

# Investing in climate solutions: listed equity and corporate fixed income

November 2023



IIGCC

# Contents

<b>Executive summary</b> .....	<b>3</b>
<b>Introduction</b> .....	<b>7</b>
Target setting and capital allocation in climate solutions is a key challenge and opportunity for investors .....	7
'Green' taxonomies and climate scenarios provide a top-down framework to define climate solutions .....	8
<b>Section 1: Climate solutions as part of investors' net zero transition</b> .....	<b>13</b>
1.1 A climate solutions lifecycle .....	13
1.2 Climate solutions metrics in the Net Zero Investment Framework .....	14
1.3 The landscape of climate solutions metrics .....	16
1.4 Climate solutions investment as a core component of an investor's transition plan .....	21
1.5 Considerations for assessing corporate transition plans .....	23
1.6 The engagement actions for investors .....	27
<b>Section 2: Calculating green revenues and green capex for listed equities and corporate fixed income</b> ..	<b>29</b>
2.1 Introduction .....	29
2.2 Classifying revenues and capex as "green" .....	30
2.3 Assessing corporate contribution to green revenues and green capex .....	36
2.4 Aggregating portfolio or fund exposure to green revenues and green capex .....	37
2.5 Data sources, data collection and engaging data vendors .....	40
2.6 Disclosure principles and template for green revenues and green capex .....	45
<b>Appendices</b> .....	<b>47</b>

IIGCC would like to thank the lead contributors to this publication, Emily Homer (Robeco) and Chandra Gopinathan (Railpen), and climate solutions working group co-chairs, Stephen Porter (Scottish Widows) and Tim Smith (Norges Bank Investment Management).

We would also like to thank all working group members who contributed to the content of this publication and IIGCC members that responded to the consultation.

Disclaimer: All written materials, communications, surveys and initiatives undertaken by IIGCC are designed solely to support investors in understanding risks and opportunities associated with climate change and take action to address them. Our work is conducted in accordance with all relevant laws, including data protection, competition laws and acting in concert rules. These materials serve as a guidance only and must not be used for competing companies to reach anticompetitive agreements. Whilst IIGCC encourages investors to adopt the guidance to assist them in meeting their own voluntary net zero commitments, it is a foundational principle of how IIGCC and its members work together that the choice to adopt guidance, best practice tools or tactics prepared by IIGCC is always at the ultimate discretion of individual investors based on their own mandates and starting points from which they make their own internal decisions. IIGCC's materials and services to members do not include financial, legal or investment advice.

# Executive summary

## Who is this guidance for?

This document provides guidance for investors utilising the Net Zero Investment Framework (NZIF) or other net zero target setting methodologies to meet their own voluntary net zero commitments through increasing allocation to climate solutions. It may be of particular use to Paris Aligned Asset Owner and Net Zero Asset Manager signatories, as well as other signatories committed to net zero within the Glasgow Finance Alliance for Net Zero (GFANZ). Investors can read this guide as a supplement to the Net Zero Investment Framework or as a standalone guide for investors seeking opportunities in climate solutions.

## What is the theory of change?

This document covers listed equity and corporate fixed income. A focus on secondary market holdings entails an emphasis on the role of investors (equity or bond holders) to influence real world emissions through stewardship and engagement, and shifting expectations of good governance and strategy for companies. Whilst finance can have the greatest and most direct impact through primary markets by providing new capital to the companies, projects, or governments involved in climate solutions activities, as defined in this paper, institutional investors play an important role in recycling capital back into primary markets and in turn shifting expectations of the attributes of assets that are created by issuers and originators.

Regardless of the market, engagement with policymakers, regulators and industry stakeholders will be increasingly important to create the enabling environment for increased investment in climate solutions and the transition to net zero. Future IIGCC guidance will broaden the focus to include additional asset classes and levers of influence.

## What is the structure of this document?

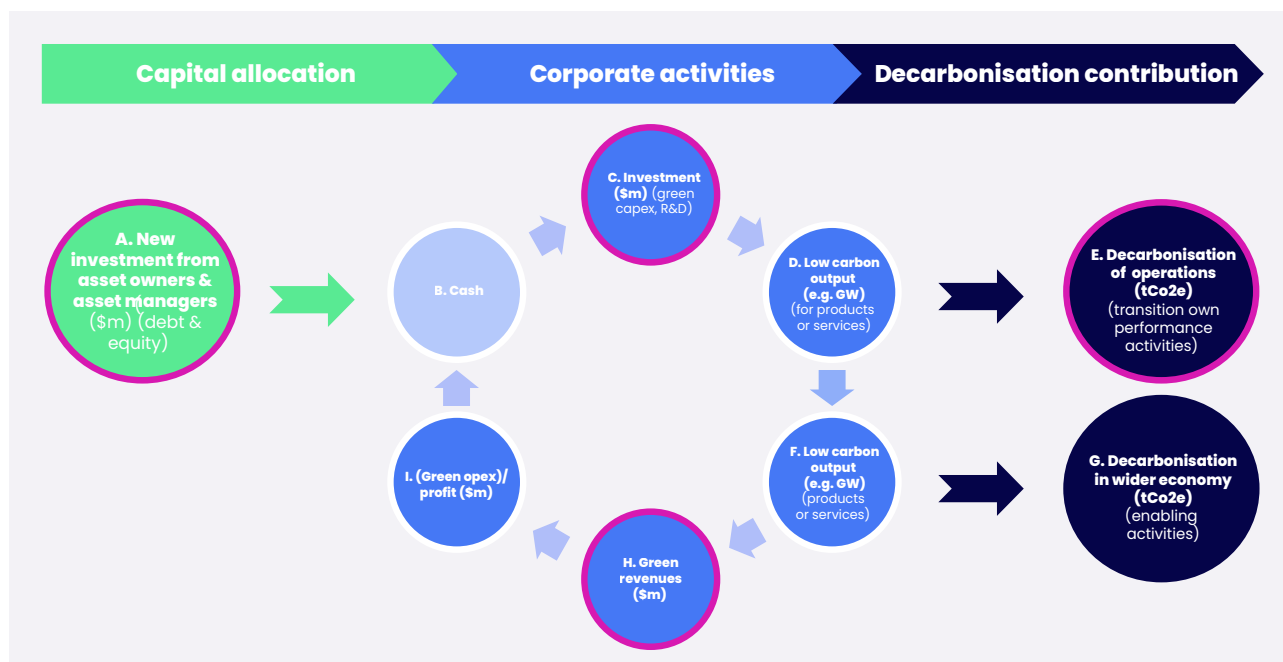
The [introduction](#) sets out the importance of scaling up investment in climate solutions for the net zero transition. Specifically, the link between climate solutions, 'green' taxonomies and climate scenarios is made.

Asset owners and asset managers using NZIF are recommended to set targets to increase allocation to climate solutions at the portfolio level<sup>1</sup>, as well as integrate the assessment of a corporate's current and planned contribution to climate solutions in its transition planning as covered in Section 1.

[Section 1](#) presents an illustrative climate solutions investment lifecycle. The lifecycle introduces multiple points through which investors can assess climate solutions activities at the asset level. Linked to these points in the lifecycle are a range of metrics, such as capital expenditure (capex), research and development (R&D), low carbon production capacity and output, and revenues. The climate solutions classifications of "transition" activities and "enabling" activities, representing decarbonisation contributions *within* and *beyond* the value chain respectively, are introduced. Section 1 details the advantages and challenges of the range of metrics covered by the climate solutions investment lifecycle.

<sup>1</sup> See the [Net Zero Investment Framework](#), page 10. For examples of portfolio level climate solutions targets set by asset owners, see Paris Aligned Asset Owners [signatory disclosures](#).

## An illustrative climate solutions investment lifecycle

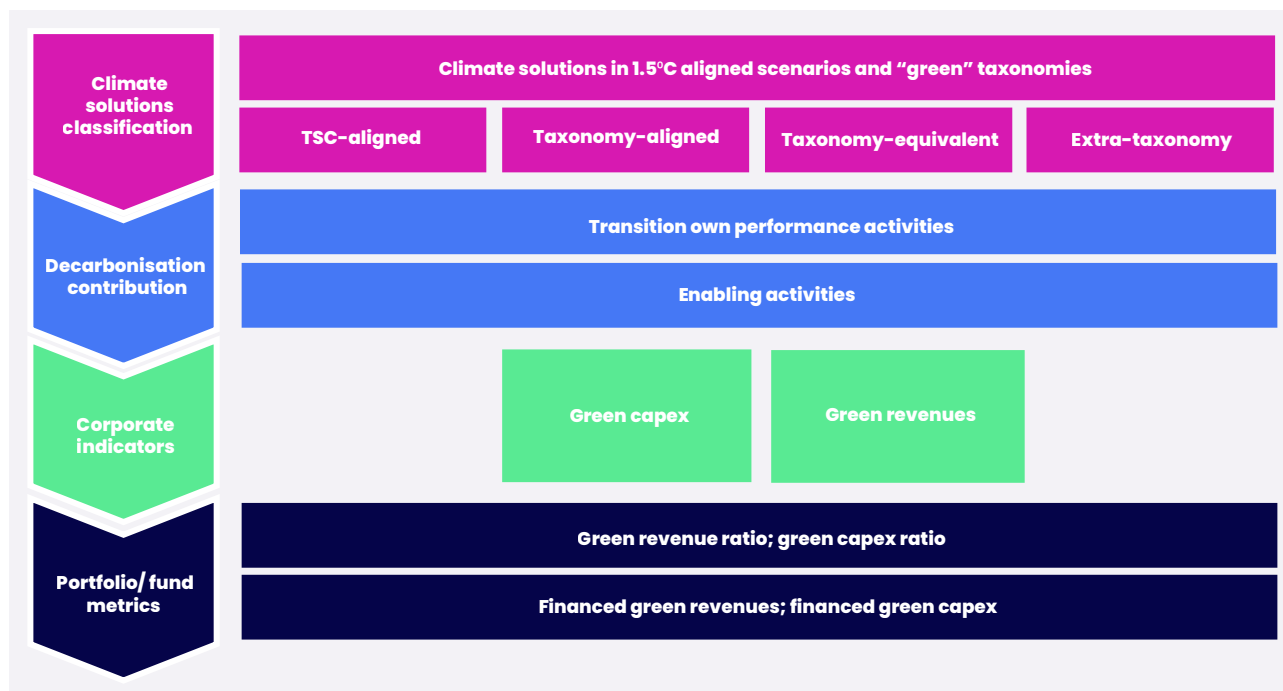


Taking these metrics, IIGCC sets out the role climate solutions can play in investors' net zero transition plans. As set out in the Net Zero Investment Framework 1.0., this includes target setting, informing strategic asset allocation, and assessing corporate transition plans and alignment to 1.5°C-aligned climate scenarios. Finally, Section 1 highlights three core engagement actions investors can opt to take with investee companies, policymakers and regulators, and data vendors, to strengthen the enabling environment for increased investment in climate solutions.

**Section 2** focuses on green revenue- and green capex-based metrics. It sets out options for investors to follow "taxonomy-based" and "taxonomy-plus" approaches to identifying activities linked to green revenues and green capex. The flexibility in the use of classifications recommended in this guidance aims to overcome practical challenges with pure taxonomy-based approaches and incentivise the innovation required within the investment industry, to increase capital allocation to climate solutions at the pace needed for a 1.5°C scenario with low- or no-overshoot.

A four step approach for investors calculating green revenue and green capex metrics is provided, as detailed below, and practical examples are featured throughout.

## A four step approach to classifying and calculating green revenues and green capex



- 1. Solutions classification:** Identify and classify activities, products and services that contribute to emissions reductions using net zero scenarios and/or local taxonomies.
- 2. Contribution type:** Assess the type of contribution those activities make to decarbonisation.
- 3. Corporate indicators:** Assess contribution of a corporate using revenue and capex data.
- 4. Portfolio/fund metrics:** Aggregate corporate green activity up to portfolio or fund level.

For investors using the Net Zero Investment Framework, this section provides minimum and optional disclosure recommendations relating to green revenues and green capex for listed equity and corporate fixed income funds and portfolios. Given the dashboard of classifications and metrics recommended, Section 2 also recommends that investors adopt two core principles of transparency and standardisation. Investors can support the implementation of these principles by following the specified data hierarchy, using the disclosure template provided, and engage with data vendors to enhance the availability, transparency and quality of data on offer.

Future iterations of IIGCC's climate solutions guidance will aim to account for the rapidly evolving and increasing sophistication of methodologies, advances in data quality and availability, and any updates to regulation. As climate solutions data and methodologies improve across the metrics explored in Section 1, IIGCC anticipates that additional components of this guidance will follow, including metrics and approaches for other asset classes such as private equity, sovereign bonds and real estate.

## Key messages

- **This guidance reviews the climate solutions classifications and metrics available to investors for listed equity and corporate fixed income asset classes.** Metrics based on green capex, low carbon production capacity and output, and green revenues are explored, including use cases, advantages, and disadvantages of each.
- **A dashboard approach, using multiple metrics, is recommended, starting with those that are most widely agreed and have the best available data.** This is because IIGCC believes that no singular metric sufficiently captures all climate solutions activities and types of decarbonisation contribution.
- **For investors using the Net Zero Investment Framework, it is recommended that they disclose, as a minimum, a green revenue ratio and financed green revenues.** As data availability improves, investors can also aim to disclose green capex ratio and financed green capex. Additional low carbon production-based metrics and avoided emissions can be utilised and disclosed at investors' discretion.
- **Two types of contribution to decarbonisation are presented – activities that transition a corporate's own performance and activities that enable emissions reductions beyond a corporate's value chain.** The types of decarbonisation contribution are best captured and communicated using different metrics, and investors may prioritise various combinations of metrics depending on the type of decarbonisation contribution they pursue.
- **Investors can identify climate solutions using taxonomy-based and taxonomy-plus classifications.** IIGCC considers the following classifications as climate solutions: Taxonomy-aligned, Technical screening criteria-aligned (TSC-aligned), Taxonomy-equivalent, and Taxonomy-plus.
- **The range of Taxonomy-based and Taxonomy-plus classifications provides an alternative to the EU Taxonomy approach.** The EU Taxonomy Regulation promotes binary disclosures of Taxonomy-aligned activities versus non-aligned activities. Our approach provides the flexibility for investors to innovate as opportunities to finance the transition to net zero are sought, and to help overcome practical implementation challenges facing investors when using the EU Taxonomy.
- **IIGCC proposes two core disclosure principles for investors using this guidance – standardisation and transparency.** Adherence to these principles will support clear and transparent disclosures and protect the integrity of climate solutions classifications presented here. A disclosure template ([Table 7](#)) is provided to enhance standardisation of disclosures across the industry.
- **Three engagement actions are recommended for investors to enhance the enabling environment for investment in climate solutions.** Engagement with investee companies, policymakers and regulators, and data vendors.

