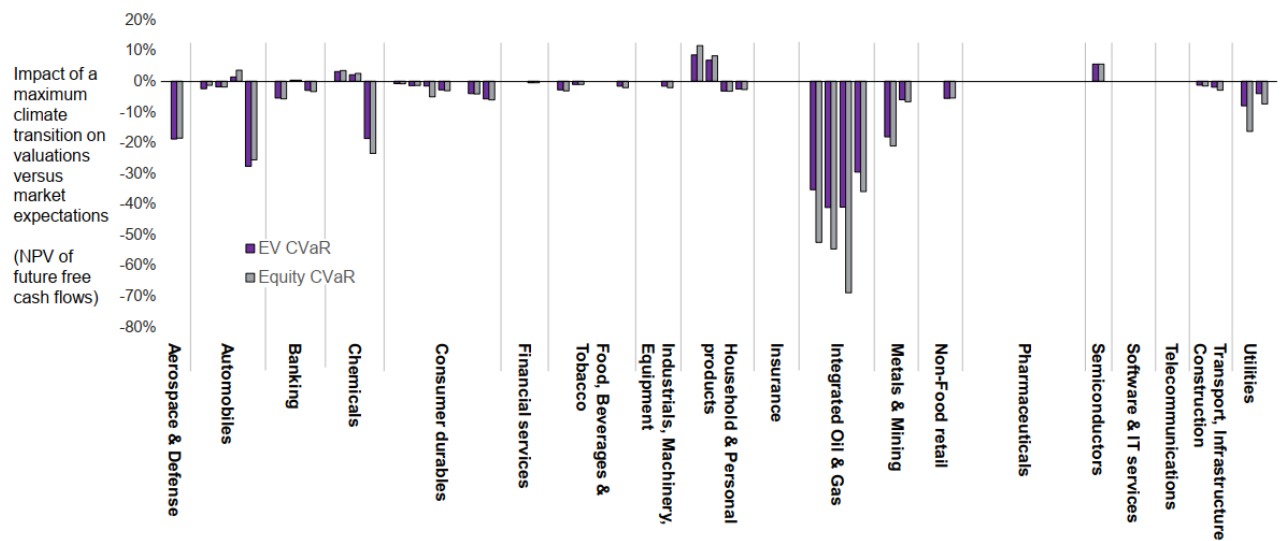
**Risk mitigator:**  
(P) = policy  
(T) = little substitution technology  
(M) = countering market forces

**Risk:**  
Low  
Medium  
High  
Very high

**Advanced metric:** Willis Towers Watson - Climate Transition Value at Risk<sup>22</sup>

**Climate transition risk could impact the value of a range of large companies**

Climate Value at Risk (CVaR) to Equity and Economic Value of largest European companies



<sup>22</sup> [Climate Transition Value at Risk analysis](#) as of June 2021 (provided for illustration, disclosures forthcoming)

## 2) Exposure to physical risks

Basic	Stretch	Advanced
Proportion of investing or financing activities vulnerable to physical risk	Physical risk heatmap by sector/geography (over time reflecting value chain, adaptive capacity, corporate response etc.)	Anticipated future financial impacts (e.g. climate value at risk, or climate-adjusted probability of default) based on results from scenario analysis

**Approach:** The complexity and diversity of physical climate risks means that it has the potential to be the most difficult and technically complex climate risk to assess and report. For example, even the most sophisticated approaches do not yet capture wider system-wide risks associated with disruptions to utilities or supply chains. However, there are some basic steps such as analysis of historical exposure to physical risks which can be extremely informative. The proposed metrics recognise that many firms may still be at the start of their journey on managing these risks and but nonetheless should still be able to report on their progress.

- Given the firm and location specific aspects of physical climate risk, the basic metric focusses on the identification of 'at risk' investee and client companies as the crucial first step in understanding a firm's exposure to physical climate risk.
- The stretch metric build on this by suggesting the publication of a 'physical risk heatmap' identifying high/medium/low risk sectors and geographies and ideally information on the specific climate impacts to which they are exposed. Over time, firms should include risks arising from the exposure of value chains to climate impacts as these will be a key input into risk assessment.
- As an advanced metric, we recommend that firms should strive to report future financial impacts of physical risks on their business, such as climate value at risk (VaR) for asset managers or climate adjusted probability of default (PD) for banks.

Disclosures should ideally be presented alongside standardised benchmarks of relevant peers once available (c.f. the Bank of England's inclusion of a G7 reference portfolio its TCFD report).