## Target setting and capital allocation in climate solutions is a key challenge and opportunity for investors

### How much investment is needed?

The total investment required to limit global average temperature rise to 1.5°C above pre-industrial levels between now and 2050 is estimated to range from USD 109 trillion to USD 275 trillion across renewable energy, low carbon transport, energy efficient buildings, electrification of industrial processes and more<sup>2</sup>.

For this reason, increased investment in climate solutions is a core component of IIGCC's Net Zero Investment Framework, alongside the alignment of underlying assets to credible 1.5°C scenarios, and subsequently portfolio decarbonisation.

Many investors committed to net zero, for example through Paris Aligned Asset Owners and Net Zero Asset Managers initiatives, have incorporated climate solutions goals into their net zero transition plans. This includes incorporating climate solutions into strategic asset allocation, setting targets to increase allocation to climate solutions over time, the assessment of corporate's transition plans and associated stewardship and engagement, policy advocacy, and engagement with other market participants such as index providers.

### What role do investors play?

To make the transition to net zero possible, capital is required from a variety of sources, including through primary and secondary markets, in both the public and private spheres. The impact investors have on scaling up climate solutions varies depending on the type of finance provided and the influence they are able to assert over issuers.

In public secondary markets, engagement and stewardship is a key lever for investors. For escalation strategies, equity holders can use their shareholder rights to engage and influence companies and bond holders can look to covenants, conditions and KPIs. This guidance provides detail on how investors can incorporate an assessment of current and future climate solutions activities within a corporate's reporting and transition plan. In addition to stewardship and engagement, when capital allocation decisions, such as tilting towards solutions providers, happen at scale, the behaviours of issuers and primary financiers shift towards expectations in the market. Over time, this may increase or decrease the cost and availability of capital for companies and influence management to respond to investors' signals that they are willing to allocate to entities well positioned to deliver climate solutions.

<sup>2</sup> [Green equity exposure in a 1.5°C scenario: Applying climate investment trajectories with green revenues \(FTSE Russell, 2022\)](#)

IIGCC believes that investors can have significant impact on the net zero transition through investment in primary markets. The provision of new capital (equity or debt) to companies, projects, or governments delivering climate solutions is likely to lead to additional capacity to reduce, remove, or avoid emissions. It is through these mechanisms that investors are likely to have the greatest impact on decarbonisation per unit of investment. IIGCC is planning to produce further climate solutions guidance covering additional asset classes where these impactful levers can be deployed.

Regardless of the market, all investors have the ability to influence the ecosystem of policymakers, regulators, and other industry stakeholders. This will be an increasingly important mechanism to affect the enabling environment required for increased investment in climate solutions and the transition to net zero.

### **What gap does this guidance fill?**

To date there has been insufficient detailed guidance available to investors to guide them in identifying, classifying, and measuring allocation to climate solutions. This guidance aims to fill that gap, starting with listed equity and corporate fixed income.

This guidance provides an overview of the approaches available to investors to identify and classify climate solutions activities. This includes the presentation of a climate solutions investment lifecycle which illustrates the different points at which an investor may capture a corporate's climate solutions activities and the types of contribution to decarbonisation made, inside or outside the corporate's value chain.

Given the benefits of revenue- and capex-based metrics detailed in section 1, the guidance recommends that investors using the Net Zero Investment Framework, at a minimum, aim to disclose green revenue ratio and financed green revenues, and work towards disclosing capex-based metrics in the short term. Step-by-step guidance for investors is set out in [Section 2](#), with practical examples throughout.



## 'Green' taxonomies and climate scenarios provide a top down framework to define climate solutions

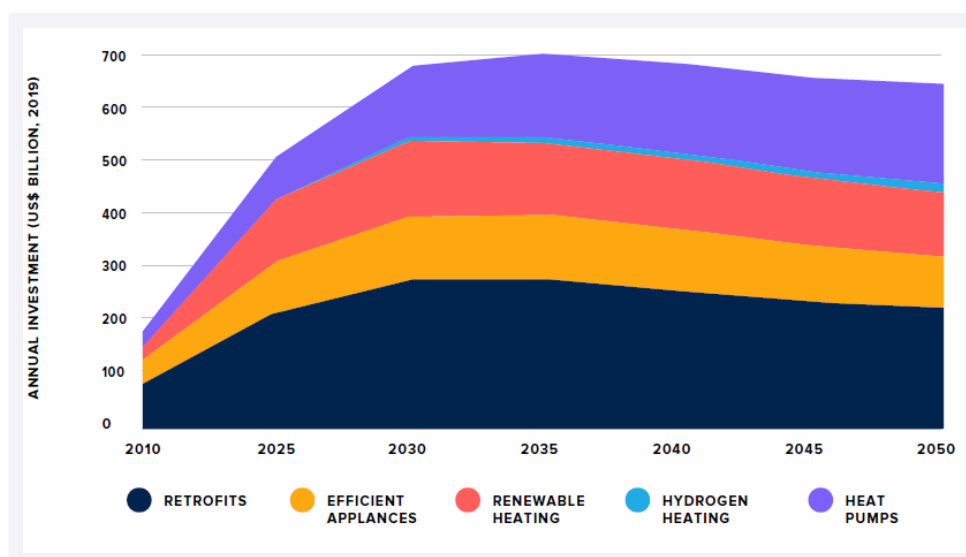
Net zero scenarios can provide investors with an overview of the sectors and technologies that are likely to drive the transition in a world that limits global temperature rise to 1.5°C above pre-industrial levels.

### Box 1: Climate solutions definition

*"Activities, goods or services that contribute substantially to, and/or enable, emissions reductions to support decarbonisation in line with credible 1.5°C pathways towards net zero, or that contribute substantially to climate adaptation".*

An assessment of the sectors and technologies in these pathways provides an indication of both the emissions abatement potential of different technologies, products or services, as well as investment needs to meet decarbonisation goals. Utilising the International Energy Agency's net zero scenario (IEA NZE), IIGCC's Climate Investment Roadmap<sup>3</sup> (Section 2) identifies over 100 technologies that are required for decarbonisation, covering energy-related sectors and agriculture, forestry and other land use (AFOLU). Figure 1 below provides examples of the investment required in different technologies within the buildings sector.

**Figure 1 – Investment needs for decarbonisation of the buildings sector between 2010 and 2050, as detailed in IIGCC's Climate Investment Roadmap (p.44)**

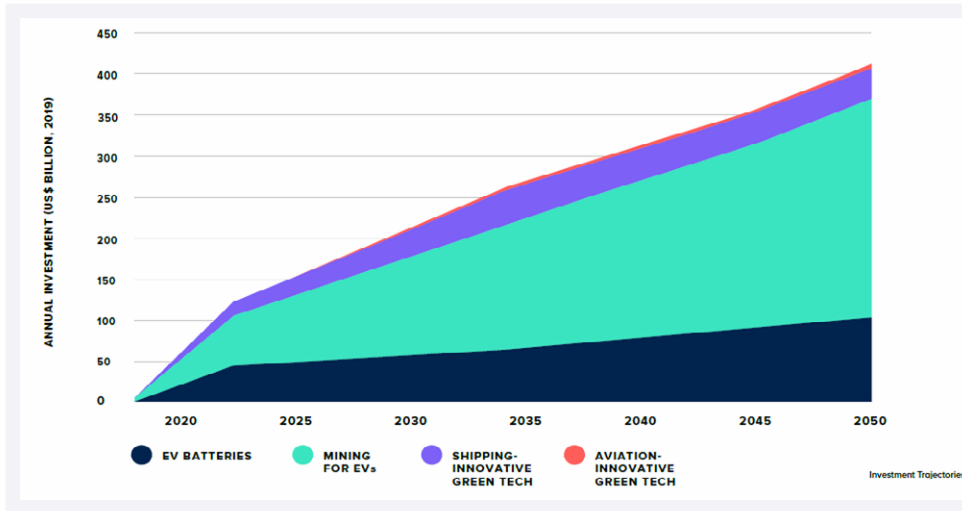


Taking IEA NZE, IIGCC's Climate Investment Roadmap (p.44) estimates that energy efficiency spending, including retrofits and efficient appliances, accounts for 56% of investment in the buildings sector, equal to USD 19 trillion in total, between 2010 and 2050. Heating is the second largest driver of investment in buildings, requiring USD 3.8 trillion of investment to 2050. See section 2.3.3 of IIGCC's Roadmap.

<sup>3</sup> IIGCC Climate Investment Roadmap (April 2022)

Figure 2 shows an example of investment needs for electric vehicles, shipping and aviation, key drivers of decarbonisation in the transport sector.

**Figure 2 - Investment needs for decarbonisation of the transport sector between 2020 and 2050, as detailed in IIGCC's Climate Investment Roadmap (p.43)**

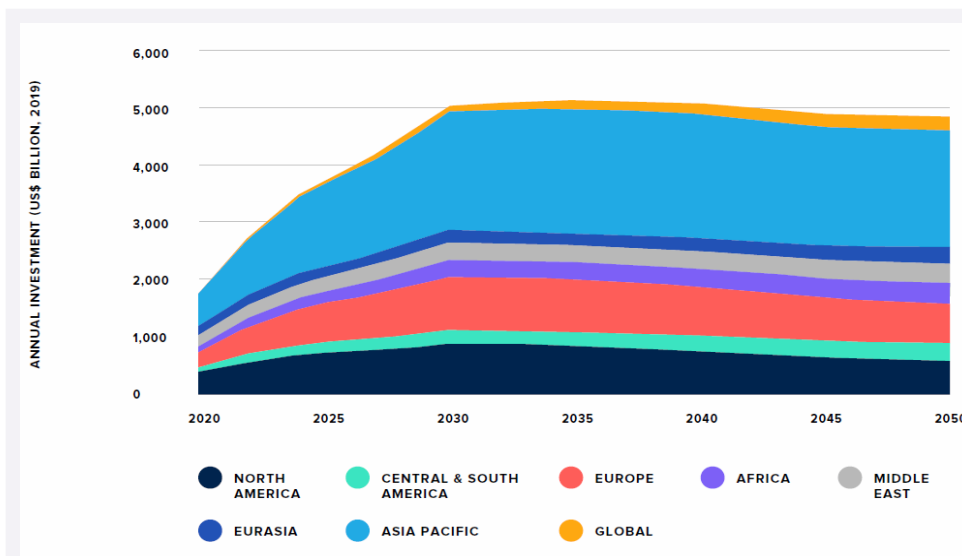


IIGCC's Climate Investment Roadmap (p.43) shows that the production of electric vehicles (EVs) is estimated to increase tenfold between 2020-2050 if the economy followed the path of the IEA Net Zero Emissions 2050 scenario.

This scale-up should create additional investment opportunities upstream in the automotive value chain and in the aviation and shipping sectors. See section 2.3.2 of IIGCC's Roadmap.

Net zero scenarios, therefore, can act as a foundational source of information for investors looking to identify climate solutions across sectors and asset classes. Ideally, classification of climate solutions should be grounded in granular, country- or region-specific scenarios that reach net zero by 2050 or sooner, in recognition that the transition will take different paths at different paces in different jurisdictions. To illustrate this, Figure 3 and Table 1 show how investment needs, derived from IEA NZE, differ across regions and sectors, with a clear indication that the greatest investment needs are pre-2030 in order to remain in line with a low or no overshoot pathway.

**Figure 3 - Annual investment needs (USD bn) between 2020 and 2050 per global region, as outlined in IIGCC's Climate Investment Roadmap**



Taking IEA NZE, IIGCC's Climate Investment Roadmap provides a breakdown of the estimated investment needs across world regions (Figure 3, page 55 in the Roadmap).

Table 1 below provides an example of the investment gap and average annual growth rate needed between 2021-2030 for electricity generation. Darker shades correspond to higher (page 37 in the Roadmap).

**Table 1 - Investment gaps (USD bn) and CAGR required (%) between 2020–2030 per region and electricity generation technology in specific regions**

REGION	SOLAR PV	WIND	HYDRO	NUCLEAR	BIOENERGY	OTHER
<b>Investment Gap (2021-30 Compared to Historical; \$ Billion)</b>						
North America	496	569	7	-3	77	146
Central & South America	59	100	58	17	3	29
Europe	212	874	26	164	1	116
Africa	145	121	119	24	36	89
Middle East	86	216	11	7	17	164
Eurasia	7	70	78	38	81	28
Asia Pacific	947	1,401	197	294	116	308
<b>Annual Scale-up Needed - Investment CAGR (2020-30)</b>						
North America	18%	15%	3%	2%	19%	39%
Central & South America	24%	19%	7%	42%	6%	53%
Europe	13%	16%	4%	14%	5%	25%
Africa	37%	30%	17%	N/A	45%	22%
Middle East	34%	56%	9%	5%	70%	53%
Eurasia	20%	60%	17%	11%	45%	64%
Asia Pacific	13%	17%	6%	15%	10%	35%

In recent years, a number of sustainable or “green” taxonomies have been developed, often guided by the technology pathways inferred by climate scenarios. Such taxonomies seek to establish classification systems to identify economic activities that are deemed environmentally sustainable when assessed against dynamic and scientific criteria. The EU Taxonomy, as an example, covers six environmental themes: climate change mitigation, climate change adaptation, sustainable use and protection of water and marine resources, transition to a circular economy, pollution prevention and control, protection and restoration of biodiversity). A selection of taxonomies is presented in [Appendix A](#).