### 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 in each product or investment strategy.
- Banks: Where lending is general corporate purpose, there will be a need to assess physical risk profile of clients, who may own assets in different locations, subject to differing levels of physical risk. There are databases, third party providers that are beginning to offer more sophisticated assessments of entire clients taking into account all their physical assets, as well as considering vulnerability of clients to supply chain risks. 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.
- Insurers: Due to the nature of their business, insurers are likely to be in a better starting position than other financial institutions in relation to the disclosure of exposure to physical risks and can be expected to provide more detailed granular information. TCFD recommends Insurance companies to provide aggregated risk exposure to weather-related catastrophes of their property business, which should serve as basic disclosure. Stretch disclosure can further split those exposures by geography and climate peril, as well as show probable maximum losses (PMLs) for different return periods. The segmentation and return periods should be aligned with those used internally for risk and capital management. Integrating climate change effects into the granular catastrophe models used by insurers is a complex science in the early stages of development. Disclosures of current exposure to climate risks and any delta caused by climate change will therefore use different methodologies and granularity, with climate change elements relying more on narrative than quantitative exposure figures until methodologies and models become more advanced.

### Methodology and data:

- NB: for all metrics we suggest considering three timeframes: present day, 2030 and 2050.
- Basic: The key input for an analysis of vulnerability to physical risks is asset location for key company sites. This can then be combined with basic climate information from IPCC assessment reports which detail the extent and geographic scope of expected changes to climate variables, to identify where the largest exposures in a portfolio may occur.
- Stretch: We recommend that FIs then seek to build more granularity into their analysis by looking at exposure of individual sectors, considering the vulnerability of supply chains and considering responses which sectors/corporates are likely to take to a changing climate.
- Advanced: The financial impacts described above will be the results emerging from scenario

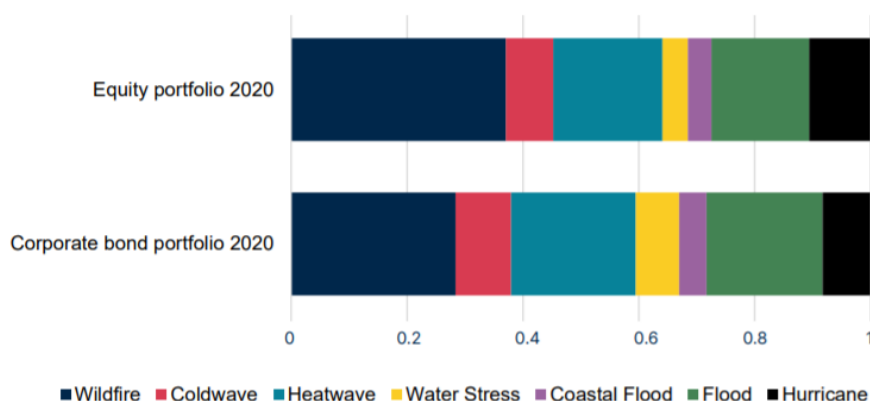
analysis exercise using at least two scenarios (ideally reference scenarios developed by the regulator). Recognising that methodologies for calculating future financial impacts are still being developed, as a first step firms could focus on building an understanding of past and recent climate impacts which can form the baseline against which projected financial impacts can be compared and will help companies build methodologies for developing more forward-looking metrics.

**External references:** [2021 TCFD Metrics Guidance](#)<sup>23</sup>; [IIGCC Investor Expectations on Physical Climate Risk and Opportunities](#); [UNEPFI Charting a New Climate: TCFD Banking Programme Report](#)<sup>24</sup>.

**Recommendations for further work:** publication of standardised benchmarks to assist comparability; development of reference scenarios by regulators.

**Real-world examples:**

**Basic metric:** Ilmarinen, [Annual and Sustainability Report 2020](#)  
Proportional shares of physical risk (p.50)



**Stretch metric:** Munich Re, [Corporate Responsibility Report 2020](#)  
Strategic Risks and Opportunities – Physical Risks: acute & chronic (p. 51)

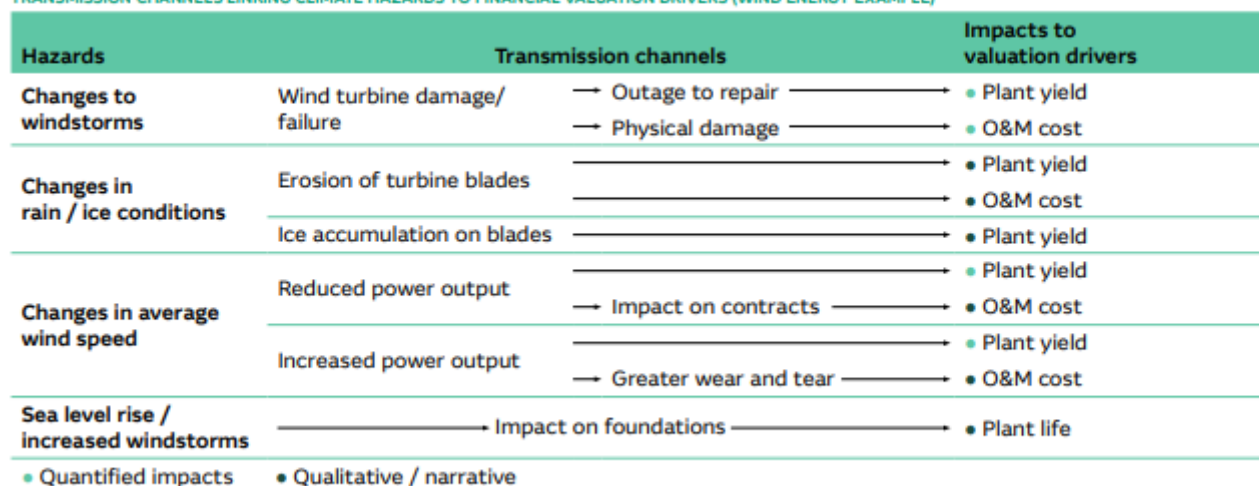
Risks issue	Time frame, likelihood, magnitude of impact and potential (financial) impact			Response (strategic, financial planning)
Physical: acute & chronic				
Tropical cyclone Example: Atlantic hurricane	Time frame:	Likelihood:	Magn of impact:	- Munich Re has a vigilant risk management system in place, capable of detecting and responding to changes in hazard and risk (see details in section risk management).
	Medium-term	Likely	High	
	Potential (financial) impact:			
	Increased insurance claims liability, e. g. €6.3bn VaR for Atlantic hurricane (200yrs return period).			- Annual renewal of most (re)insurance covers allows for high flexibility in adapting risk management and (re)insurance cover conditions over time.
Extra-tropical cyclone Example: Winter storm Europe	Time frame:	Likelihood:	Magn of impact:	
	Long-term	Likely	High	
	Potential (financial) impact:			
	Increased insurance claims liability, e. g. €2.9bn VaR for winter storm Europe (200yrs return period).			- Munich Re's adaption and mitigation measures (see risk management section) also contribute to the prevention of increasing physical risks.
Severe convective storms Example: Severe convective storms USA	Time frame:	Likelihood:	Magn of impact:	
	Short-term	Likely	Medium	
	Potential (financial) impact:			
	Increased insurance claims liability, e. g. €500m-1.5bn (estimated range), VaR for thunderstorm USA (200yrs return period).			
Wildfire Example: Wildfire USA	Time frame:	Likelihood:	Magn of impact:	
	Short-term	Very likely	Medium-high	
	Potential (financial) impact:			
	Increased insurance claims liability, e. g. €500m-1.5bn (estimated range), VaR for wildfire USA (200yrs return period).			
Rising sea levels and associated risks such as increased storm surge events	Time frame:	Likelihood:	Magn of impact:	
	Long-term	Virtually certain	High	
	Potential (financial) impact:			
	Increased insurance claims liability. No estimate due to high uncertainties to date.			
Physical risks for MR Group premises	Time frame:	Likelihood:	Magn of impact:	- Business-driven risk management and business-continuity plans on a Group-wide and local level apply at all Munich Re Group locations.
	Short-term	More likely than not	Low	
	Potential (financial) impact:			
	Decreased asset value or asset useful life leading to write-offs, asset impairment or early retirement of existing assets. No detailed analysis due to limited likelihood and low magnitude of impact.			

<sup>23</sup> See Physical Risk (p. 21-22) and Example Disclosures (p. 61)

<sup>24</sup> Contains case studies and a toolkit for financial institutions "to consider their physical risks and opportunities and move from assessment to action".

**Advanced metric:** Macquarie, [FY21 TCFD implementation progress and scenario analysis](#)  
Physical Risk – Scenario analysis for equity portfolio of infrastructure assets (p. 14-20)

TRANSMISSION CHANNELS LINKING CLIMATE HAZARDS TO FINANCIAL VALUATION DRIVERS (WIND ENERGY EXAMPLE)



Source: Extract of transmission channels diagram for wind energy produced by Willis Towers Watson

### 3) Portfolio decarbonisation

Basic	Stretch	Advanced
Financed emissions - historical/current (absolute and intensity)	Financed emissions - historical/current/future (absolute and intensity)	Portfolio alignment metrics <sup>25</sup>

**Approach:** In response to the UN's Race to Zero initiative in the run up to COP26, an increasing number of financial institutions have committed to reducing the carbon emissions arising from their lending or investing to net zero by 2050 or earlier. While the Forum believes that these efforts need to be balanced with a broader approach to Paris-alignment encompassing disclosures relating to other use cases (see Executive Summary above), it recognises in line with TCFD recommendations and emerging regulatory norms information on financed emissions and other metrics for portfolio decarbonisation should be included in the Disclosures Dashboard.