This increased transparency provides a basis for informing an investor's individual investment decisions and the transition of corporate business models towards the provision of low carbon goods and services.

Taxonomies can promote transparency of climate solutions claims and act as a tool to address greenwashing, by providing a standardised view of the activities that can be considered climate solutions within a particular jurisdiction.

However, taxonomies are not designed to capture the scale up required across different climate solutions and often taxonomies are not derived from credible net zero scenarios. Some of the challenges of taxonomies are discussed in more detail in [Box 2](#), with specific reference to the EU Taxonomy.

Given both the advantages and limitations of taxonomy-based approaches to classifying and measuring climate solutions, this guidance promotes investors' use of a "taxonomy-plus" approach to identifying climate solutions in [Section 2](#). This should incentivise allocation to a wide range of climate solutions and encourage innovation in products and services that support the scale up of these solutions.

### Box 2: The influence of the EU Taxonomy Regulation

Generally, IIGCC aims to promote consistency of methodologies and approaches, particularly when investors are required to adopt approaches defined in local regulations. Consistency and standardisation provide clarity for stakeholders and support the ability to compare across corporates, funds and portfolios.

The EU Taxonomy Regulation advocates a particular approach to classifying and measuring climate solutions. It is particularly helpful in providing a consistent approach that can be applied across Europe and sets an example to inspire other jurisdictions. In time, the emergence of a global ecosystem of interoperable taxonomies, tailored to specific regions and/or countries, would be welcomed.

However, IIGCC and some of its members have previously communicated via policy advocacy that the EU's approach to taxonomy regulation can be improved significantly. The improvements required relate primarily to the need for scientific integrity and increasing the scope for impact that can be achieved.

#### Ensuring scientific integrity

- The inclusion of gas within scope of the EU Taxonomy is inconsistent with the clear phase out timelines set out by the IEA (read more about IIGCC's position [here](#)).
- Despite criteria to ensure that "transition activities" do not lead to carbon lock-in, some activities are being classified under this definition even when there are lower carbon alternatives. Examples include gas and fuel-efficient aircraft.

#### Increasing scope for impact

- The EU Taxonomy includes a finite universe of activities, limiting scope for innovation and capital allocation.
- The recommended metrics (opex, revenues and capex) are limited measurement tools as they are not able to directly capture impact on emissions reductions compared to other metrics (as discussed below).

Taken together, these issues limit the suitability of the EU Taxonomy for incentivising the types of investment and activities that will support the transition to net zero. As such, IIGCC proposes a "taxonomy-plus" approach to identifying climate solutions in section 2.

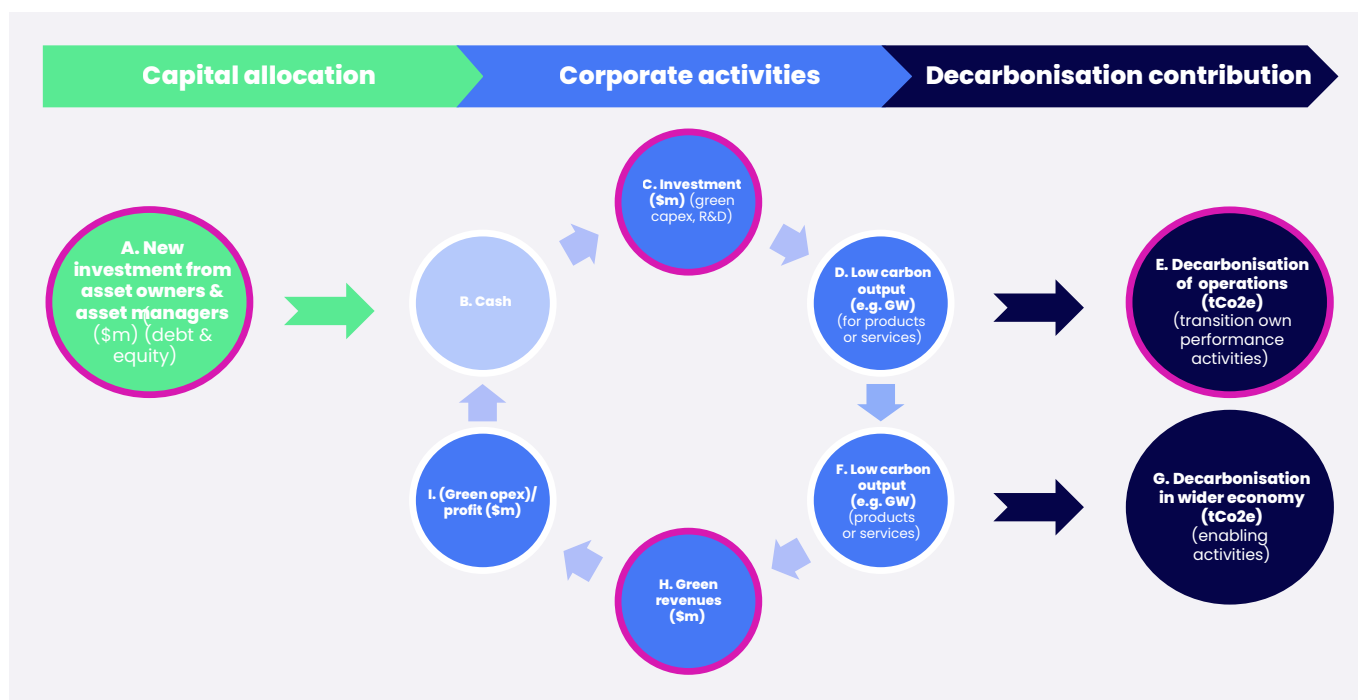
# Section 1: Climate solutions as part of investors' net zero transition

## 1.1 A climate solutions lifecycle

One way investors can consider the range of potential metrics they can use to measure the impact of climate solutions is by looking at an "investment lifecycle". Figure 4 sets out an illustrative lifecycle covering institutional investment, corporate activities and associated impact on GHG emissions. Viewed in this way, the lifecycle highlights the different points at which investors can measure climate solutions inputs and outcomes.

Figure 4 illustrates the capital flows from new investment by investors (equity and debt)<sup>4</sup>, which are re-invested by a company in the form of capex and R&D. This leads to an increase in low carbon production capacity which, dependent on utilisation, is turned into low carbon production output. The lifecycle concludes with either/both the decarbonisation of the entity's own operations and/or an increase in low carbon production output and corresponding generation of green revenues. Low carbon production output leads to decarbonisation beyond the value chain of the corporate itself and the therefore the attribution of decarbonisation to the instrument held by the original capital provider.

Figure 4 - An illustrative climate solutions investment lifecycle



4 The lifecycle illustrates the provision of new capital from equity and debt investment in primary markets which is directly linked to a company's cash position. Point A in the lifecycle is also relevant to investments in secondary markets that can influence a corporate's cash position. For example, when the holding of equity capital by investors is reflected on a corporate's balance sheet, thereby freeing cash flow and financing to fund climate solutions. The NZIF theory of change also supports the idea that the allocation of capital, including via secondary markets, to corporates providing climate solutions sends a strong a market signal to those companies that investors are interested in supporting these activities and opportunities.

The climate solutions lifecycle illustrates nine points (A – I) at which climate solutions related activities and outcomes can be measured. The lifecycle demonstrates that climate solutions can be measured using the financial or operational metrics (shown in **green** and **light blue**), or they can be measured in emissions impact (shown in **dark blue**). The emissions impact can take place within the corporate's operational boundary (scope 1 and 2), in the corporate value chain (scope 3), or "beyond" the value chain, in the wider economy (enabling activities).

The relationship between decarbonisation and allocation to climate solutions is an important one for investors to consider. This is because investment in solutions can drive corporate and subsequently portfolio decarbonisation (point A to point E). In such cases, the measurement of this type of climate solutions investment is captured twice – once by tracking the corporate investment itself (point C), e.g., via an entity's capital expenditure, and again by measuring the entity's corresponding value chain emissions reductions (point E), i.e., in a reduction of tCO<sub>2</sub>e generated. [Section 2](#) classifies activities that lead to this type of emissions reductions under the category "transition (own performance) activities", in line with the EU Taxonomy Regulation.

In some cases, a corporate's investment in climate solutions (point C) does *not* reduce its emissions profile (point E). Instead, the investment is used to increase output of low carbon products and services which reduce emissions *beyond* that entity's value chain, in the wider economy (point G). Growth of climate solutions investment and corresponding low carbon production output can *increase* the emissions profile of that entity whilst reducing emissions in the wider economy. [Section 2](#) classifies activities that lead to this type of emissions reductions under the category "enabling activities", in line with the EU Taxonomy Regulation.

It is important to note that there are many cases where investment in climate solutions can lead to *both* a reduction in an entity's own emissions profile (point E) and emissions reductions in the wider economy (point G). An example of this is a car manufacturer that produces electric vehicles. The production of those electric vehicles, if displacing vehicles with internal combustion engines (ICE), is likely to reduce the manufacturer's value chain emissions (via a reduction in scope 3 category 11: use of sold products). It will also reduce emissions in the wider economy as the manufacturer's customers drive electric vehicles with no tailpipe emissions, as opposed to ICE vehicles with tailpipe emissions.

## 1.2 Climate solutions metrics in the Net Zero Investment Framework

Asset owners and asset managers using the Net Zero Investment Framework are recommended to set targets to increase allocation to climate solutions at the portfolio level<sup>5</sup>, as well as assess a corporate's current and planned contribution to climate solutions in its transition planning.

<sup>5</sup> See the [Net Zero Investment Framework](#), page 10. For examples of portfolio level climate solutions targets set by asset owners, see Paris Aligned Asset Owners [signatory disclosures](#).

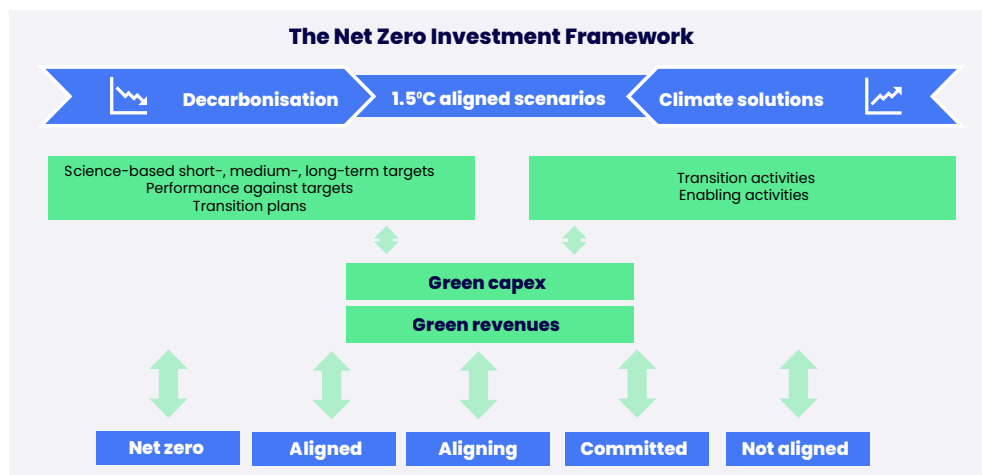
The lifecycle yields a multitude of indicators and metrics. Some, but not all, are currently covered by the Net Zero Investment Framework 1.0. This focuses on four points within the lifecycle, shown in pink in [Figure 4](#):

- **Point A.** New investment from asset owners and asset managers (debt and equity)
- **Point C.** Re-investment by corporates (capex)
- **Point E.** Decarbonisation of value chain (emissions intensity or absolute emissions)
- **Point H.** Green revenues from sales relating to low carbon production output (products and services)

Investors can indirectly capture the impact of climate solutions activities through emissions-based metrics (point E in the lifecycle). However, the Net Zero Investment Framework (NZIF) recommends that additional climate solutions indicators are included as part of an assessment of an asset's transition plan and alignment to net zero ("aligned", "aligning", "committed", etc).

For corporates, NZIF recommends that investors use the standard financial indicators of revenues and capex as primary climate solutions indicators (points C and H in the lifecycle) when determining alignment to climate scenarios, as illustrated in [Figure 5](#).

**Figure 5 - An illustration of the role green revenues and green capex play in the NZIF asset alignment, decarbonisation, and climate solutions components**



However, as the climate solutions lifecycle illustrates, there are a number of additional climate solutions indicators and metrics that capture the range of climate solutions activities and outcomes across the lifecycle. The indicators and metrics that have already been mentioned here are low carbon production capacity and output and avoided emissions. Low carbon production metrics are already recommended in IIGCC's Investor Expectations of Corporate Transition Plans: From A to Zero<sup>6</sup> and included in the Climate Action 100+ Net Zero Company Benchmark<sup>7</sup>, as discussed further in [section 1.6](#).

<sup>6</sup> IIGCC's Investor Expectations of Corporate Transition Plans: From A to Zero (March 2023)

<sup>7</sup> Climate Action 100+ Net Zero Company Benchmark

The next section explores some of the definitions, advantages, and disadvantages of the range of metrics covered in the lifecycle.

## 1.3 The landscape of climate solutions metrics

The climate solutions lifecycle ([Figure 4](#)) demonstrates a potential dashboard of metrics that are well placed to capture different types of investment, activities and contribution to emissions reductions. These metrics are either financial (revenues and capex, denominated in \$), operational (such as kWh, MJ, mt), or emissions-related (denominated in CO<sub>2</sub> and which can be disaggregated into operational, value chain, and beyond value chain). Definitions, advantages and disadvantages of these metrics are outlined below, in sequential order as set out in the lifecycle.

**Green capex (lifecycle point C)** is corporate capital expenditure on green assets, which are a key driver of corporate decarbonisation. Capex builds the low carbon production capacity for less mature technologies and solutions. Green capex, therefore, is a “forward looking” indicator as it can suggest likely future decarbonisation and green revenues. For this reason, it is particularly practical for capital intensive industries. In addition, as net zero scenarios provide information on the level of investment required, the capex-based indicator is a promising one for benchmarking corporates against 1.5°C pathways, as explored in [section 1.5](#).

Like green revenues, however, the capex-based indicator relies on prior identification of what constitutes a climate solutions asset. It is difficult to directly attribute the “greenness” or emissions reductions of \$1 of green capital expenditure. It is also hindered by a lack of corporate disclosure.