The two main challenges are the differing methodologies for calculating intensity based financed emissions and how best to move beyond historic disclosures to forward-looking metrics. In relation to the former, the DWG concluded that in light of the differing approaches taken by different regulators and the rapidly evolving landscape in relation to methodologies<sup>26</sup>, the Basic and Stretch metrics should focus on the disclosure of financed emissions for which there are methodologies already widely in use for AMs, banks and insurers. In relation to forward-looking disclosures, some members of the DWG noted that, while the report of the Portfolio Alignment Team (PAT)<sup>27</sup> has identified a range of portfolio alignment tools that can provide forward-looking data, each of the approaches appeared to have significant shortcomings, either in terms of unintended consequences, complexity or lack of transparency around inputs and methodologies. While some firms are beginning to use such tools in their reporting, they are at an early stage of development. It is therefore important to view any disclosures using portfolio alignment metrics in the context of other metrics.

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

- **Asset Managers:** metrics should be disclosed in relation to each product or investment strategy.
- **Banks:** When considering activities that are in scope for a bank's financed emissions, it would be important to consider which activity (e.g. lending, capital markets facilitation, underwriting etc.) is material to the bank's business as well as the activity's impact on emissions. The Working Group recognised that widely accepted methodologies are not yet available for all of these activities.
- **Insurers:** For insurance portfolios the link between a customer's emissions and insurance premium is less direct than for investments and there is no common methodology available yet to calculate insured emissions, with the CRO Forum's 2020 Carbon Footprinting Methodology for Underwriting Portfolios proposing an initial methodology for adapting WACI for insurance underwriting activities. The Partnership for Carbon Accounting Financials (PCAF) has also started to develop a methodology for measuring GHG emissions from insurance underwriting activities in collaboration with the UN-convened Net-Zero Insurance Alliance and further insurance companies.

#### Methodology and data:

- **Basic:** suggested formulae for calculating financed emissions including Weighted Average Carbon Intensity, Total Carbon Emissions and Carbon Intensity can be found in [2021 TCFD Annex](#) (see Table 3 - Common Carbon Footprinting and Exposure Metrics p.52-53).
- **Stretch:** The additional forward-looking element included in the stretch metric is based on the aggregation of emission reduction targets or estimated emissions of assets or borrowers.
- **Advanced:** A technical review of a range of methodological approaches for assessing portfolio alignment can be found in The Alignment Cookbook.<sup>28</sup> The benefits and challenges of different approaches to measuring portfolio alignment are discussed in detail in the [PAT technical report](#).<sup>29</sup>

**External references:** [2021 TCFD Guidance on Climate-Related Metrics, Targets and Transition Plans](#)<sup>30</sup>, [FCA Consultation Paper CP21/17](#) (July 2021), [PAII Net Zero Investment Framework](#)

<sup>25</sup> Including implied temperature rise (ITR) metrics.

<sup>26</sup> See: [Partnership for Carbon Accounting Financials](#) Global GHG Accounting and Reporting Standard; and the [CRO Forum's](#) "Carbon footprinting methodology for underwriting portfolios"

<sup>27</sup> See [Measuring Portfolio Alignment: Technical Considerations](#). The Portfolio Alignment Team is an independent group of external analysts from the financial sector established by Mark Carney in his capacity as UN Special Envoy for Climate and Finance.

<sup>28</sup> [GSF The Alignment Cookbook](#)