Several developments should spur improvements here. Forthcoming corporate disclosure regulations and standards such as the EU Corporate Sustainability Reporting Directive (CSRD) and the International Sustainability Standards Board (ISSB) should help. The recently updated Climate Action 100+ Net Zero Company Benchmark, includes sub-indicator 6.2 which assesses current and forward looking capital investment.

**Low carbon production capacity (lifecycle point D)** measures the maximum output of manufactured goods and materials that a business can produce. It is particularly well suited to high impact sectors such as power, oil and gas, automotive and mining. Low carbon production capacity indicators are sector specific, such as GW of renewable energy, # of EV chargers and tonnes of copper. Importantly these metrics are also provided by climate scenarios. As with green capex, net zero scenarios provide a breakdown of production capacity across sectors crucial for the transition, making this indicator another promising one for benchmarking corporates against 1.5°C pathways.

However, work is still underway by IIGCC and others to identify appropriate metrics across sectors and the heterogeneity of these sector-specific metrics makes them difficult to aggregate across a portfolio and hence understand the overall portfolio exposure. However, investors can start using low carbon production capacity metrics, as well as capex, to assess a corporate’s transition plan or overall exposure in a particular sector.



**Avoided emissions (lifecyle point G)** are the reduction in emissions of a product or service relative to the emissions that would have been generated by a comparable product or service using non-‘green’ assets, energy or processes. Measured in CO<sub>2</sub>e, avoided emissions measure the emissions reduced beyond a corporate’s value chain and are more easily comparable with emissions generated. This is important for investors reporting GHG emissions of holdings, funds and portfolios to communicate the overall impact of their investments on the net zero transition. When considering avoided emissions, investors should be mindful of a potential trade-off with emissions generated and ideally promote a reduction in emissions generated on an intensity basis. [Box 3](#) provides an example of the recommended approach for the diversified mining sector, which has great potential to contribute to the net zero transition through the production of key transition materials such as lithium, copper and nickel, which are required for technologies such as wind turbines, photovoltaic panels, heat pumps and batteries.

### **Box 3: Utilising do-no-significant harm tests to manage trade offs between generated emissions and emissions avoided**

Climate Action 100+’s [Investor Expectation for Diversified Mining](#) (page 19) classifies commodities such as lithium, copper, nickel and cobalt which are expected to play a vital role decarbonising the transportation sector as “Key Transition Materials” (KTMs). Investors can use this classification system to support their investment and engagement activities, effectively channelling investment towards companies expanding production of KTMs if they so chose. However the document also proposes that any production expansion should not incur unacceptable environmental or social costs and carbon emissions. It sets out two additional “do-no-significant-harm” criteria investors could adopt to manage any trade offs:

- Social and environmental impact. Mine-level certifications from independent bodies, such as IRMA, TSM or The Copper Mark
- The emissions intensity of production and processing to enable the performance of each commodity to be assessed

There is poor availability and consistency of reported and estimated data from companies and data providers on avoided emissions. The metric can also be difficult to reliably calculate given the assumptions required to develop a counterfactual scenario baseline. Despite the potential value of avoided emissions, IIGCC believes that this metric would benefit from methodological improvements and standardisation before it can be calculated robustly across a wide range of industries and reported transparently, as described in [Box 4](#)<sup>8</sup>.

<sup>8</sup> See IIGCC’s [Climate Investment Roadmap](#) (pages 97–99, 121) and [Measuring Portfolio Alignment](#) (GFANZ, November 2022) for further discussion of these challenges.

#### **Box 4: Emissions generated versus emissions avoided conundrum for corporates and investors**

Currently, the climate performance of companies, funds and portfolios is largely measured using emissions- and alignment-based metrics.

Climate solutions metrics based on revenues and capex are unable to directly capture the impact of different activities on emissions reductions within and beyond a corporate's value chain. Some corporates and investors are already utilising avoided emissions metrics as a way to capture positive impact on emissions reductions beyond the value chain.

Although the Net Zero Investment Framework recommends that investors measure and set targets against both emissions reductions and investment in climate solutions separately, these metrics are underpinned by activities, products and services that have considerable overlap. This means that an increase in capacity of a solutions provider may be accompanied by an increase in absolute emissions, thereby, presenting an unfavourable picture of that corporate when viewed solely through an emissions metrics lens.

To start addressing this issue, further work is required, including:

- The development of net zero pathways for key climate solutions activities, for example, production capacity growth pathways for solar PV and electric arc furnaces.
- Development of methodologies to underpin avoided emissions and carbon removal metrics and standardised approaches for corporates to disclose avoided emissions.
- Exploration of benchmark divergence metrics to measure both decarbonisation performance and solutions performance.

**Green revenues (lifecycle point H)** are those revenues that stem from the sale of products that support climate change mitigation and adaptation<sup>9</sup>. Companies report revenues generated from different business activities, making this a metric which is financially material, has good availability and is consistently reported across companies. The Climate Action 100+ Net Zero Company Benchmark 2.0 sub-indicator 5.2 measures the role of climate solutions in a company's decarbonisation strategy using revenue and production metrics<sup>10</sup>.

<sup>9</sup> As noted in the introduction, adaptation is out of scope of this paper.

<sup>10</sup> See [Climate Action 100+ Net Zero Company Benchmark v.2.0](#), indicator 5.2.

The green revenues metric relies on prior identification of what constitutes a climate solutions activity, for example, by use of taxonomies and/or net zero scenarios. However, green revenues do not capture the impact of those products and services on emissions reductions, or its “greenness”. Understanding the impact of \$1 green revenues requires further calculation and will be specific to the activity. This indicator is seen as “backward looking” as it identifies those companies with commercially successful green products and services, making it less well suited to identifying future solutions providers.

[Table 2](#) below provides a short description of each of the four metrics outlined above, along with advantages and disadvantages for investors seeking to utilise these metrics. Green revenues and green capex are presented as primary metrics, as recommended by the Net Zero Investment Framework 1.0. and low carbon production-based metrics, and avoided emissions are presented as optional metrics for use by investors.

### **Primary and optional climate solutions metrics**

Given data availability and regulatory disclosure expectations, [Section 2](#) of this guidance sets out how investors can calculate green revenue and green capex metrics in listed equity and corporate fixed income portfolios. The various metrics outlined in the climate solutions lifecycle and again in [Table 2](#) highlight that there is no single perfect metric, but that there is value in going beyond revenue- and capex-based metrics alone, as promoted by the EU Sustainable Finance Regulation.

While companies continue to improve their green revenue and green capex reporting over time in line with their respective local taxonomies, the guidance provides flexibility for investors to look beyond a pure taxonomy-based approach to classifying climate solutions. This ensures that the whole universe of solutions can be captured and avoids disincentivising investment in regions without established taxonomies.

Acknowledging the challenges and limitations of the climate solutions metrics detailed above, this guidance recognises the need for additional and improved indicators to enable investors to develop a holistic view of a company’s contribution to emissions reductions through investment in climate solutions and its overall alignment to a net zero pathway.

[Sections 1.6](#) and [2.5](#) highlight the potential for investor engagement to improve corporate disclosure in this regard.

Table 2 – Advantages and disadvantages of different climate solutions metrics

	Metric	Description	Advantages	Disadvantages
Primary metrics – recommended in the Net Zero Investment Framework 1.0	<b>Green revenues</b>	<ul style="list-style-type: none"> <li>Revenues from the sale of climate solutions products and services.</li> <li>Products and services sold are derived from a local taxonomy classification or proprietary classification when the methodology is disclosed.</li> </ul>	<ul style="list-style-type: none"> <li>Data is more readily available compared to other indicators, based on corporate disclosure and estimation models from data vendors.</li> <li>Traditional metric – easy to understand and use, standard financial metric.</li> <li>Should become more available given disclosure requirements such as EU CSRD and ISSB.</li> </ul>	<ul style="list-style-type: none"> <li>Backward looking, risking incentivising investment in only those corporates already providing recognised climate solutions.</li> <li>Proprietary classifications can differ amongst data vendors.</li> <li>Link to emissions reduction is not captured and dependent on the sold products and services.</li> <li>Link to investment required to align with a 1.5°C pathway is difficult to derive and the metric may incentivise sales of third-party products which have no additionality.</li> <li>Metric is heavily influenced by pricing shifts.</li> </ul>
	<b>Green capex</b>	<ul style="list-style-type: none"> <li>Capital expenditure in new climate solutions technologies and products.</li> <li>Technologies and products derived from a local taxonomy classification or proprietary classification when the methodology is disclosed.</li> <li>Green capex is typically reported in financial terms (e.g., USDm, €m, £m) based in last financial year.</li> </ul>	<ul style="list-style-type: none"> <li>Forward-looking indicator of management priorities and emissions reductions.</li> <li>Traditional metric – easy to understand and use, standard financial metric.</li> <li>Should become more available given disclosure requirements such as EU CSRD and ISSB.</li> <li>Can be benchmarked against 1.5°C scenarios.</li> </ul>	<ul style="list-style-type: none"> <li>Limited data availability currently.</li> <li>Reporting by companies is rare and not standardised; estimation models are limited.</li> <li>Link to emissions reduction is not captured and dependent on the activity financed.</li> </ul>
Additional metrics – optional use by investors	<b>Low carbon production capacity</b>	<ul style="list-style-type: none"> <li>Maximum output (assuming 100% utilisation) of manufactured goods and materials that a business can achieve based on factors such as time, labour, materials and equipment.</li> <li>Measured in unit of output per period, which is sector specific such as GW of renewable energy, # of EV chargers and tonnes of copper.</li> </ul>	<ul style="list-style-type: none"> <li>Captures a “real world” outcome that can be linked to emissions reductions e.g., GW of renewable energy, # of EV charges and tonnes of copper.</li> <li>Helpful for investors to understand the future trajectory and credibility of a corporate’s transition plan.</li> <li>Can be benchmarked against net zero pathways to support 1.5°C alignment assessments.</li> </ul>	<ul style="list-style-type: none"> <li>Cannot be easily aggregated to portfolio level given different parameters and unit of output for each industry.</li> <li>Disclosures are not widely available.</li> <li>Best suited to homogenous high GHG intensive sectors such as industrial goods and energy.</li> </ul>
	<b>Avoided emissions</b>	<ul style="list-style-type: none"> <li>Emissions that are avoided due to the investment in/use of a product or service relative to the marginal technology that is assumed in a counterfactual scenario baseline.</li> <li>Measured in CO<sub>2</sub>e either in absolute or intensity form (e.g., CO<sub>2</sub>e avoided per £m invested).</li> </ul>	<ul style="list-style-type: none"> <li>Captures emissions reductions, making it interoperable with common emissions-based metrics.</li> <li>Can be calculated for a range of products and services, not dependent on revenue and capex disclosures for a pre-defined set of activities.</li> </ul>	<ul style="list-style-type: none"> <li>Lack of standardised methodologies for calculation.</li> <li>Highly complex methodologies if employed rigorously and counterfactual baseline can be subject to manipulation.</li> </ul>

## 1.4 Climate solutions investment as a core component of an investor's transition plan

Despite their usefulness, the climate solutions classifications based on net zero scenarios and/or taxonomies will only act as a single component of an investor's climate solutions strategy, alongside other considerations, when looking to maximise risk adjusted returns and, where relevant, impact.

As per all fast growing macro trends, climate solutions investments have different risk and return profiles, affecting the types of financing and investors they attract. Many investors have increased exposure to lower risk, indirect investment in funds offering exposure to commercially mature climate solution technologies such as revenues generated from renewable energy infrastructure or electric vehicle production in developed markets.

However, less mature solutions such as building retrofits, green steel, hydrogen-based electricity generation and forest restoration require market creation as a starting point, new financing structures, and initial investment will likely be driven through private rather than public capital markets.

In addition to allocation of capital through portfolio construction, investors can support increased investment in climate solutions through corporate stewardship and engagement by supporting the transition to lower carbon business models, as highlighted in [section 1.5](#).

Policy advocacy is also important to reduce market and policy barriers across a range of solutions and regions, whilst industry engagement can increase the offering of new and improved products and services. These are core components of the Net Zero Investment Framework and when developing transition plans, investors can consider how to integrate climate solutions considerations across these levers to fit their unique investment strategies.

### Target setting

Target setting is an essential component of investors' net zero strategies. It sets the direction and pace that an organisation needs to deliver its transition plan. However, this section explores some of the barriers to and future opportunities for defining 1.5°C aligned climate solutions targets.

As part of investors' net zero commitments, many have set targets to increase portfolio allocation to climate solutions over time as indicated in [Box 5](#)<sup>11</sup>.

<sup>11</sup> The Paris Aligned Asset Owner 2022 Progress Report and signatory disclosures on the initiative's website provide examples of current approaches to target setting on climate solutions investment.

### Box 5: Climate solutions targets set by NZAM and PAAO signatories

57% of PAAO signatories and 12% of NZAM signatories have set a quantitative target for increasing allocation to climate solutions respectively.

Currently, classifications and metrics for target setting targets vary considerably.

For classifications, the EU Taxonomy, low carbon energy infrastructure investments, proprietary classifications from data vendors and Sustainable Development Goals (SDGs) are utilised.

Many asset owners are targeting an allocation to climate solutions as a % of overall AUM, whilst others are using absolute figures (e.g., USD/GBP/EUR) or targeting a greater proportion of "green" revenues as a proportion of total revenues.

To date there has been little guidance to help investors and corporates understand the level of investment in climate solutions required for an investment portfolio to be aligned with a 1.5°C scenario from a climate solutions perspective, and in a similar way that investors and corporates have set emissions-based targets using such scenarios.

Even though IIGCC's Climate Investment Roadmap<sup>12</sup> sets out a range of investment trajectories across sectors and regions, these trajectories cannot be easily interpreted by investors to determine the total allocation to climate solutions within a discrete investment portfolio that could be considered Paris-aligned.

There are a number of reasons for this, including the uncertainty around the technology mix in a 1.5°C world and the future commercial viability and risk and return profiles of different technologies. In addition, the volume of financing for different technologies and regions provided by private versus public institutions can only be estimated<sup>13</sup> and is therefore not factored into the trajectories.