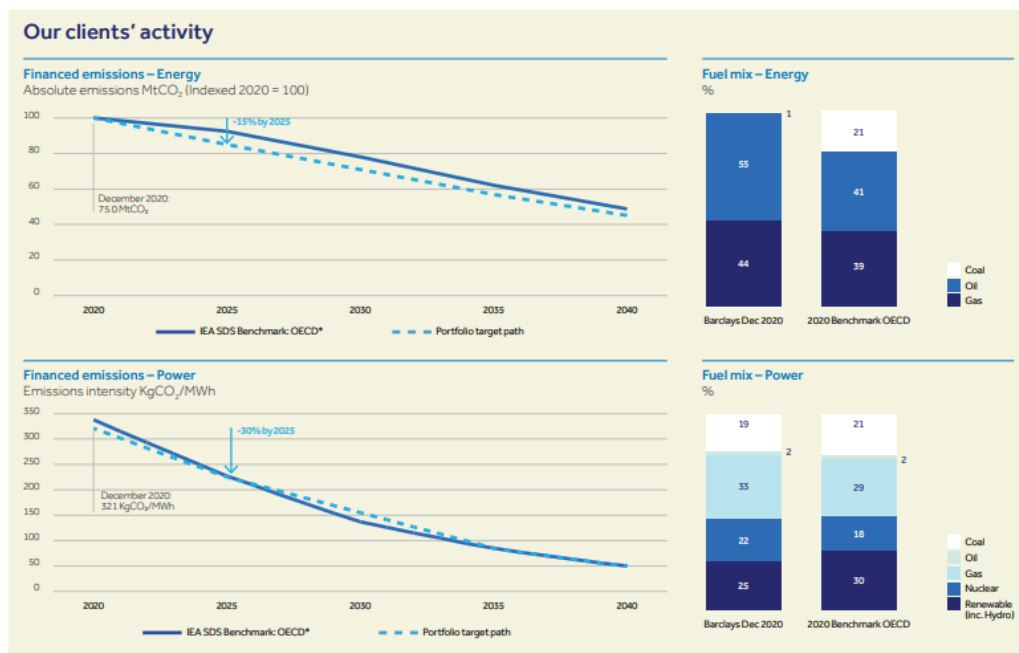
<sup>29</sup> See Table 1 p. 18-19.

<sup>30</sup> See Portfolio Alignment Metrics for the Financial Sector (p.27).

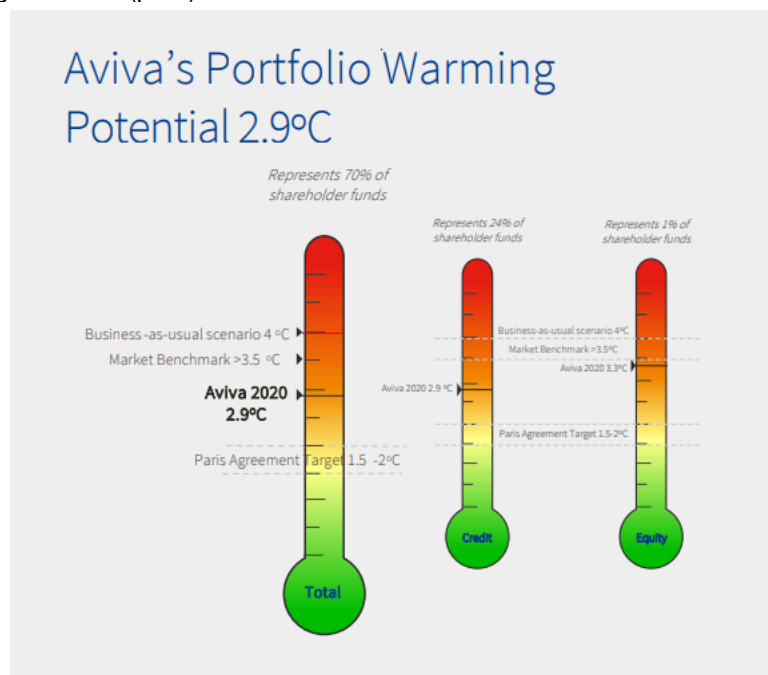


## Real-world examples:

Barclays [Climate-related Financial Disclosures 2020](#)  
Portfolio alignment targets (p. 29)<sup>31</sup>



Aviva [Climate Related Financial Disclosure 2020 Summary](#)  
Portfolio Warming Potential (p.22)



<sup>31</sup> Barclays has developed its own carbon emissions model – BlueTrack™ – to support its portfolio transition in line with the Paris Agreement. Details of the model methodology can be found at: <https://home.barclays/society/our-position-on-climate-change/bluetrack>.

#### 4) Mobilising transition finance<sup>32</sup>

Basic	Stretch	Advanced
Exposure to climate-related opportunities as % of overall portfolio <sup>33</sup> /underwriting activity	Carbon return metrics (e.g. avoided emissions)	Climate-related capex intensity (capex on climate solutions as % of total capex)

**Approach:** Mobilising finance into technologies and infrastructure needed to transition the global economy to net zero is a huge challenge which must be met to minimise risk of future climate change and associated economic and financial impacts. While this topic has received little attention in relation to climate related disclosures, metrics relating to climate solutions investments will help direct investor financing to net-zero investment needs by tracking performance, identifying engagement and capital reallocation opportunities, and highlighting need for additional policy support (for example to address under-investment in 'hard to abate' sectors).

No existing metric is a silver bullet:

- measurement of alignment with green revenues is dependent on fit-for-purpose taxonomies and only provides a partial guide as it does not show the relative impact of assets on the transition to net zero;
- carbon return metrics measure marginal impacts but lack standardised methodologies;
- green capex intensity is dependent on both taxonomies and availability of detailed data on capital expenditure by corporates (very difficult to obtain for SMEs).

Given the importance of mobilising finance for climate solutions, the Forum (in line with other initiatives such as the Net Zero Asset Owners Alliance and IIGCC Paris Aligned Investment Initiative<sup>34</sup>) believes that financial institutions should start to make disclosures on this topic now on a 'learning by doing' basis, alongside transparent information on methodologies used and treatment of data gaps. Continued efforts to disclose this information will lead to improved standardisation and reductions in greenwashing which will, in turn, help greater emissions reductions in the real economy and reduce system-wide risks.

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

- **Asset Managers:** AMs should describe the metrics in relation to each product or investment strategy as recommended by TCFD.
- **Banks:** Banks should provide the amount of lending and other financing connected with climate-related opportunities.
- **Insurers:** Insurance portfolios for retail and corporate insurance also presents opportunities to actively facilitate the transition to a climate-resilience economy. Therefore insurers should disclose their premium for products that facilitate the transition to a low-carbon economy. 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 should be included in the disclosure. As there is no commonly accepted definition of "green products" for insurers, the definition chosen, and any assumptions taken in calculating green revenue should be transparently disclosed. The calculation of avoided emissions for insurance portfolios faces the same methodological issues as for financed emissions and is not recommended at this point.

#### Methodology and data:

- **Basic:** Exposure to green activities calculated by dividing revenue from green activities of investee companies as defined by green taxonomy (e.g. EU Taxonomy, FTSE Green Revenues, bespoke taxonomies such as [EBRD Green Economy Transition](#)) by total revenues of assets in portfolio/product. Data on revenues can be obtained from third party providers.
- **Stretch:** While individual AMs are already disclosing avoided emissions by product or strategy (see example from Impax below), standardised approaches now need to be developed (especially on standard emission factors, BAU scenarios, double-counting and how to plug data gaps).
- **Advanced:** 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>35</sup> However, given the current lack of capex data, it is probably best viewed as an aspirational metric until data becomes more widely available under the EU Taxonomy in 2022.

<sup>32</sup>This approach is informed by IIGCC and Vivid Economics' forthcoming paper "The investment needs of the climate transition" which includes example formulae for each of the metrics described in this section.

<sup>33</sup> In line with TCFD, 'portfolio' in this context means 'product or investment strategy' for AMs and 'lending and other financial intermediary business activities' for banks (see [2021 TCFD Annex](#) p.56).

<sup>34</sup> See [Net Zero Asset Owners Alliance Target Setting Protocol](#) (p. 62); [PAII Net Zero Investment Framework](#) (p.10, 16 etc.)

<sup>35</sup> See e.g. [2021 TCFD Annex](#) section Capital Deployment (p.24).

**External references:** [TCFD Guidance on Metrics, Targets and Transition Plans](#)<sup>36</sup>; [Net Zero Asset Owners Alliance Target Setting Protocol](#)<sup>37</sup>; [PAII Net Zero Investment Framework](#).

## Real-world examples:

**Basic metric:** [EBRD TCFD Report 2019](#) (p.17)

### Investment in Renewable Energy and Carbon Transition-Related Sectors

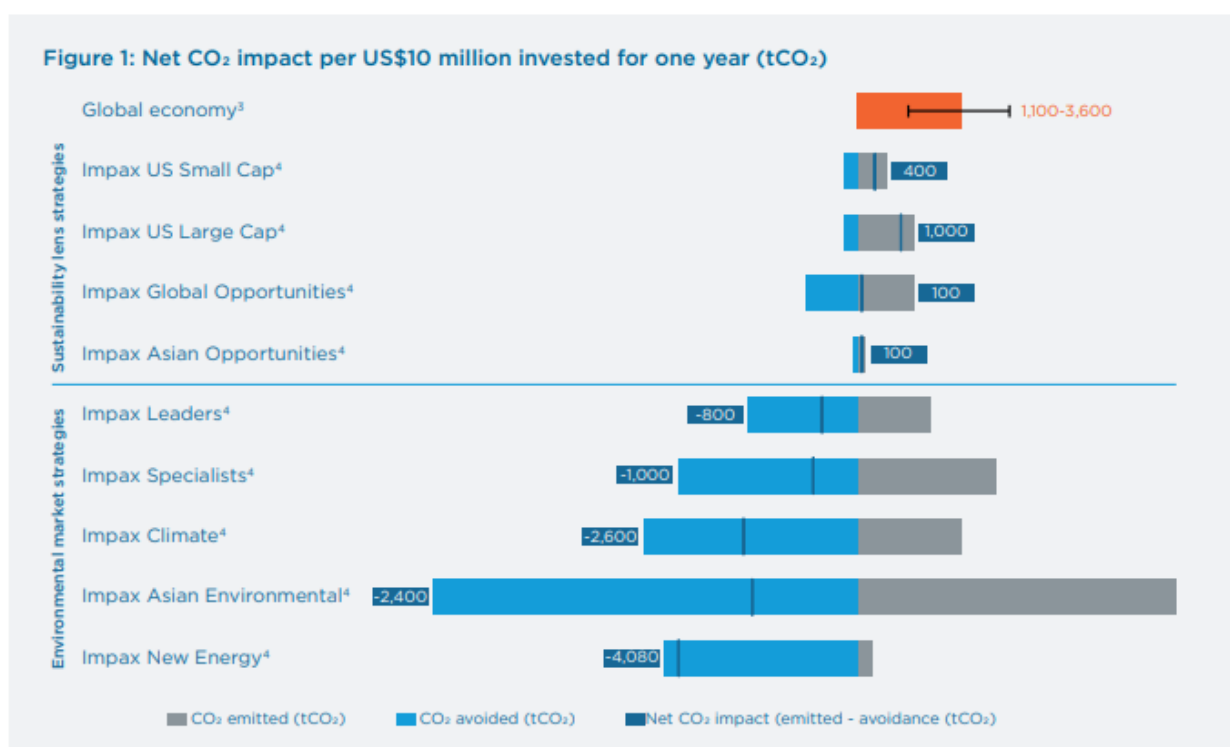
**Table 1. EBRD investments in renewable energy and carbon transition-related sectors, based on North American Industry Classification System (NAICS) codes**