Despite these challenges, there have been some attempts to estimate a Paris-aligned allocation to climate solutions, such as analysis by FTSE Russell<sup>14</sup> as described in [Box 6](#).

<sup>12</sup> IIGCC's Climate Investment Roadmap

<sup>13</sup> Section 2.5. of IIGCC's Climate Investment Roadmap provides some considerations and analysis for understanding the split between private and public financing.

<sup>14</sup> FTSE Russell (2022), [Green equity exposure in 1.5°C scenario: Applying climate investment trajectories with green revenues](#).

**Box 6: Green equity exposure in a 1.5°C scenario**

Analysis by FTSE Russell estimates that, under a 1.5°C emissions scenario, revenues generated by “green” activities in a global listed equity benchmark could grow from around 6% of total revenues today to almost 20% in 2030 and 25% by 2050.

The analysis shows that revenues from green products and services have grown around 5.4% p.a. since 2009, outpacing overall revenue growth in listed equities (3.4% p.a.). It suggests that the greatest increase in green revenue exposure would occur before 2030 before growing more gradually to 2050, reflecting greater investment needs in the earlier part of the century and the impact that this has on the cost of emissions abatement after 2030.

The analysis is based on a number of assumptions including the relationship between the equity market and the real economy, a separation of additional investment versus business-as-usual investment to capture the growth of the green economy rather than its maintenance, and an investment to revenue multiple (1:1 assumed). The assumptions used to derive these findings are carefully documented, alongside detailed findings, in the Appendices of this guidance.

## 1.5 Considerations for assessing corporate transition plans

This section outlines how investors can adopt approaches that allow them to better assess the climate solutions components of corporate transition plans and the extent to which those plans are aligned with a 1.5°C pathway, using capex and/or low carbon production capacity metrics.

The theory of change promoted by the Net Zero Investment Framework centres on the need for assets within a portfolio to align with net zero, and in turn, generate emissions reductions in the real economy. A key alignment criterion for high impact companies is to develop and disclose transition plans. For many companies, climate solutions should be a core element of these transition plans.

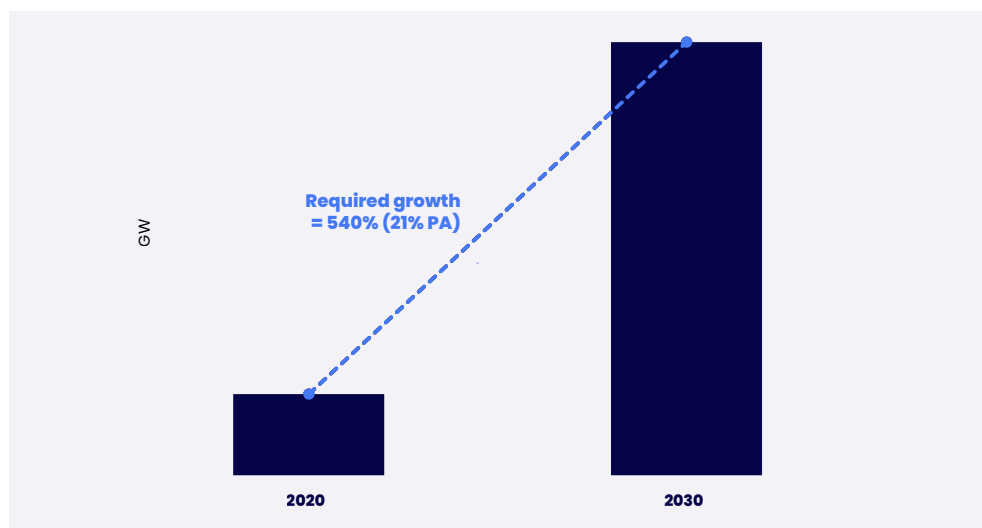
As noted above, climate scenarios already used by investors, such as the IEA NZE, the Network for Greening the Finance System (NGFS) and IPCC, provide some capex and production capacity data across key sectors and technologies both globally and within specific regions. Noting the limitations of translating real economy scenarios into investment trajectories applicable to investment portfolios mentioned above, investors can use these scenarios to guide an exercise of benchmarking companies' capital allocation and/or low carbon production.

As an example, [Figure 6](#) shows the growth required in global solar capacity from 2020 levels to 2030 in the IEA NZE (737GW to 4956GW: 572% or 21% per annum)<sup>15 16</sup>. This growth in capacity is estimated to require \$260bn of annual investment between 2020 and 2030<sup>17</sup>.

As [Figure 6](#) provides a global growth benchmark, [Figure 7](#) shows a comparison of two companies (indicated by pink and green lines) and their growth in production capacities versus that of the benchmark. This illustrates how companies in a specific sector could be evaluated against growth benchmarks, using capex and/or production capacity. A similar alternative approach could evaluate the expected market share implied by growth targets against current market share. This is the approach adopted by Climate Action 100+ Net Zero Standard for Diversified Mining Standard<sup>18</sup>.

A benefit of this approach is that it may help investors understand which company transition plans are most credible and incentivise investors to provide capital to those outperforming, rather than underperforming, benchmarks derived from credible net zero scenarios. This forward looking approach also focuses on the *growth* of investment and/or production capacity, rather than absolute figures taken as a snapshot for a single point in time. However, this approach may favour smaller companies and suitable benchmarks may not be available for all regions.

**Figure 6 – Growth required in global solar PV capacity from 2020 levels to 2030 in the IEA NZE**



15 Net Zero by 2050: A Roadmap for the Global Energy Sector, [Net Zero by 2050 – A Roadmap for the Global Energy Sector \(windows.net\)](#)

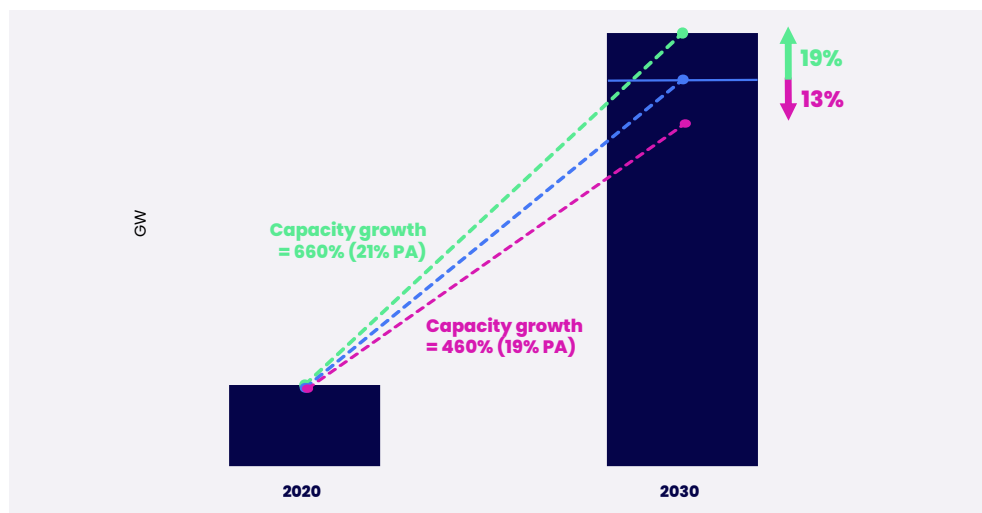
16 [Global Trends in Renewable Energy Investment 2019 | UNEP – UN Environment Programme](#)

17 [IIGCC's Climate Investment Roadmap](#)

18 See page 28 [Investor Expectations of Diversified Mining](#) (September 2023)



**Figure 7 – Solar PV capacity growth plans compared to a benchmark derived from IEA NZE**



As noted above, few companies are currently providing granular breakdowns of capital expenditures that allow investors to identify providers of green capex across their portfolios. To increase the availability of this information, investors can engage with companies as outlined in [section 1.6](#). Currently, applying this approach to production capacity growth seems the most promising.

In addition, assessing indicators such as production capacity, fuel efficiency ratios, use of renewable energy sources and carbon removals as part of corporate transition plans, along with revenue and capex, provides investors with the flexibility to capture sector and company developments essential for the transition, including investment and innovation.

### Considerations of adaptation, nature and the just transition

Physical impacts of climate change can present material risks to investment portfolios. Taking action to address these risks, whilst seeking investment opportunities in adaptation solutions, is needed to build the financial resilience of individual assets and portfolios more broadly. IIGCC believes that management of physical climate risks is a core component of responsible investment, and therefore, an investor's transition plan. Adaptation and resilience are not discussed in this guidance as IIGCC aims to develop a specific and detailed Climate Resilience Investment Framework, covering core asset classes and building on the work already undertaken<sup>19 20</sup>. Investors should endeavour to draw on this framework to ensure the transition to net zero is also a resilient one.

<sup>19</sup> [Working Towards A Climate Resilience Investment Framework](#) (IIGCC, 2022)

<sup>20</sup> [Building Resilience to a Changing Climate: Investor expectations of companies on physical risks and opportunities](#) (IIGCC, 2021)

IIGCC recommends that, when developing a transition plan, investors consider how their investments impact and have dependencies on the natural environment, stakeholders, such as the workforce and customers, and the socio-economic environment, including job creation and the provision of products and services. Given the nascency of taking an integrated approach to these themes, investors can aim to build expertise and capacity in the short term, with a view to increasing the ability to measure and manage impacts and dependencies more comprehensively in the medium to long term.

Given the reliance of many investee companies on nature throughout their operations and value chains, investors are increasingly aware of the need to ensure their investments safeguard the natural environment to the extent possible. Likewise, an investor should consider how its transition plan impacts and is impacted by stakeholders such as its workforce, customers or beneficiaries, as well as society and the economy more broadly. Examples include the provision of financial products and services for sustainable outcomes, job creation, and dialogue and stakeholder engagement with communities impacted by the transition plan.

The ability of investors to implement and deliver a credible transition plan, therefore, may require an assessment of the risks, opportunities, impacts and dependencies of climate change on nature and the just transition. IIGCC, therefore, recommends that an investor aims to set out the ways in which it plans to measure, manage and respond to impacts and dependencies of the transition plan on the natural environment, stakeholders and the broader socio-economic environment.

The expectations that investors consider and manage impacts and dependencies between climate change mitigation, adaptation, nature and the just transition is starting to grow, for example, through the forthcoming UK Transition Plan Taskforce Disclosure Framework. As guidance for operationalising such an integrated approach is nascent, IIGCC recommends that investors aim to increase expertise and capabilities utilising existing guidance and tools covering nature and the just transition. For nature, this includes:

- the Taskforce for Nature-related Financial Disclosures (TNFD)<sup>21</sup>, including the LEAP tool for financial institutions<sup>22</sup>,
- the “ENCORE” tool from Natural Capital Finance Alliance<sup>23</sup>,
- Science Based Targets materiality tool<sup>24</sup>.

For the just transition, investors can utilise:

- the Impact Investing Institute’s Just Transition Criteria<sup>25</sup>,
- the Grantham Institute’s seven-point framework for investors to integrate the just transition into due diligence, stewardship, capital allocation and policy advocacy<sup>26</sup>.

21 [Nature-Related Risk & Opportunity Management and Disclosure Framework v0.4 Beta Release \(TNFD, 2023\)](#)

22 [LEAP for Financial Institutions v2.0 \(LEAP-FI\) \(TNFD, 2022\)](#)

23 [Exploring Natural Capital Opportunities, Risks and Exposure \(ENCORE\) \(Natural Capital Finance Alliance, 2023\)](#)

24 [Sectoral Materiality Tool \(Science Based Targets Network, 2022\) \[download\]](#)

25 [Just Transition Criteria \(Impact Investing Institute, 2023\)](#)

26 [From the grand to the granular: translating just transition ambitions into investor action \(Grantham Research Institute on Climate Change and the Environment, 2021\)](#)

## 1.6 Three engagement actions for investors

Investors currently measuring climate solutions and setting targets at the portfolio or fund level are likely to be restricted by the following factors:

- availability of sufficient and robust data, the ability to aggregate from asset to fund or portfolio level
- the need to consider the role of regulation which points towards certain methodologies and metrics
- barriers to investment due to “real economy” policies.

This section highlights a number of actions investors can take to reduce these barriers and create a better enabling environment for increased investment in climate solutions.

### **Action 1: Include climate solutions in corporate engagement activities**

To increase the availability of data, investors can include expectations relating to climate solutions components of a company's transition plan and related disclosures in engagement and stewardship efforts<sup>27</sup>.

Investors may wish to use the Climate Action 100+ Net Zero Company Benchmark 2.0<sup>28</sup> as a guide. Climate solutions are referenced in both decarbonisation strategy and capital allocation indicators (sub-indicators 5.2 and 6.2 respectively). Company disclosure is assessed to see if the current role of climate solutions is specified (using revenue or production metrics) and a target to increase climate solutions is specified. The presence of disclosure on both current and stated investment in climate solutions is also tested.<sup>29</sup> To meet these disclosure tests, there would be a clear definition of climate solutions used by the company – referencing an external framework (such as the EU taxonomy) where available – and what activities are included. Two activities, renewable energy generation and electric vehicle production are automatically assumed to be climate solutions.

In addition, sector-neutral frameworks such as IIGCC's Sector Neutral Corporate Transition Plan<sup>30</sup> and the UK Transition Plan Taskforce Disclosure Framework<sup>31</sup>, provide investors with guidance when assessing company transition plans.

### **Action 2: Advocate for a supportive enabling environment with policymakers and regulators**

Investors have an important role to play by advocating for an enabling environment that encourages greater investment in climate solutions. Investors may therefore wish to engage with policymakers and regulators on some of the key themes outlined here.

<sup>27</sup> IIGCC's Net Zero Stewardship Toolkit (April 2022)

<sup>28</sup> Climate Action 100+ Net Zero Company Benchmark 2.0 (March 2023)

<sup>29</sup> A full list of climate solutions related disclosures in the Benchmark is detailed in Appendix B.

<sup>30</sup> Investor Expectations of Corporate Transition Plans: From A to Zero (March 2023)

<sup>31</sup> Transition Plan Taskforce Disclosure Framework (consultation version, November 2022)

As taxonomies are likely to continue to play a central part in developing a common understanding of climate solutions, investors can advocate for science-based, 1.5°C-aligned taxonomies, underpinned by technical screening criteria that have thresholds tailored to specific regions.

In addition, investors may wish to communicate the importance of globally interoperable taxonomies, an extension of taxonomies to cover a wide range of activities and enhanced usability by investors. Enhanced usability can be achieved by addressing barriers relating to the implementation of the Do No Significant Harm (DNSH) and minimum social safeguard tests, as well as ensuring technical screening criteria are as simple and unambiguous as possible, with clear metrics for companies to report against.

Taxonomy-related disclosures are essential to increase transparency over corporate efforts to increase low carbon goods and services, and to inform investors' decision-making and capital allocation. Consistent and comparable reporting on taxonomy eligibility and alignment will be essential, including through regimes such as the EU CSRD. It will also be important to ensure these disclosures are made on a mandatory basis to ensure widespread availability.

For example, in July 2023 IIGCC and its members issued a joint public statement<sup>32</sup> against proposals by the EU to make taxonomy-related disclosures subject to a materiality assessment. The proposal could hinder investor access to important climate solutions data and could therefore be considered an important topic as part of investors' policy advocacy.

In addition, real economy policies will either hinder or help the scale of climate solutions and the ability of investors to allocate capital allocation. Investors can request clarity on sector pathways and financing roadmaps, prioritising those that will contribute most substantially to the transition, and which can underpin company and investor transition plans at the entity-level.

### **Action 3: Engage with data vendors to enhance data quality and availability**

The issue of data availability is greatest for emerging markets where the need for investment in climate solutions is the largest, as demonstrated in [Figure 3](#). The emergence of taxonomies is positive for data quality but may take time to be adopted globally and disincentivise allocation to emerging markets in the short term where there are fewer taxonomy-based disclosures.

[Section 2.5](#) provides specific recommendations for investors when engaging with providers of data in relation to green revenues and green capex, including a list of eight questions to guide discussion with vendors. In general, these recommendations focus on:

- increased transparency of methodologies used to collect, estimate and verify data
- greater coverage of data beyond the EU Taxonomy classification and disaggregation of the degree of taxonomy-alignment
- greater efforts to source and provide information relating to green capex

For further guidance when choosing a data provider for net zero strategies, investors can also utilise IIGCC's guide outlining six key requests of data vendors<sup>33</sup>.

<sup>32</sup> Eurosif, PRI, IIGCC, EFAMA, UNEP FI – Joint Statement on ESRS (July 2023)

<sup>33</sup> [Improving net zero data provision: six asks of data vendors](#) (IIGCC, April 2023)

# Section 2: Calculating green revenues and green capex for listed equities and corporate fixed Income

## 2.1 Introduction

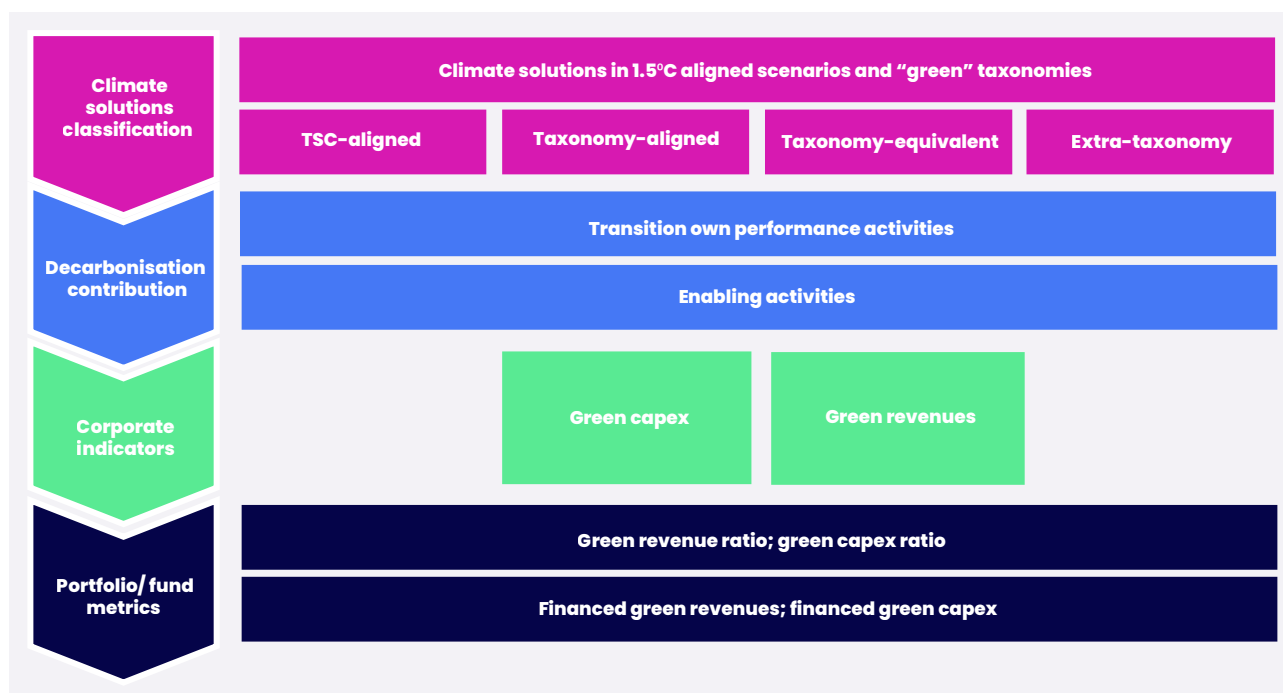
Investors seeking to use green revenues and green capex metrics discussed in Section 1 can follow the below step-by-step guidance.

Asset owners and asset managers using the Net Zero Investment Framework are recommended to set targets to increase allocation to climate solutions at the portfolio level<sup>34</sup>, as well as integrate the assessment of a corporate's current and planned contribution to climate solutions in its transition planning as covered in [Section 1](#)<sup>35</sup>.

In order to measure exposure to green revenues and green capex, an investor can follow the four steps outlined in Section 2, and as illustrated in [Figure 8](#):

- 1. Solutions classification:** Identify and classify activities, products and services that contribute to emissions reductions using net zero scenarios and/or local taxonomies.
- 2. Contribution type:** Assess the type of contribution those activities make to decarbonisation.
- 3. Corporate indicators:** Assess contribution of a corporate using revenue and capex data.
- 4. Portfolio/fund metrics:** Aggregate corporate green activity up to portfolio or fund level.

**Figure 8 – A four step approach to classifying and calculating green revenues and green capex**



<sup>34</sup> See the Net Zero Investment Framework, page 10. For examples of portfolio level climate solutions targets set by asset owners, see Paris Aligned Asset Owners signatory disclosures.

<sup>35</sup> See corporate alignment criteria 5 and 6 of the Net Zero Investment Framework Supplementary Target Setting Guidance (page 9) and Climate Action 100+ Net Zero Company Benchmark indicators 5.1, 5.2, 6.2.

## 2.2 Classifying revenues and capex as “green”

[Section 1](#) outlines how net zero scenarios provide a picture of the technologies, products and services that may drive the transition in a 1.5°C world. Section 1 also notes that sustainable or green taxonomies have emerged in recent years to capture a universe of activities that contribute to emissions reductions. Such taxonomies provide a standardised and common reference point within a particular jurisdiction and can prevent greenwashing.

Given the significant scale up in climate solutions across technologies, sectors and regions, required over the coming decades, IIGCC proposes that investors move beyond a pure taxonomy-based approach to classifying climate solutions, and allow “taxonomy-equivalent” and “taxonomy-plus” classifications.

This approach aims to incentivise allocation to the wide range of solutions required for the transition, beyond the more mature and established “pure play” investments such as renewable energy generation, where taxonomies tend to focus. This approach also aims to reward innovation in industry when scaling up provision of these solutions. Specific disclosure recommendations are made in [section 2.6](#) to ensure transparency and credibility of climate solutions claims.

### Taxonomy-based approach

To identify climate solutions activities, investors can use taxonomies. For companies where a local taxonomy is available and applicable in the jurisdiction where the company operates, investors can map the activities and technical screening criteria defined by the taxonomy to holdings. For investors utilising the EU Taxonomy, this would involve using the EU Taxonomy Compass<sup>36</sup>. The EU Taxonomy distinguishes between activities that are considered to be potentially “eligible” as substantially contributing to one of the environmental objectives<sup>37</sup>, and those that can additionally be considered “aligned” to climate change mitigation goals.

**Taxonomy-eligible activities** are those that are listed within the taxonomy as having the potential to contribute to climate change mitigation (or another of the EU Taxonomy’s six environmental objectives). Taxonomy-eligible activities are not considered climate solutions.

**Taxonomy-aligned activities** are those that *additionally* satisfy conditions relating to technical screening criteria (TSC), which ensure that the activity is substantially contributing to climate change mitigation, whilst meeting Do No Significant Harm (DNSH) criteria and minimum social safeguards. Taxonomy-aligned activities are considered climate solutions.

<sup>36</sup> [EU Taxonomy Compass](#)

<sup>37</sup> The six environmental objectives in the EU Taxonomy are: 1. climate change mitigation, 2. climate change adaptation, 3. sustainable use and protection of water and marine resources, 4. transition to a circular economy, 5. pollution prevention and control, 6. protection and restoration of biodiversity and ecosystems.

**Technical screening criteria-aligned activities** are those that meet the TSC for making a substantial contribution to climate change mitigation but do not fulfil all other criteria and tests relating to DNSH. Given challenges facing investors aiming to apply DNSH criteria in taxonomy-assessments, as described in [Box 7](#), IIGCC is supportive of investors utilising an additional categorisation of **“TSC-aligned”**. Activities in this category meet the substantial contribution criteria for the environmental objective, climate change mitigation, and the minimum social safeguards, but do not meet all of the DNSH criteria.

### **Box 7: Disclosing activities that contribute to mitigation but cannot meet the EU Taxonomy’s DNSH test**

The principle of Do No Significant Harm (DNSH) is a core component of many taxonomies. Within the EU Taxonomy, for example, DNSH criteria aim to ensure that an activity supporting one of six the environmental objectives does not have an adverse effect on another.

However, the applicability of the DNSH principle has been a recurring challenge for investors. In a recent review by the UK’s Green Technical Advisory Group (GTAG)<sup>38</sup>, the main challenges of applying DNSH criteria relate to inconsistent and overly repetitive criteria, ambiguities in DNSH descriptions leading to difficulty measuring criteria and a lack of clarity on the fundamental definition of “significant” harm.

For this reason, IIGCC is supportive of an additional climate solutions classification of “technical screen criteria aligned” (or “TSC-aligned”), alongside the “taxonomy-aligned” classification.

Under the TSC-aligned classification, when an activity meets the substantial contribution TSC for climate change mitigation but does not meet the DNSH criteria, such activities can be disclosed and considered climate solutions.

Given the importance of upholding the DNSH principle for other environmental objectives, such as climate change adaptation and protection and restoration of biodiversity and ecosystems, investors can aim to disclose which DNSH criteria are met or not met. When DNSH criteria are not met, investors should aim to provide an explanation, due to data availability for example. Investors can additionally indicate the timeframe over which they expect that the criteria will be met.

In practice, mapping corporates’ activities across various taxonomy criteria requires significant manual analysis. It is expected that most investors will rely on third party data vendors to provide this information. [Section 2.5](#) below sets out some considerations for investors when selecting a third-party data vendor for taxonomy-based green revenues and capex.

<sup>38</sup> [Streamlining and increasing the usability of the Do No Significant Harm \(DNSH\) criteria within the UK Green Taxonomy \(August 2023\)](#)

This guidance allows investors to follow a “taxonomy-based approach” whilst recognising nuances exist within each taxonomy, depending on the jurisdiction and that taxonomies are unlikely to exhaustively capture all climate solutions. As such, this guidance also allows investors to follow a “taxonomy-plus” approach.

### **Taxonomy-plus classification**

The taxonomy-plus approach to classifying climate solutions allows investors to identify activities that contribute to climate change mitigation in two situations where the taxonomy-based approach may not apply:

1. When activities occur outside a jurisdiction over which the taxonomy applies but the same thresholds or technical screening criteria are not applicable (Taxonomy-equivalent).
2. When a sector or activity is not currently considered eligible by a local taxonomy but is referred to as critical to the climate transition in credible net zero scenarios (extra-taxonomy).

Whilst both cases come under the broad category of Taxonomy-plus, IIGCC recommends that when reporting and disclosing climate solutions using this approach, activities are disaggregated into Taxonomy-equivalent and extra-taxonomy categories.

### **Taxonomy-equivalent**

Taxonomies such as the EU Taxonomy utilise local regulations and standards to establish technical screening criteria. However, the same local regulations and standards are unlikely to be easily applicable in other jurisdictions. In such cases, and in the absence of a suitable local taxonomy, IIGCC recommends that investors classify and report these activities as “Taxonomy-equivalent”.

A Taxonomy-equivalent approach, therefore, can be applied when activities covered by one taxonomy occur in another jurisdiction where a taxonomy does not exist, but the technical screening criteria are not applicable in that jurisdiction or cannot be applied.

Examples of the use of local regulations and standards to define taxonomy aligned activities from the EU Taxonomy include:

- The use of vehicle classifications and EU regulations on emissions performance standards to define technical criteria for “transport by motorbikes, passenger cars and light commercial vehicles”<sup>39</sup>
- The reference to Energy Performance Certificates for the “acquisition and ownership of buildings”<sup>40</sup>.

It is likely that climate solutions data vendors utilised for EU Taxonomy reporting have an equivalence mapping for non-EU domiciled companies and can provide a breakdown for investors. See more on the use of data vendors in [section 2.5](#).

<sup>39</sup> See the EU Taxonomy Navigator for transport by motorbikes, passenger cars and light commercial vehicles [here](#).

<sup>40</sup> See the EU Taxonomy Navigator for acquisition and ownership of buildings [here](#).



## Extra-taxonomy

**An Extra-taxonomy approach** can be applied when a sector or activity is not currently considered eligible by a local taxonomy but is referred to as critical to the climate transition in credible net zero scenarios.

**Box 8** provides an example of Extra-taxonomy activities from the diversified mining sector. Whilst IIGCC does not provide an exhaustive list of activities which could be included under this classification, investors may use multiple sources to identify extra-taxonomy activities. These include credible net zero scenarios at global, regional or national level and related sources, such as the [IEA's Clean Energy Technology Guide](#) and the list of "priority technologies" set out in [IIGCC's Climate Investment Roadmap](#) (section 6.4).

### Box 8: Taking an Extra-taxonomy approach to classifying climate solutions

Local taxonomies may not cover activities within multiple sectors that could be reasonably considered as eligible to be classified as contributing to climate change mitigation.

Minerals such as lithium and nickel are critical to the net zero transition. Therefore, mining companies that have revenues from the mining of these minerals may also have corresponding taxonomy-plus revenues.

Banking activities such as green mortgages and lending for electric vehicles may also be eligible.

Activities which fall into the extra-taxonomy category must be disclosed as such, disaggregated from TSC-aligned, and taxonomy-aligned disclosures, and the rationale must be provided for how this activity can be considered a climate solution.

**Table 3** provides examples of activities that can be defined under the following categories: Taxonomy-eligible, Taxonomy-aligned, Extra-taxonomy. The taxonomy-equivalent classification has not been included in this table, as, in theory, all activities could have a taxonomy-equivalent classification depending on the standards and regulations used for substantial contribution technical screening criteria and the application of these to jurisdictions outside the EU. Likewise, as the application of DNSH criteria is an implementation challenge, the TSC-aligned classification is also not included in Table 3.

**Table 3 – Examples of activities under different climate solutions classifications**

Activity	Taxonomy-based (eligible)	Taxonomy-based (aligned)	Extra-taxonomy	Example of companies undertaking activities
Production of wind and solar power				Nextera Energy
Manufacturing of cement using waste materials				Saint Gobain
Production of wind turbine systems				Vestas Wind Power Systems
Steel and aluminium dust recycling in electric arc furnaces				Befesa
Technology solutions for construction				Schneider Electric
Production of copper				Southern Copper

### Transition activities and enabling activities

Climate solutions activities can also be classified as activities that reduce a corporate's own emissions (transition own performance or "transition activities") and/or activities that enable emissions reductions beyond a corporate's value chain, elsewhere in the economy (enabling activities).

It is important to understand the different types of contribution a company can make to the net zero transition. Some companies invest mainly in decarbonising their own operations and activities. Other companies support decarbonisation in the wider economy through products and services made available to the market. Such companies may also seek to decarbonise their own operations, but it is not the primary contribution they make to the net zero transition.

**Transition activities** are economic activities with substantial contributions to emissions reductions relating to a *company's own performance*, as required by a 1.5°C pathway. Transition activities contribute to a reduction in the entity's own emissions profile.

Enabling activities are economic activities that make a substantial contribution to the transition to net zero by *enabling emissions reductions in the wider economy*, for example, by reducing the emissions intensity of the companies' sold products and services. Enabling activities, therefore, contribute to improving a corporate's scope 3 emissions performance and can generate avoided emissions beyond the companies' value chain.

[Table 4](#) provides an example of the type of contribution to the net zero transition offered by different corporate activities under this approach<sup>41</sup>. Bold colours indicate the primary contribution made by an activity. A more comprehensive table of activities and solutions classifications is available in [Appendix C](#).

### Box 9: Transition activities can be captured by emissions-based metrics

Transition activities translate into GHG emissions reductions within a company's own operations. This can lead to a reduction in the company's operational and value chain emissions.

The impact of a corporate's transition activities, therefore, is likely to already be captured by emissions-based metrics commonly reported by corporates and captured in investors' portfolio emissions metrics. In the future, there may be a need to narrow the definition of climate solutions, focusing primarily on capturing the additionality of enabling activities.

**Table 4 – Examples of activities classified as “transition” and “enabling” activities**

Activity	Transition activity	Enabling activity	Example of companies undertaking activities
Production of wind and solar power			Nextera Energy
Manufacturing of cement using waste materials			Saint Gobain
Production of wind turbine systems			Vestas Wind Power Systems
Production of copper and nickel			Freeport McMoRan

<sup>41</sup> Classification of a company's activities is at the discretion of individual investors.

## 2.3 Assessing corporate contribution to green revenues and green capex

### Climate solutions indicators

Investors can assess a company's exposure to climate solutions activities through an assessment of its revenues and capex associated with climate solutions activities. This is consistent with EU Sustainable Finance Regulation.

Revenues and capex associated with solutions activities, using the classifications above, are referred to as "green revenues" and "green capex", respectively.

Data for green revenues is currently the most readily available to investors through corporate disclosures and associated data sources such as CDP and the Climate Action 100+ Net Zero Company Benchmark, as well as proprietary datasets produced by data vendors. Green capex is currently less available, but it is anticipated that data availability will increase in the short to medium term as disclosure expectations of companies in some jurisdictions are adopted, such as EU CSRD and ISSB.

**The green revenue metric** provides a point in time, backward looking view of the exposure of a company's activities to the green economy. It captures the revenues from products and services sold by a company that are associated with climate solutions activities, particularly enabling activities. As such, this metric is consistent with standard financial reporting but can be sensitive to price fluctuations.

**The green capex indicator** offers a forward looking view of the company's potential future emissions reductions. It helps investors identify companies that are investing capital to develop or grow solutions activities even if this does not result in associated green revenues. Green capex can also be linked to investment requirements across industries and technologies as defined in net zero scenarios and is a useful indicator for both transition and enabling activities.

Despite the ability of these metrics to capture portfolio companies' transition and enabling activities, there are a number of limitations that investors should consider, as outlined in [Table 1](#) in section 1.3 of this paper. Whilst green revenues and green capex metrics are likely to be the most readily adopted by investors in the short term, it is anticipated that additional metrics will rise in importance and prominence over the coming years, such as low carbon production and avoided emissions.

Such metrics have the potential to address some of the limitations of revenue- and capex-based metrics, particularly in relation to applicability across private markets, capturing the relative impact of different activities on emissions reductions, and incentivising capital allocation to the most impactful solutions.

However, these indicators have challenges of their own which need to be treated carefully and explored further before they can be adopted by the industry in a robust and consistent way.

## 2.4 Aggregating to portfolio or fund level

To provide a company, portfolio or fund level view for listed equity and corporate fixed income, investors can measure green revenues and green capex in a number of ways. This section outlines two methods, whilst recognising that other approaches, such as cumulative benchmark divergence metrics, are emerging<sup>42</sup>.

- **Green ratio:** A percentage of a company's total revenues or total capex, respectively, aggregated to portfolio level based on portfolio weights (green revenue ratio; green capex ratio).
- **Financed green revenues/ capex:** As a proportion of AUM, attributed to an investor based on the capital contribution across equity and debt (financed green revenues; financed green capex).

Table 5 sets out some of the advantages and disadvantages of these metrics.

**Table 5 - Advantages and disadvantages of two approaches to aggregating green revenues and capex to portfolio or fund level**

Metric	Expressions	Advantages	Disadvantages
<b>Green ratio</b> (revenues and/or capex)	<ul style="list-style-type: none"> <li>• Total (\$m)</li> <li>• Ratio (%)</li> </ul>	<ul style="list-style-type: none"> <li>• Simplest metric to calculate, building on widely used Weighted Average Carbon Intensity (WACI) metric utilising market capitalisation.</li> <li>• In line with EU Taxonomy reporting requirements.</li> <li>• Reasonable proxy for contribution to financing climate solutions.</li> </ul>	<ul style="list-style-type: none"> <li>• Cannot be easily linked to an investor's AUM.</li> <li>• Not applicable across all asset classes in a portfolio.</li> <li>• Likely to overstate total green revenues and green capex across investors' portfolio as the metric does not consider capital allocation.</li> </ul>
<b>Financed green revenues and financed green capex</b>	\$m/ \$ invested	<ul style="list-style-type: none"> <li>• Can be used by investors targeting climate solutions as a % of AUM across asset classes.</li> <li>• Adopts the Partnership for Carbon Accounting Financials (PCAF) attribution principle, creating consistency across emissions calculations.</li> <li>• Avoids double counting solutions amongst investors, adhering to the UN precautionary principle.</li> </ul>	<ul style="list-style-type: none"> <li>• Calculating the capital contribution is more complex than a ratio metric.</li> <li>• Volatility of Enterprise Value Including Cash (EVIC) used in the denominator may require normalisation.</li> <li>• Smaller baseline figure than if using a ratio metric.</li> </ul>

<sup>42</sup> An alternative approach under exploration by IIGCC utilises the cumulative benchmark divergence method which determines a degree of alignment (+/- %) at company level and aggregates the alignment measurement up to portfolio or fund level. IIGCC member briefing: [Discussing a cumulative metric to improve the assessment of emissions targets](#) (March 2023)

## Calculations and estimations

### Green ratio

$$\text{Green revenue ratio} = \sum (\text{Green revenues}_c / \text{Total revenues}_c) \text{ Portfolio weight}$$

$$\text{Green capex ratio} = \sum (\text{Green capex}_c / \text{Total capex}_c) \text{ Portfolio weight}$$

### Financed green revenue

$$\text{Financed green revenues} = \sum \left( \text{Green revenues}_c * \frac{\text{Outstanding amount}}{\text{Enterprise Value Including Cash}_c} \right)$$

$$\text{Financed green capex} = \sum \left( \text{Green capex}_c * \frac{\text{Outstanding amount}}{\text{Enterprise Value Including Cash}_c} \right)$$

Where,

- **outstanding amount** is the market value of the investor's holding in the company
- **green revenues<sub>c</sub>** is the company's green revenues/capex
- **Enterprise Value Including Cash<sub>c</sub>** is the company's EVIC

Financed green revenues and green capex both use EVIC and therefore face the same issues with EVIC inflation and volatility as financed emissions. Investors should use the same process for normalising EVIC for financed green revenues and capex as for financed emissions described by PCAF<sup>43</sup>.

As per [section 2.2](#), classifying revenues and capex as "green", the above calculations require investors to differentiate between revenues and capex that are linked to activities identified in a local taxonomy (disaggregating eligible and aligned) and those which are not but may be considered climate solutions under the taxonomy-plus approach.

#### Example: calculating financed green revenues

- Company A, a European utility with an EVIC of £1.75billion and £100m of green revenues.
- Investor A, a pension fund with a multi-asset growth fund mandate invested in Company A across the capital structure with £50m in equity and £100m in debt.

$$\text{Financed green revenues} = £100\text{m} * \frac{£150\text{m}}{£1.75\text{billion}} = £8.571\text{m}$$

43 [PCAF Standard Financed Emissions 2nd Edition](#) (2022, page 61 - 64).

### Treatment of green bonds and labelled bonds

The calculation methods outlined above do not account for the capital structure of a company and the relationship between the source of capital (green debt, non-green debt and equity) and financing for climate change mitigation activities, including for operational efficiencies (transition activities) and new green projects (enabling activities).

In the absence of the finalised EU Green Bond Standard, corporates that are financing activities through green bond issuance are not necessarily reporting alignment to the EU Taxonomy. However, investors can be reasonably certain that the capital can be considered as contributing to climate solutions activities for green bonds with a verified use of proceeds and over which investors have conducted due diligence in line with ICMA or equivalent standards and the entity is expected to report.

Investors may want to consider the contribution of other labelled bonds, such as SDG-linked bonds, to climate solutions activities. Where use of proceeds for such instruments are disclosed by the company and can be mapped to climate change mitigation, investors can include these within scope of the climate solutions assessment.

IIGCC encourages issuers of green and labelled bonds to issue factsheets which detail and provide transparency over how those bonds contribute to the entity-level transition plan. IIGCC's Bondholder Stewardship Guidance<sup>44</sup> states that an important part of bondholder stewardship is understanding how the debt strategy supports the delivery of the corporate strategy and the issuer's transition plan and climate strategy.

For non-green bonds, investors can use the approach to classifying and calculating green revenues and green capex outlined in the following example.

#### Example: Calculating financed green capex

- Company A, a European utility with an EVIC of £1.75billion and £100m of green capex.
- Investor A, a pension fund with a multi-asset growth fund mandate invested in Company A across the capital structure with £50m in equity and £100m in debt.

$$\text{Financed green capex} = £100\text{m} * \frac{£150\text{m}}{£1.75\text{billion}} = £8.571\text{m}$$

Therefore, in this example, the investor's financed green revenues are £8.571m and financed green capex are also at £8.571m which are both 5.71% of the overall £150m invested.

<sup>44</sup> A Critical Element: Net Zero Bondholder Stewardship Guidance – Engaging with Corporate Debt Issuers (June 2023)

## 2.5 Data sources, data collection and engaging data vendors

### Data hierarchy

Investors can obtain data for green revenues and green capex for companies, funds, or portfolios, in a number of ways.

When selecting data sources, investors will need to consider data quality, coverage and access. IIGCC presents a data hierarchy below, drawing from similar practices adopted by emissions accounting standard PCAF<sup>45</sup>. The hierarchy provides a view of the quality of data for different sources.

<b>1</b>	<b>Corporate disclosures – data reported directly through annual reports, sustainability reports, etc. Verified data will be more reliable than unverified data.</b>
<b>2</b>	<b>Corporate disclosures – via third parties (such as CDP Climate Change Questionnaire<sup>46</sup>, Climate Action 100+ Net Zero Company Benchmark, or captured by data vendors if available as a standalone dataset)</b>
<b>3</b>	<b>Fundamental analyst estimates</b>
<b>4</b>	<b>Taxonomy-based datasets offered by data vendors using estimation models</b>
<b>5</b>	<b>Sector averages</b>

Whilst corporate disclosures, particularly those verified by independent third parties, can be considered the most reliable, collecting data at company and activity level and aggregating to fund or portfolio level will require considerable manual analysis.

<sup>45</sup> See data quality scoring approach in [PCAF Standard Financed Emissions 2nd Edition](#) (2022, page 41).

<sup>46</sup> Note, the formal inclusion of taxonomies (including the EU Taxonomy) into the CDP questionnaire for companies is currently under review and envisioned for 2023.



Corporate disclosures may be particularly helpful to support investors' stewardship and engagement efforts with individual companies and to inform stock selection. On the other hand, data from third party vendors often relies on estimations based on industry and/or activity. Estimated data therefore may not capture the granularity of information required for investors to distinguish companies within the same industry. When compiling IIGCC's Net Zero Data Catalogue<sup>47</sup>, it was found that few vendors disclose the proportion of estimated versus reported data for their green revenue data sets.

In practice, it is anticipated that many investors will rely on third-party data vendors to provide the required analysis across a portfolio or fund, and supplement this with an assessment of company disclosures to inform stewardship and engagement and stock selection.

[Table 6](#) below provides an example of the output of company-level analysis, consolidating the solutions classifications, indicators and metrics. This could be produced by an investor or a third-party data vendor.

For Company A in the example below, an investor arrives at the following results:

- 8% of revenues are Taxonomy-aligned as revenues from those activities meet all criteria across substantial contribution for climate change mitigation, Do No Significant Harm and minimum social safeguards.
- 2% of revenues are classified as TSC-aligned as revenues from those activities meet the technical screening criteria for substantial contribution to climate change mitigation and minimum social safeguards, but fail to meet Do No Significant Harm (DNSH) criteria<sup>48</sup>.
- 15% of revenues are eligible in a Taxonomy-based approach, but cannot be classified as climate solutions as the substantial contribution TSC are not met – (known as Taxonomy-eligible).

The final disclose for Company A looks as follows:

<b>Climate solutions total = 10% green revenue ratio</b>	Taxonomy-aligned green revenue ratio of 8%
	TSC-aligned green revenue of 2%
	Taxonomy-eligible green revenue ratio of 15%

<sup>47</sup> IIGCC's Net Zero Data Catalogue (October 2022)

<sup>48</sup> Investors can refer to Box 7.

Table 6 – Example of the output of company-level analysis, consolidating the solutions classifications, indicators, and metrics.

Issuer	Revenue breakdown by sector (example using NACE, but GICS or BICS an option)	Revenue %	Activity	Activity %	Does the activity fulfil the substantial contribution criteria of the local Taxonomy? (TSC-aligned)	Does the activity fulfil the DNSH criteria of the local Taxonomy?	Final classification: (taxonomy aligned, TSC-aligned, taxonomy eligible)	Is the activity a transition or enabling activity?
Company A	Manufacture of chemicals and chemical products	20	Manufacture of hydrogen	10	Y	80% DNSH criteria met	80 % Taxonomy aligned (climate solution) 20% TSC-aligned (climate solution)	Enabling
			Non-eligible	10	N/A	N/A	Not climate solution	N/A
	Manufacture of gas	15	Manufacture of biogas and biofuels for use in transport and of bio-liquids	5	Y	N	Taxonomy eligible (not climate solution)	Enabling
			Non-eligible	10	N/A	N/A	Not climate solution	N/A
	Non-eligible	65	Non-eligible	65	N/A	N/A	Not climate solution	N/A

The following sections provide further information about acquiring data from different sources.

### **Company disclosures**

Green revenue data is typically reported by companies in line with a local taxonomy. Green capex may be disclosed in line with a local taxonomy or as per the company's disclosed definition.

Corporate disclosures are also available through data-led initiatives or platforms such as CDP and the Climate Action 100+ Net Zero Company Benchmark, under the indicators shown in [Appendix B](#).

### **Fundamental analysis**

Green capex information is less likely to be available from company disclosures and a standardised data source. However, equity analysts may be able to estimate this data based on an analysis of a company, its business strategy and forward capital allocation on an annual basis. This is typically subjective and most applicable to fundamental equity portfolios.

### **Asset owners request information from asset managers**

Increasingly asset owners, as well as investors using third party fund managers, are requesting that managers disclose climate-related data covering their mandates or assets. In addition to data on emissions and the alignment of holdings with net zero, external managers may also disclose data on climate solutions, such as green revenues and capex.

Whilst this paper focuses on the climate solutions indicators of green revenues and green capex, many of the metrics mentioned in this guidance are already being calculated and reported by managers.

### **Data vendors**

In the absence of company reported data, a number of data vendors distribute green revenues, and to a lesser extent, green capex, data sets. IIGCC members can access a list of vendors and a breakdown of their climate solutions product offerings in IIGCC's Net Zero Data Catalogue<sup>49</sup> and accompanying spreadsheet, tab "Green and Taxonomy Share".

Amongst the data providers reviewed in IIGCC's Net Zero Data Catalogue (as of April 2022), 11 have green revenues classification systems covering between 60 and 100 sustainable activities (96 in the EU Taxonomy). Nine of these data providers use estimation models to increase coverage beyond reported data. The estimation models are based on reported data, company-specific estimates, and sector-specific estimates, with all 11 providers indicating alignment of activities with the EU Taxonomy.

The green revenues datasets also provide information on the corresponding EU Taxonomy Substantial Contribution activity type (i.e. Own Performance, Enabling, or Transitional), and whether Technical Screening Criteria is required.

According to IIGCC's Net Zero Data Catalogue, only three data vendors provide green capex data sets, although a number have indicated that capex data is an area under further development.

<sup>49</sup> [IIGCC's Net Zero Data Catalogue](#) (October 2022)

### Questions investors can ask data vendors when selecting a provider

Estimated Taxonomy-based data from vendors can yield significantly different results for the same company. Therefore, it is important that investors understand and can provide a rationale for the vendor, dataset and underpinning methodology chosen.

Due to the likely reliance on third party data sets, it is important that investors ask the right questions when selecting a provider to test robustness and suitability of the product and dataset. Below are some questions investors may consider asking:

1. What is the coverage across companies? What is the coverage across emerging markets and developing economies? How is the vendor aiming to increase coverage over time?
2. What proportion of the data is reported versus estimated? Does the data vendor disclose whether data is reported or estimated for a given company? What considerations does the vendor believe investors should make when using estimated data?
3. What estimation model is used? Is it based on:
  - a. production or revenue segmentation
  - b. reported data or sector/industry averages?
4. What level of transparency over the methodology is available to investors?
5. How does the vendor plan to improve the methodology as the volume of reported data increases?
6. Is a breakdown of the activities available to investors to show Taxonomy-eligible versus Taxonomy-aligned and transition activities versus enabling activities?
7. What does the vendor do for non-EU companies? Do vendors use any type of EU Taxonomy equivalence? If not, what considerations does the vendor believe investors should make when assessing non-EU companies?
8. Does the data provider distribute capex data? If so, what is the coverage of capex data? If not, does the vendor have any plans to do so?

## 2.6 Disclosure principles and template for green revenues and green capex

[Section 2](#) of this guidance proposes a dashboard of climate solutions classifications and metrics within the realm of revenues and capex. The dashboard approach allows investors to measure and communicate the extent to which their investments in listed equity and corporate fixed income are allocating capital to activities providing climate solutions.

This section outlines two core disclosure principles – transparency and standardisation – for investors to protect the integrity of the climate solutions definition.

The range of Taxonomy-based classification types, with the addition of TSC-aligned and Taxonomy-plus classifications, provides a non-binary alternative to the EU Taxonomy approach which is focused on disclosures of Taxonomy-alignment versus non-alignment alone. This approach aims to overcome practical, implementation challenges and provide the flexibility for investors to innovate as opportunities to finance the transition to net zero are sought.

To support clear and transparent disclosures and protect the integrity of climate solutions classifications, IIGCC proposes two core disclosure principles for investors using this guidance. A disclosure template ([Table 7](#)) is provided to enhance standardisation of disclosures across the industry.

### Core disclosure principles

- 1. Transparency:** Disclose assumptions and methodologies in a clear, fair and not misleading manner when using a Taxonomy-plus approach.
- 2. Standardisation:** Use the disclosure template to enhance standardisation of green revenue and green capex disclosures across the industry.

Table 7 – Green revenues and green capex disclosure template

Metric	Classification	Activity type	Recommendation
<b>Green revenue ratio (\$m and/or %)</b>	TSC-aligned	Transition of own performance	Recommended minimum disclosure if setting climate solutions targets under NZIF, in line with EU Taxonomy Regulation.
	Taxonomy-aligned		
	Taxonomy-equivalent	Enabling	Disaggregation of metrics by activity type is optional.
	Taxonomy-plus		
<b>Financed green revenues (\$m/ \$m invested)</b>	Taxonomy-eligible	Transition of own performance	Recommended minimum disclosure if setting climate solutions targets under NZIF.
	Taxonomy-aligned		
	Taxonomy-equivalent	Enabling	Disaggregation of metrics by activity type is optional.
	Taxonomy-plus		
<b>Data coverage % of AUM where revenue data is unavailable</b> <b>% of AUM with no revenues from climate solutions</b>	N/A	N/A	Minimum required if setting climate solutions targets under NZIF.
<b>Green capex ratio (\$m and/or %)</b>	Taxonomy-eligible	Transition of own performance	Recommended disclosure, as data availability improves, in line with EU Taxonomy Regulation.
	Taxonomy-aligned		
	Taxonomy-equivalent	Enabling	Disaggregation of metrics by activity type is optional.
	Taxonomy-plus		
<b>Financed green capex (\$m/ \$ invested)</b>	Taxonomy-eligible	Transition of own performance	Recommended disclosure, as data availability improves.
	Taxonomy-aligned		
	Taxonomy-equivalent	Enabling	Disaggregation of metrics by activity type is optional.
	Taxonomy-plus		

## Appendix A – Taxonomies available and in development globally

IIGCC has conducted a landscape review of taxonomies that are available and in development globally. For those taxonomies marked as “implemented”, the approach taken by a jurisdiction can be categorised in one of three ways:

**Technical Screening Criteria** – The approach provides screening criteria and relevant thresholds to determine whether an economic activity makes a substantial contribution to climate objectives and whether they Do No Significant Harm (DNSH) to wider environmental objectives.

**Whitelist** – The approach identifies eligible economic activities under specific sectors or sub-sectors, listing technologies considered green/sustainable, providing detailed descriptions of eligibility whilst stopping short of technical screening criteria. The approach seeks to identify activities that are already green or contain green components which could bring positive impacts to the environment.

**Principles-based** – The approach defines a set of core guiding principles for market participants to assess the economic activities that can be considered sustainable.

**Table 8 – A non-exhaustive list of taxonomies globally**

<b>Taxonomy</b>	<b>Approach</b>	<b>Status</b>
ASEAN	Technical Screening Criteria	Implemented
China	Whitelist	Implemented
Colombia	Technical Screening Criteria	Implemented
EU	Technical Screening Criteria	Implemented
Georgia	Technical Screening Criteria	Implemented
Indonesia	Whitelist	Implemented
Kazakhstan	Whitelist	Implemented
Malaysia	Principles-based	Implemented
Mongolia	Whitelist	Implemented
Russia	Whitelist	Implemented
South Africa	Technical Screening Criteria	Implemented
South Korea	Technical Screening Criteria	Implemented
Sri Lanka	Technical Screening Criteria	Implemented
Australia		In progress
Canada		In progress
Chile		In progress
Dominican Republic		In progress
Mexico		In progress
Rwanda		In progress
Singapore		In progress
Thailand		In progress
UK		In progress
EU social taxonomy		Initiative
Hong Kong		Initiative
Peru		Initiative
Taiwan		Initiative
United Arab Emirates		Initiative
Vietnam		Initiative



## Appendix B – Climate Action 100+ Net Zero Company Benchmark 2.0 indicators for climate solutions

- **5.2.a** The company already generates ‘green revenues’ and discloses their share in overall sales.
- **5.2.b** The company has set a target to increase the share of ‘green revenues’ in its overall sales OR discloses the ‘green revenue’ share that is above sector average.
- **6.1.a** The company explicitly commits to align its capital expenditure plans with its long-term GHG reduction target OR to phase out planned expenditure in unabated carbon intensive assets or products.
- **6.1.b** The company explicitly commits to align its capital expenditure plans with the Paris Agreement’s objective of limiting global warming to 1.5° Celsius AND to phase out investment in unabated carbon intensive assets or products.
- **6.2.a** The company discloses the methodology and criteria it uses to assess the alignment of its capital expenditure plans with its decarbonisation goals, including key assumptions and key performance indicators (KPIs).
- **6.2.b** The methodology quantifies key outcomes, including the percentage share of its capital expenditures that is invested in carbon intensive assets or products, and the year in which capital expenditures in such assets will peak.

## Appendix C – Example climate solutions classifications

[Section 2](#) outlines a method for classifying climate solutions activities, using Taxonomy-based and Taxonomy-plus as well as transition and enabling categorisations. [Table 9](#) provides an example of how an investor might assess the activities of portfolio companies according to this approach<sup>50</sup>. Bold colours indicate the primary contribution made by an activity.

The Taxonomy-equivalent classification has not been included in this table, as, in theory, all activities could have a Taxonomy-equivalent classification depending on the standards and regulations used for substantial contribution technical screening criteria and the application of these to jurisdictions outside the EU. Likewise, as the application of DNSH criteria is an implementation challenge, the TSC-aligned classification is also not included here.

---

<sup>50</sup> Classification of a company's activities is at the discretion of individual investors.

**Table 9 – Further examples of the classification of climate solutions activities**

Activity	Taxonomy classification			Contribution type		Example of companies undertaking activities
	Taxonomy eligible	Taxonomy aligned	Taxonomy-plus	Transition activity	Enabling activity	
Production of wind and solar power						NextEra Energy
Production of wind turbine systems						Vestas Wind Power Systems
Manufacturing of graphite electrodes for EAF steel production						GrafTech
Production of cement mixture additives to reduce clinker ratios						Sika
Steel and aluminium dust recycling in EAFs						Befesa
Manufacturing of cement using waste materials						Saint Gobain
Production of hydrogen						Air Liquide
Technology solutions for construction						Schneider Electric
Production of Lithium						Livent
Production of copper						Southern Copper
Production of copper and nickel						Freeport McMoRan
Electric transmission grid operator						Tennet

# IIGCC