Industry sector	NAICS code(s)	Loans	Equity	Undrawn commitments and guarantees	Total portfolio	Share of total portfolio	Total classified as supporting Green Economy Transition <sup>1</sup>	Share classified as supporting Green Economy Transition <sup>2</sup>
		2019 € million	2019 € million	2019 € million	2019 € million	2019 %	2019 € million	2019 %
Renewable energy	237130	2,554	148	768	3,470	7.6%	3,204	92.3%
Oil and gas	2212, 211, 32411, 486, 486210, 213112, 447	1,877	66	954	2,897	6.3%	724	25.0%
Electricity distribution and transmission	221122, 22112	1,225	44	1,006	2,274	5.0%	1,734	76.3%
Electricity and heat generation	22111, 22133	1,299	13	584	1,896	4.1%	1,183	62.4%
Metals mining and production	2122, 331, 332	1,488	122	254	1,863	4.1%	599	32.1%
Automotive and shipping	53211, 48831, 3361, 488, 3366	724	56	162	942	2.1%	136	14.5%
Chemicals and building materials	444, 325, 327	654	146	132	932	2.0%	387	41.5%
Aviation	3364, 481, 4881	605	27	101	733	1.6%	65	8.9%
Coal mining	2121	36	0	0	36	0.1%	9	25.0%

<sup>36</sup> See in particular Climate-Related Opportunities (p.23) and Example Disclosures (p. 62).

<sup>37</sup> Chapter 8 on Financing Transition Targets p.62 recommends reporting on committed value in climate solution investments, avoided emissions, portfolio revenue share in green/brown activities based on EU taxonomy.

**Stretch metric:** Impax Asset Management – [Impact @ Impax 2021](#)<sup>38</sup>  
Net CO<sub>2</sub> impact per US\$10m invested



<sup>38</sup> Solar and wind emissions factors were taken from estimates provided by IPCC using the median lifecycle emissions. Hydro uses the NVE emission figures. Asian Opportunities AUM and holdings are as at 31 March 2021. <sup>3</sup>Source: Estimated total emissions 2020 [GtCO<sub>2</sub>e] (orange bar) Global Carbon project, source Carbon brief using 2020 figures. Black bars reflect the range of estimates of value invested. Global AUM for 2020 as provided by PwC for the low figure and Global Wealth for 2020 as provided by Credit Suisse for the high figure. <sup>4</sup>Impax Asset Management, 31 December 2020. Impax's impact methodology is based on equity value.

## 5) Engagement

Basic	Stretch	Advanced <sup>39</sup>
<ul style="list-style-type: none"> <li>- Proportion (%) of total engagement meetings on climate risk/opportunity, broken down by topic/theme</li> <li>- Proportion/share of the portfolio for which engagement on climate-related risk/opportunities has been a key topic</li> </ul>	No./% of engagements where positive progress has been achieved / evidenced against objectives (e.g. by theme, on climate disclosures etc.)	No./% of advanced interventions (e.g. for AMs, AGMs attended to speak on climate change, resolutions publicly supported in advanced or co-filed)

**Approach:** Targeted engagement activity can effectively raise awareness and express concerns around the management, strategy and governance of the financial risks and opportunities arising from climate change. The proposed metrics enable a manager/lender/insurer to assess the extent to which engagements and/or voting on climate issues are being managed or prioritised, and to report on the extent and effectiveness of engagement activities. To date, reporting of engagement metrics have been largely activity-based, supported by contextual information such as examples or case studies. Complex multi-faceted engagements, often over longer timescales, cannot be fully captured by a single metric. While we encourage more quantitative disclosure of positive engagement outcomes, current disclosures are often non-existent or lack comparability.

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

- **AMs:** TCFD recommends that AMs should disclose engagement activity with investee companies to encourage better disclosure and practices related to climate related risks and on their transition to a low-carbon economy.<sup>40</sup> AMs (and asset side of insurers) can also disclose 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:** Metrics to measure the impact of client engagement by banks will be different to those that are relevant to investors. Banks have a dual role with its clients as both direct lender and often financial advisor (providing advice on structuring, market appetite, investor expectations) through which they can reflect back to clients what the market expects in order for these companies to access financing and how they compare to peers. As such, banks have less direct influence over management's decisions on strategic direction of the company as they are not shareholders with a vote, they are instead service providers. However, the engagement that takes place is still critical to raising awareness and understanding of the green and sustainability agenda with clients.
- **Insurers:** TCFD recommends that insurers should disclose climate-related client engagement including supporting quantitative information where available.<sup>41</sup> Insurers can engage with companies both via their insurance and investment activities. Where companies are both insurance customers and investees, an aligned engagement will increase the effectiveness of the interactions. Disclosures should highlight how engagement targets are aligned and be mindful of any potential double-counting.

**Methodology and data:** No particular methodological or data issues.

**External references:** [2021 TCFD Annex](#), [UK Stewardship Code](#), CISL report

<sup>39</sup> These types of activities are not applicable to banks. Client engagement on climate issues is still an evolving area. An example of what banks might require in future is borrower representations in loan/credit documentation on their commitment to a transition or net zero plan and engagement metrics may develop around this but the way in which this may evolve is still unclear.

<sup>40</sup> See [2021 TCFD Annex](#) p.46 and p.48 (footnote 89).

<sup>41</sup> See [2021 TCFD Annex](#) p.33.

## Real-world examples:

**Basic metric:** EOS at Federated Hermes - [Public Engagement Report Q2 2021](#) (page 5)  
Quarterly engagement activity:

### Engagement by theme

A summary of the 1,871 issues and objectives on which we engaged with companies over the last quarter is shown below.



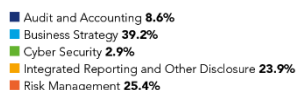
Environmental topics featured in 29% of our engagements over the last quarter.



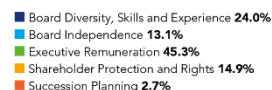
Social and Ethical topics featured in 16% of our engagements over the last quarter.



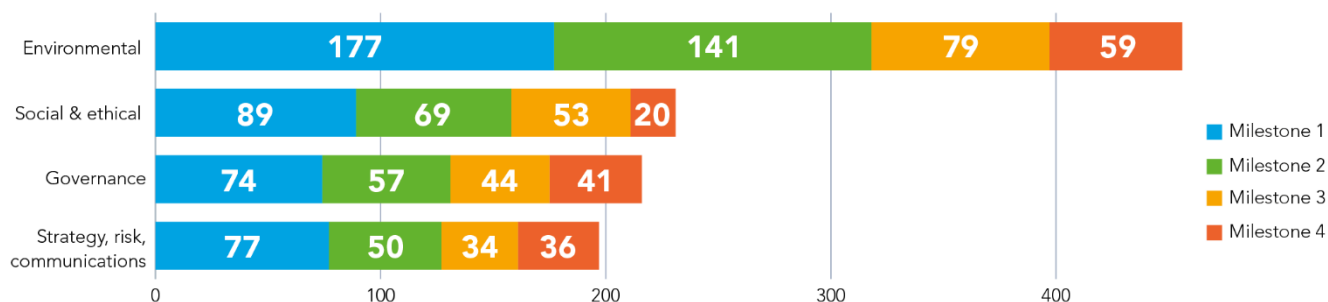
Strategy, Risk and Communication topics featured in 11% of our engagements over the last quarter.



Governance topics featured in 43% of our engagements over the last quarter.



	# of companies engaged	# of issues and objectives engaged	# of objectives engaged	# of objectives completed
Engagement programme	378	2014	913	139
Other companies	867	1950	338	16
<b>Grand Total</b>	<b>1245</b>	<b>3964</b>	<b>1251</b>	<b>155</b>



**Stretch metric:** EOS at Federated Hermes– [Stewardship Report 2020](#) (page 8)  
Assessment of 2020 progress against engagement objectives: