Net Zero Investment Framework: Implementation Guidance for Objectives and Targets

Produced by IIGCC, supported by AIGCC, Ceres, and IGCC

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Section 1
Net Zero Investment Framework: Implementation Guidance for Objectives and Targets

Contents

Introduction

This document is implementation guidance for asset owners and asset managers that are using the Net Zero Investment Framework (NZIF) which they may wish to consider as they set their individual net zero objectives and targets for a net zero investment strategy or to fulfil the requirements of a net zero commitment.

Asset owners and asset managers that have made an individual commitment to net zero through the Paris Aligned Asset Owners[1] (PAAO) and Net Zero Asset Managers[2] (NZAM) initiatives respectively and who are utilising NZIF may wish to consider this guidance when developing, setting, reviewing and updating their individual net zero objectives and targets. NZIF is the most widely implemented methodology by PAAO and NZAM signatories.

NZIF, a product of the Paris Aligned Investment Initiative, which is supported by four regional Network Partners,[3] has been updated in June 2024 as NZIF 2.0.[4] In line with the launch of NZIF 2.0, this document provides a comprehensive update to IIGCC's Supplementary Target Setting Guidance.[5] All references to 'NZIF' in this document refer to NZIF 2.0.[6]

NZIF is the most widely used guide by investors to set targets and produce related net zero strategies and transition plans. NZIF is designed to guide investors to consider and to develop their own net zero strategies, targets, and transition plans. It is only a guide, not a prescriptive protocol, nor a standard, and it is not a reporting framework. Likewise, this guidance, which is supplementary to NZIF, is only a guide and is made available on the understanding that each user will, with due care and diligence, conduct its own investigations and evaluations and seek its own professional advice. Like NZIF, Investors should use this guidance within the context of their own strategies, agendas, starting points, fiduciary duties, client mandates and regulatory considerations, from which and with which they make their own unilateral decisions regarding the ways and means with which they will set and reach their own net zero goals.

This document brings together the various components of NZIF's recommended objective and target setting process in a structured manner, outlining clear and simple steps that investors may wish to consider. Monitoring and disclosure recommendations are made throughout to support transparency in investor action and should be complementary to regulatory disclosure requirements across many jurisdictions.

1 Paris Aligned Asset Owners (2024), Paris Aligned Asset Owners – Investing for a net zero future

2 Net Zero Asset Managers (2024), The Net Zero Asset Managers initiative – An international group of asset managers committed to supporting the goal of net zero greenhouse gas emissions

3 AIGCC, Ceres, IGCC, IIGCC

4 Paris Aligned Investment Initiative (2024), NZIF 2.0

5 IIGCC (2021), Net Zero Investment Framework: Supplementary target setting guidance

6 Note this guidance is not a 'Paris Aligned Investment Initiative' document

Table 1 below outlines the objectives and targets which this document provides guidance for, and for which asset classes. It is important to note that investors are recommended to set all four types of objectives and targets across all asset classes in which they invest.

A collection of case studies from asset owners and asset managers have been published alongside this guidance.

Table 1: Objectives, targets and asset classes covered in the Implementation Guidance

	Asset level targets		Portfolio level objectives	
Asset class covered by NZIF	**Asset Alignment Target**	**Engagement Threshold Target**	**Portfolio Decarbonisation Reference Objective**	**Climate Solutions Objective**
Listed equities and corporate fixed income	✓	✓	✓	✓
Sovereign bonds	✓	✓	✓	
Real estate	✓	✓	✓	
Infrastructure	✓	✓	✓	
Private equity	✓	✓	✓	
Private debt	✓	✓	✓	

What's new?

IIGCC published "Supplementary Target Setting Guidance" in December 2021, following the launch of NZIF 1.0 earlier that year. This document provides an update to that guidance. The core updates are outlined below.[7]

Table 2: Key updates to the Implementation Guidance

Key update	Description	Pages(s)
Implementation Guidance for Objectives and Targets	The guidance has been reframed as Implementation Guidance for Objectives and Targets, supporting with the monitoring and reporting of net zero targets.	1
Positioning of objectives and targets	Clear explanation of how net zero objectives and targets are designed to be used together, including a reframing of the Portfolio Decarbonisation Reference Target to a Portfolio Decarbonisation Reference Objective.	8-11
Scope 3 clarifications	Recommendations have been made on when and how to integrate scope 3 emissions into net zero targets, varying across the net zero objectives and target types.	20-21, 71
AFOLU as a high impact material sector	Agriculture, Forestry and Fishing have been reclassified (NACE section A, Divisions 1 – 3) as high impact material sectors, meaning an increased alignment criteria are recommended to be met to be considered aligned to a net zero pathway.	71
Attribution analysis & rebaselining	Investors are recommended to perform emissions attribution analysis to enhance their understanding of portfolio emissions changes. Recommendations on rebaselining are also updated.	43-49
Climate solutions guidance	Guidance on classifications, metrics and calculation approaches for listed equities and corporate fixed income has been introduced.	60-67
Alignment targets: Financed emissions or AUM	The asset alignment target (formerly the portfolio coverage target) can be set using AUM or financed emissions, at an investor's discretion.	75-76
Alignment data mapping	A mapping between NZIF's alignment criteria and key data sources has been developed, including Climate Action 100+, TPI, SBTi, CDP, Carbon Tracker and Net Zero Standard	85
New asset classes	As per NZIF 2.0, guidance for infrastructure, private equity and private debt have been integrated, whilst sovereign bonds and real estate guidance have seen updates.	93-155
Case studies	A collection of investor case studies have been published, covering a wide range of target setting topics.	179

7 Several of these key updates draw on existing NZIF updates or supplementary IIGCC guidance, including the 'scope 3 clarifications', 'new asset classes', AFOLU as a high impact material sector' and 'climate solutions guidance'.

An overview of NZIF's net zero objectives and targets

NZIF provides investors with the foundations for a net zero strategy and transition plan that aims to support decarbonising portfolios in a way that supports real economy decarbonisation.

NZIF's four objectives and targets

Setting net zero objectives and targets is a fundamental feature of any investors' net zero strategy or transition plan. In order to set a clear direction and ambition for a net zero investment strategy, net zero objectives act as a means to monitor the strategy, communicate climate goals to stakeholders, and allow clients, beneficiaries and other stakeholders to hold investors to account.

NZIF recommends investors set two objectives at portfolio level and two targets at asset class level, as shown in Table 3. The four objectives and targets have different roles within a net zero strategy. Thus, investors are recommended to set all four across each asset class as part of a holistic net zero strategy.

As independent fiduciaries, investors determine how and to what extent they seek to achieve their individual objectives and targets in line with their individual strategies, mandates, and regulatory and legal obligations. The 'implement or explain' basis of NZIF allows for flexibility and contextual nuance.

Table 3: NZIF's objectives and targets

Target type	Objective	Rationale
Portfolio level		
Portfolio Decarbonisation Reference Objective	An emissions reduction objective aligned with a net zero pathway	The objective sets the required ambition for an investor's portfolio across the short, medium and longer term, and can set the basis for a net zero strategy, relative to the chosen net zero pathway(s) or carbon budget. The objective can act as a benchmark/performance monitoring tool to assess whether actions at the asset level are yielding the necessary portfolio level emissions reductions to be consistent with the investor's climate goals.
Allocation to Climate Solutions Objective	An objective to scale up investments in climate solutions	Demonstrates an ambition to scale up investment in activities, goods or services across technologies and sectors required to decarbonise the real economy. It further supports investors aiming to take advantage of opportunities arising from the net zero transition.
Asset level		
Asset Alignment Target	A target for increasing the proportion of AUM or financed emissions that is considered aligned with net zero	Captures changes in the net zero alignment of assets over time against indicators or metrics that reflect backward, current and forward looking alignment to net zero pathways. The target facilitates a focus on achieving net zero alignment at the asset level (aggregated at asset class level) and decarbonisation through real economy emissions reductions. As an increasing number of assets meet NZIF's alignment criteria, investors should see an increasing number of assets implementing robust transition plans and decarbonising in line with regional and sectoral net zero pathways.
Engagement Threshold Target	A target for increasing the proportion of financed emissions that are aligned with net zero or under direct or collective engagement and stewardship actions	Aims to ensure investors undertake stewardship and engagement actions with assets that are not transitioning at a pace aligned to a net zero pathway. To increase the proportion of assets that are aligned with regional and sectoral net zero pathways, investors can undertake engagement and stewardship, key levers of influence investors can use to support the net zero transition.

How the targets interact

NZIF recommends that investors set four objectives and targets. Each serves a different purpose and, when used together, they promote an approach that reduces emissions in the real economy and allows for investors to take both a backward and forward looking view of assets and portfolios.

The portfolio decarbonisation reference objective sets the foundations of the decarbonisation strategy which is intended to be achieved through the operationalisation and achievement of asset level targets. The asset level targets aim to focus investor efforts on supporting assets within a portfolio to transition at the pace required by relevant sectoral and regional pathways.

There are many routes to achieving portfolio decarbonisation without having a correlating impact on real economy emissions, as outlined in more detail in Section 2 step 6: Undertake decarbonisation attribution analysis. For this reason, portfolio decarbonisation is positioned as an objective that can set the foundations and ambition of a net zero strategy and provide information on a portfolio's emissions and effectiveness of investor actions, from a backward looking perspective. Portfolio emissions metrics are, however, the most easily understandable indicator of progress for many stakeholders and can be complemented by analysis to disaggregate likely drivers of real economy impact from other drivers of change.

The asset level targets (alignment and engagement) can guide the net zero strategy on a more granular basis, with different and specific levers of influence across different asset classes, as detailed throughout Section 5. Importantly, the asset alignment target has a forward looking perspective, as well as taking backward looking and current 'snap shots' in time to inform the net zero strategy at asset level. This allows investors to take a view of the potential and future decarbonisation contribution an asset in a portfolio may have, as well as the past contribution to decarbonisation.

Asset level engagement is a key lever of influence investors can deploy to support the transition of assets to help mitigate transition risks, and deliver net zero short-to-medium term targets. The engagement threshold was designed to focus investors' stewardship resources on emissions intensive assets and/or assets that are vital for the transition, such as those in key value chains or climate solutions providers. With the influence of investors, alongside supportive policy and regulatory environments, an increasing proportion of assets across sectors and regions could align to credible net zero pathways. The power of investor stewardship could translate into increased asset alignment and a reduction in portfolio emissions alongside real economy decarbonisation.

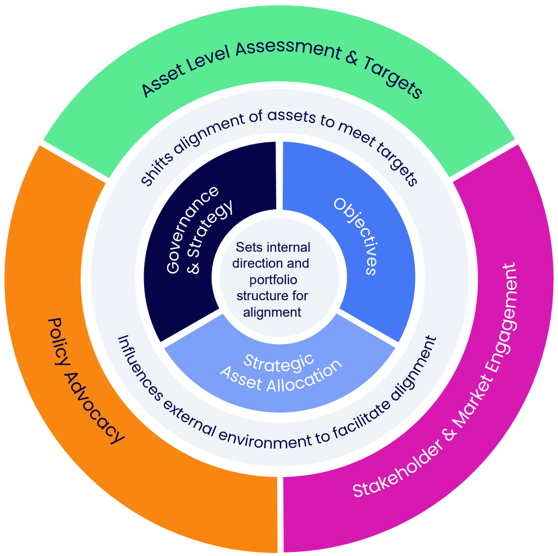
Section 5 also outlines a variety of levers beyond asset stewardship and engagement, including portfolio construction and active management, tilting indices, and developing investment mandates that support net zero alignment.

NZIF recommends setting a separate objective to scale up investment in climate solutions. There are elements of climate solutions assessments within the asset level alignment assessment, such as through indicators relating to green revenues, green capex, and low carbon production capacity. However, given the significant gap in financing for the activities, goods, and services required to reduce and remove emissions required in a 1.5°C scenario, a separate objective may direct investor efforts to allocate additional capital and tilt towards climate solutions providers in the short to medium term.

A challenge with the climate solutions objective is that it may negatively affect investors' portfolio emissions metrics. As the scale up in climate solutions investment occurs, particularly in carbon intensive technologies such as renewable energy capacity and electric transportation, investors may see a corresponding increase in portfolio emissions related to the production of these technologies. As the Partnership for Carbon Accounting Financials (PCAF) Standard does not recommend for investors to deduct emissions avoided from such technologies from emissions produced, investors may consider focusing less on portfolio emissions as the primary indicator of progress against a net zero strategy. Further work is being done to bring more nuance and clarity to the way portfolio decarbonisation and climate solutions metrics interact.

Targets and objectives are an integral part of NZIF, and thus feature in the NZIF wheel. The wheel highlights the interconnected nature of each core area and their equal importance. It aims to show that net zero strategies are more likely to be effective if they address the external environment, which itself can either facilitate or inhibit investor activities. Each element interacts and there is no hierarchy.

Figure 1: NZIF Wheel



Box 1: The difference between objectives and targets

Within NZIF, objectives and targets serve different purposes.

The portfolio decarbonisation reference objective and the allocation to climate solutions objective are situated within the Objectives section of NZIF. The aim is to establish objectives over a ten-year period, enabling net zero strategy and target performance assessment. It establishes overarching climate objectives but not the means to achieve these, which are always at the discretion of the individual investor.

For instance, the portfolio decarbonisation reference objective helps investors to translate net zero goals into something more specific, measurable and time-bound, over a long to medium time frame. It facilitates progress to be assessed, internal accountability, and aims to explain why changes have occurred. It also helps form the basis of assessments into the efficacy of net zero strategies in reducing portfolio emissions over the longer term.

The portfolio decarbonisation reference objective is not intended to be used for portfolio optimisation, investment decision making, or as a target setting tool to reduce financed emissions through year-on-year reductions. This is because NZIF considers that the use of portfolio emissions metrics in isolation could lead to decisions that are misaligned with net zero goals. Instead, NZIF adopts an alignment-centric approach to target setting, which is why it is recommended that portfolio emissions metrics are used in conjunction with asset level targets.

Using net zero decarbonisation pathways

NZIF recommends investors adopt net zero-aligned decarbonisation pathways when setting climate objectives and to underpin asset alignment assessment. Net zero-aligned decarbonisation pathways ('net zero pathways') refer to science-based emissions, technology, and/or investment trajectories that limit global average temperature rise in line with the goals of the Paris Agreement.

- Net zero pathways enable rigorous net zero objectives, strategies and targets, allowing investors to:
- Set decarbonisation and climate solutions objectives.
- Assess alignment of assets and set asset level targets.
- Ensure market service providers use a proper analytical basis.
- Contextualise target setting.

When setting net zero goals and objectives, NZIF continues to reference the Intergovernmental Panel on Climate Change's (IPCC) Special Report on Global Warming of 1.5°C (SR1.5)[8] and the International Energy Agency's (IEA) Net Zero by 2050 Roadmap.[9] These global net zero pathways are consistent with global carbon emissions reaching net zero by 2050, with low or no overshoot, and thus providing a sufficient probability of limiting warming to 1.5°C.[10] However, recognising that investors may require greater granularity that these pathways provide, it's likely that investors will supplement these pathways with sectoral and/or regional pathways from other sources. Where possible, it is recommended that these pathways are consistent with the 1.5°C pathways set out by the IPCC and IEA.

Recent developments of national level net zero pathways are noted and NZIF recommends that these are used if they are of sufficient quality. The use of such pathways is important to ensure emerging and frontier markets are not expected to decarbonise in the same manner as developed markets. It is important that national level net zero pathways take into account fair share considerations to facilitate a just transition.[11]

8 IPCC (2018), Special Report on Global Warming of 1.5°C

9 IEA (2023), Net Zero Roadmap: A Global Pathway to Keep the 1.5 °C Goal in Reach

10 See Section 2 step 4 for further detail and recommendations on the selection of global and sectoral science-based net zero pathways.

11 See Section 3 step 4 for further detail on the selection of regional, science-based net zero pathways, as well as detail on 'fair share'.

It is important to note that most net zero pathways are not specifically developed for transitioning investment portfolios towards net zero, and per all forward-looking scenarios, they are illustrative and informative of possible futures, not deterministic. They are modelled using the best available physical science, with various economic overlays and assumptions. They are subject to both technical and political review by various stakeholders in reaching consensus. As such, and as per standard practice of using projections in risk management and investment strategies, multiple net zero pathways may be used by investors, and the structure of NZIF is designed to be used in relation to any forward-looking climate model.

NZIF recommends investors disclose the pathways utilised, including associated assumptions and limitations. Engagement with pathway providers will become an increasingly important activity for investors as they continue to navigate the transition across a broad range of markets with differing characteristics and circumstances.

5-year objective and target stock take

It is recommended investors use a 10 year time period for objectives and a 5 year time period for targets.[12] Short term progress towards such objectives and targets is important to support the achievement of the global transition to net zero.

- NZIF encourages investors to establish interim (5 year) portfolio objective 'stocktakes', syncing to a 2025, 2030, etc. cycle, to the extent possible. This will provide investors with the opportunity to:
- Reflect on the impact of the asset level targets on portfolio emissions
- Review progress against portfolio level objective milestones
- Adjust net zero strategy accordingly if necessary

Ensure that objectives can be updated to reflect changes in the portfolio, as well as the latest climate science.

This 5-year cycle period also mirrors the rachet mechanism of the Paris Agreement, whereby governments must review progress against targets and increase ambition.

Case studies: Using NZIF's targets for a net zero strategy

Objectives and targets play a central role in the development of a robust net zero transition plan. A growing number of investors are developing their strategies and setting objectives and targets using the four recommended in NZIF:

- Using NZIF to set robust net zero targets: Aegon UK
- NZIF in action: AXA Investment Managers
- Developing a target hierarchy for real world decarbonisation: Brunel Pension Partnership
- Embedding net zero targets into a net zero strategy: Eurizon Capital
- NZIF in action: Evenlode Investments

[12] This can differ across asset classes. For instance, for private equity, guidance is to set 2030, 2040 and 2050 milestones.

Section 1 NZIF Implementation Guidance
Section 2 Portfolio Decarbonisation Reference Objective (PDRO)
Section 3 PDRO for sovereign bonds
Section 4 Climate solutions objective (listed equity)
Section 5 Asset level targets: all asset classes
Section 6 Listed equity and corporate fixed income
Section 7 Sovereign bonds
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Section 11 Private debt
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Net zero commitments: Setting, reviewing and reporting objectives and targets

Signatories of the Paris Aligned Asset Owners Commitment[13] (PAAO) and Net Zero Asset Managers Commitment[14] (NZAM) are expected to set net zero targets one year after signing a commitment, as shown in the boxes below. NZIF is the methodology underpinning the PAAO initiative and is one of three available methodologies for NZAM signatories.

As part of individual commitments to NZAM or PAAO, signatories agree to review and update targets every five years or sooner, and to report annually on progress towards interim targets.

Signatories' net zero target setting requirements differ slightly per initiative.

Paris Aligned Asset Owners

Box 2: Paris Aligned Asset Owners

Point 3: **Setting objectives and targets,** including an interim target for 2030 or sooner for reducing Scope 1, 2 and 3 emissions associated with our portfolios and setting a target for increasing investment in climate solutions, consistent with a fair share of the 50% global reduction in CO_2 identified as a requirement in the Intergovernmental Panel on Climate Change special report on global warming of 1.5°C.

Point 9: Disclosing objectives and targets, and publishing a clear Investor Climate Action Plan for achieving these goals as soon as possible, no later than one year from making this commitment, and **reviewing and updating targets every five years or sooner.**

Point 10: **Reporting annually** on the strategy and actions implemented and progress towards achieving objectives and targets, and in line with the Task Force on Climate-related Financial Disclosures (TCFD) recommendations.

PAAO signatories have made individual voluntary commitments to transition their investments to achieve net zero portfolio GHG emissions by 2050, or sooner, and are asked to set objectives and targets across 100% of their assets as methodologies are developed and data allows. To satisfy the expectations of the PAAO Commitment, a *Targets Disclosure Template* is provided to signatories which is to be completed one year after signing the commitment.

The initial target should include either an asset alignment target or portfolio decarbonisation reference objective. If setting an asset alignment target without a portfolio decarbonisation reference objective, the asset owner should be able to demonstrate how the portfolio remains within a 1.5°C carbon budget over time. Signatories are also recommended to set a target for increasing investment in climate solutions. This target can take the form of a qualitative goal in the short term, as methodologies and data improve.

Following the initial disclosure of objectives and targets, signatories agree to report annually on their individual strategy and actions implemented, as well as disclose information on their progress towards achieving their individual objectives and targets.

The PAAO Reporting FAQ provides additional information, available from the PAAO Network Partners.[15]

[13] PAAO (2024), Paris Aligned Asset Owners Commitment Statement
[14] NZAM (2024), Net Zero Asset Managers Commitment Statement
[15] AIGCC, Ceres, IGCC and IIGCC

Net Zero Asset Managers

Box 3: Net Zero Asset Managers

Point B: **Set an interim target** for the proportion of assets to be managed in line with the attainment of net zero emissions by 2050 or sooner.

Point C: **Review our interim target at least every five years,** with a view to ratcheting up the proportion of AUM covered until 100% of assets are included.

Furthermore, **all signatories will report annually** in line with TCFD recommendations on progress towards their NZAM Commitments.

Signatories to the Net Zero Asset Managers initiative are asked to set objectives and targets for a proportion of assets under management to be managed in line with net zero emissions by 2050 or sooner. Objectives and targets should be reviewed and updated at least every five years, with a view to ratcheting up the proportion of AUM covered until 100% of assets under management are included.

Signatories disclose targets through an online survey, developed by the NZAM partners.[16] Signatories are encouraged to use three methodologies to set objectives and targets:

- The Net Zero Investment Framework
- SBTi for Financial Institutions
- Net Zero Asset Owner Alliance Target Setting Protocol

To ensure objectives and targets are robust and science-based, asset managers are recommended to choose one or a combination of the above methodologies. If asset managers wish to use an alternative methodology, they should explain the rationale in their disclosure and reporting, including how their alternative methodology is in line with the best available science on achieving the goals of the Paris Agreement.

Within a year of becoming a signatory, asset managers are asked to disclose:

- The initial percentage of their portfolio that will be managed in line with net zero
- Their 'fair-share' interim targets for AUM that will be managed in line with net zero, and target date
- The methodology used in target setting
- Signatories using NZIF are asked to set either an asset alignment target or portfolio decarbonisation reference objective. If setting an asset alignment target without a portfolio decarbonisation reference objective, the asset manager should be able to demonstrate how the portfolio remains within a 1.5°C carbon budget over time.

Following the initial disclosure, signatories are asked to report annually to demonstrate implementation of the commitment and progress against their target. Annual reporting is expected to follow TCFD recommendations, setting out the elements of a signatory's climate action plan,[17] and reporting on actions taken and progress made against all elements of the 10-point commitment.

See the NZAM Commitment page for more information.

Net zero targets

The net zero targets set by existing signatories can be found on the NZAM[18] and PAAO[19] signatory disclosure pages.

[16] IIGCC, AIGCC, CDP, Ceres, IGCC, PRI

[17] Investors can also use The Investor Agenda's ICAPs Expectation Ladder, Investor Climate Action Plans | The Investor Agenda

[18] NZAM (2024), Net Zero Asset Managers Signatory Disclosures

[19] PAAO (2024), Paris Aligned Asset Owners Signatory Disclosure

Phasing in asset classes

For signatories using NZIF, it is suggested that objectives and targets are set for all asset classes that are covered by the latest version of the framework.

Upon the publication of any additional asset class components to NZIF, investors are encouraged to incorporate the additional asset classes into existing or new targets. Signatories, particularly those specialising in specific asset classes, are recommended to develop new targets within 18 months of the publication of asset class guidance, where possible.

Signatories with multi-asset portfolios may need to prioritise the development of new strategies for certain asset classes. However, there is an expectation that all signatories show evidence of progress towards implementing new NZIF components within 12 months of publication, with the goal of formal inclusion into targets within 18 months.

Box 4: Target setting support for investors

- **Reviewing:** The PAII Network Partners provide target setting support for investors implementing NZIF, including reviewing net zero targets under development ahead of formal disclosure to the net zero initiatives.
- **Peer-to-peer learning:** IIGCC enables peer-to-peer learning through net zero "surgeries", webinars, and working group discussions, facilitating the sharing of challenges and best practice approaches. Given its fundamental role in investors' transition planning, net zero target setting is a regularly addressed subject in these sessions.
- **Bespoke support:** IIGCC and the Network Partners welcome one-to-one meetings to discuss technical challenges our members face and provide additional support.

For further support and detail on your reporting expectations, please contact IIGCC, or your relevant Network Partner.

Section 2
Portfolio Decarbonisation Reference Objective: Listed equity, corporate fixed income, real estate, private equity and private debt

Contents

Listed equity, corporate fixed income, real estate, infrastructure, private equity and private debt

Investors using NZIF[20] are recommended to set a portfolio decarbonisation reference objective.

This section outlines the process for setting a portfolio decarbonisation objective(s) for listed equities and corporate fixed income, real estate, infrastructure, private equity and private debt. It sets out multiple approaches to setting the portfolio decarbonisation reference objective, each with their own advantages and disadvantages. Investors should determine the approach most suitable for them.

Please see section 3 for guidance on setting a portfolio decarbonisation reference objective for sovereign bonds.

Box 5: The Portfolio Decarbonisation Reference Objective

Defined as:

- **A <10-year CO_2e emissions reduction objective,** expressed in absolute or intensity terms. At portfolio level, this should include scope 1 and 2 emissions.

A five year stocktake is recommended to facilitate assessment of progress.

1. **When setting objectives:** NZIF recommends investors provide evidence of how the objective has been calculated, referencing the relevant net zero pathway(s) that has been used to set the objective.
2. **When monitoring and reporting progress:** Investors are recommended to:
   a. Measure absolute emissions reductions achieved at the asset level, and other drivers of emissions reductions, where possible.
   b. Measure the progress towards an absolute and/or intensity target at the portfolio level.

[20] Paris Aligned Investment Initiative (2024), NZIF 2.0

Eight steps to set, monitor and update a portfolio decarbonisation reference objective

There are multiple ways investors can calculate portfolio decarbonisation reference objectives. The approach taken may vary depending on a range of factors, such as the type and number of funds or mandates, portfolio turnover, as well as data availability, analytical capabilities, and resource capacity.

This guide sets out eight key steps that investors can follow:

1. Set the scope of targets
2. Set the baseline year
3. Select portfolio level metrics
4. Select science-based net zero pathways
5. Calculate the portfolio decarbonisation reference objective
6. Undertake attribution analysis
7. Develop a rebaselining policy
8. Ensure transparency

1 Setting the scope

Asset classes in scope

NZIF recommends that investors aim to set portfolio decarbonisation reference objectives that encompass all asset classes.

Investors may wish to prioritise certain asset classes initially but are encouraged to aim to phase in all asset classes in scope of the objective over time.

Emissions in scope

Scopes 1 and 2 – NZIF recommends investors set portfolio targets based on the scope 1 and 2 emissions associated with investments. In line with emissions reporting requirements established by the Partnership for Carbon Accounting Financials (PCAF)[21], absolute scope 1 and scope 2 emissions can be reported separately, as well as in aggregate, by investors.

Scope 3 – For assets in some sectors, certain categories of scope 3 emissions are an essential aspect of assessing alignment. This can be for a number of reasons but is not universally applicable; this is outlined in further detail in IIGCC's discussion paper on scope 3[22, 23]. This is particularly notable for many of NZIF's high-impact sectors.

However, not all scope 3 is equally important. Universal and reliable scope 3 data is near-impossible to access at present, and the scope 3 emissions of multiple companies is not meant to be added up or compared[24]. Given these constraints, investors need to take a nuanced approach to scope 3 of investments. This approach is further outlined in IIGCC's Supplementary Guidance on Scope 3 Emissions of Investments[25] and is summarised below.

Importantly, integrating scope 3 emissions into portfolio level objectives is not currently recommended. This is due to several key challenges, including:

- Adding up multiple instances of exposure to the same tonnes of carbon and setting a target to reduce this would incentivise actions that are not necessarily supporting real economy decarbonisation. It would instead reduce the frequency of exposure to the same tonnes of carbon within one portfolio (e.g. by investing in integrated companies instead of multiple actors across the same value chain).
- A large scope 3 emissions figure is not always reflective of worse climate impact. Some essential climate solutions will have high scope 3 emissions.
- Not all scope 3 emissions are equally material to portfolio decarbonisation.

[21] PCAF (2022), The PCAF Standard
[22] IIGCC (2024), Investor approaches to scope 3: Its importance, challenges and implications for decarbonising portfolios
[23] IGCC (2024), New In-Depth Resource: Uses and Limitations of Investee Scope 3 Disclosures for Investors
[24] GHG Protocol (2011), Corporate Value Chain (Scope 3) Standard
[25] IIGCC (2024), Supplementary guidance: Scope 3 emissions of investments

As a result, investors are recommended to take the following approach to scope 3 emissions at portfolio level:

- Measure and monitor scope 3 emissions at portfolio level, separately to scope 1 and 2.
- Scope 3 should not be accumulated into a scope 1 and 2 portfolio decarbonisation reference objective.
- Develop a high-level strategy to address scope 3 emissions of investments at portfolio level.
- Incorporate material scope 3 emissions into asset level assessment and targets, in line with the specific action points relating to the asset alignment target, engagement threshold target, and alignment assessment methodology that are set out in the NZIF.

Across this document, where there are references to material scope 3, the following considerations apply:

- Assessment of scope 3 materiality is at the ultimate discretion of the investor.
- The approach to materiality and any exclusions – for example, due to factors such as data gaps or limitations – should be explained and justified alongside the disclosure.
- Investors can refer to a number of additional resources on scope 3 produced by PAII Network Partners for additional implementation support.

Greenhouse gases (GHGs) – Investors are recommended to account for all seven of the GHGs under the Kyoto Protocol. This is expressed as carbon dioxide equivalents (CO_2e). Investors will therefore need to ensure any science-based net zero pathways used also relate to CO_2e. This approach is consistent with PCAF's accounting and reporting standard.

2 Setting the baseline

The baseline year

Investors are recommended to set a 2019 baseline to both align with science-based net zero pathways which indicate a global 50% emissions reductions from 2019 levels to 2030 is required, and to increase comparability for net zero objectives.

Recognising several years have passed since 2019, investors setting net zero objectives and targets can work backwards, where possible, to calculate a fund or portfolio's baseline emissions in 2019.

Investors can use the points in time outlined in Box 5 to determine investment positions and allocate emissions from investments.

Investors may choose to select a baseline year different to the recommendations in Box 5. Selecting a baseline year later than 31 December 2019 may be particularly relevant when setting an objective for a fund that is launched after the recommended baseline year or when data is particularly scarce, which may be the case for certain asset classes. If investors choose to set a different baseline year, investors are recommended to fully explain:

- The rationale for deviating from the recommendations, for instance to align with CSRD[26].
- How it will be ensured that the objective is consistent with the ambition set for the portfolio, dependent on regional and sectoral composition, to achieving global net zero emissions by 2050 or sooner in line with relevant net zero pathways.

As detailed in Step 7, in certain circumstances investors may recalculate their baseline portfolio emissions. It is therefore important investors develop a robust rebaselining process for when to undertake such a practice.

Box 6: Recommendations for selecting the baseline date

Baseline

- Holdings data: Calendar year end, 31 December 2019
- Emissions data: Calendar year end, 31 December 2019

10-year objective

- Holdings data: Calendar year end, 31 December 2029
- Emissions data: Calendar year end, 31 December 2029

<5-year interim objective stock take

- Holdings data: Calendar year end, 31 December 2024
- Emissions data: Calendar year end, 31 December 2024

Investors are recommended to use the most recent emissions data available.

There will likely be a lag in emissions data available to investors during the reporting period. For example, data reported at year end 2019 may relate to emissions data from 2017-2018. In such circumstances, investors can use the most recent data available. This is consistent with the PCAF Standard.

[26] 'When setting new targets, the undertaking shall select a recent base year that does not precede the first reporting year of the new target period by longer than 3 years.' European Commission (2023), Commission Delegated Regulation.

Updating targets

Investors may consider setting 5-year interim targets in addition to the <10-year objective. These shorter-term objectives can be reviewed and revised once five years have passed, at the latest.

NZIF emphasises the importance of achieving emissions reductions through the transition of assets within a portfolio. For many assets, the process of developing and implementing a credible transition plan will take some time. For the period 2019-2024, progress in terms of emissions reductions may have been slow as assets go through this process. However, following this initial stage, investors may expect to see assets increase the pace at which they transition, and the 5-year review and revision mechanism will act as an important checkpoint.

3 Selecting portfolio metrics

Primary metrics

NZIF recommends that the portfolio decarbonisation reference objective is expressed in absolute or intensity terms.

It is further recommended that investors take a dashboard approach to measuring and reporting portfolio emissions, including utilising an absolute metric and at least one intensity-based metric.

There are three primary portfolio level metrics available for investors to utilise in objective setting and reporting for portfolio emissions:

- **Absolute financed emissions** (tCO_2e)
- **Economic emissions intensity** (tCO_2e/\$m invested)
- **Weighted Average Carbon Intensity**, WACI (tCO_2e/\$m revenue)
- (listed equity and corporate fixed income only)

Descriptions and the advantages and disadvantages of the three primary metrics are outlined in Table 5 later. Given each metric has its own merits and drawbacks, investors are recommended to report against all metrics listed above. Please see Appendix A for PCAF's formulae for these metrics.

These metrics rely on Enterprise Value Including Cash (EVIC) or revenue to be calculated. Portfolio emissions can inform net zero strategies, so it is important to understand how these denominators can be affected by non-emissions related factors, such as inflation, is critical.

Enterprise Value Including Cash (EVIC)

Financed emissions and economic emissions intensity use EVIC.

EVIC is the sum of market capitalisation and total debt, whereby no deductions of cash are made. Measuring portfolio emissions using EVIC allows measurement of an investor's share of emissions proportional to exposure to the investee's total value.

This allows responsibility for emissions to be assigned to both equity and debt investors. Investors can use financed emissions to manage climate-related risks, assess progress towards the portfolio decarbonisation reference objective, and support the development of climate-aligned financial products.

Revenue

Weighted Average Carbon Intensity (WACI) uses revenue.

Using revenue in the calculation of portfolio emissions intensity enables the analysis of portfolio exposure to carbon-intensive companies. This can support investors in managing carbon risk exposure.

Measuring carbon intensity based on revenues is also a good measure of efficiency and is therefore useful for determining the portfolio baseline emissions of a fund or portfolio compared to a benchmark.

Accounting for market volatility

EVIC and revenue can be affected by market volatility, tying the portfolio emissions metrics above to non-emissions-related factors, such as inflation, exchange rates, and interest rates.

In addition, the financed emissions profiles of assets and portfolios can change without emissions increasing or decreasing due to changes in the financial denominator (EVIC and revenue). This means that investors can make progress towards the portfolio decarbonisation reference objective without achieving real economy emissions reductions.

For instance, should a portfolio see a rise in revenue due to a rise in inflation, the portfolio's WACI will decrease. Similarly, if a portfolio sees a rise in market value without absolute emissions falling, the economic emissions intensity and financed emissions can fall. Thus, investors who have set a portfolio decarbonisation reference objective using any of these metrics will appear close to achieving that objective despite no emissions reductions having occurred in underlying assets. To manage their emissions objectives effectively, it is important investors account for these variables.

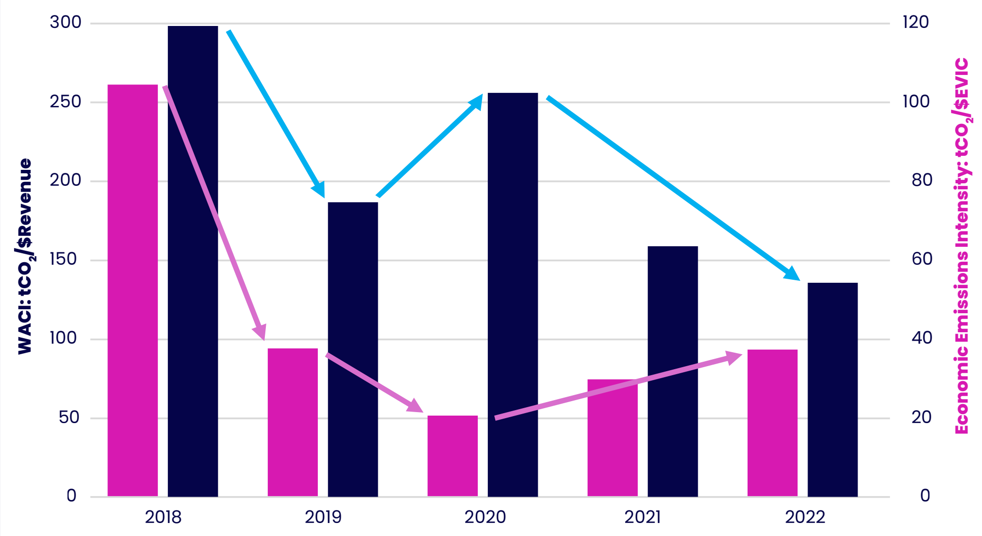
Another complication is that revenue and EVIC can move in opposite directions, resulting in WACI and economic emissions intensity also moving in opposite directions.[27] This provides a confused image of emissions associated with assets, challenging the ability to make effective decisions and emphasising the need to take a dashboard approach when considering portfolio level metrics. The illustrative example below looks at the divergence in two metrics reported by the renewable energy company, Orsted, over five years.

[27] abrdn (2022), Why the Choice of Carbon Metric Matters

Box 7: Illustrative example: Orsted's WACI vs Economic Emissions Intensity

The chart below shows instances where Orsted's WACI and economic emissions intensity move in opposite directions between 2018 and June 2022.

Figure 2: Orsted carbon metric divergence



Source: Trucost, Bloomberg, abrdn

Digging into the underlying data, shown in the table below, it is clear that Orsted's WACI and economic emissions intensity are being driven by changes in the denominator – revenue and EVIC.

Table 4: Orsted carbon metrics – understanding changes in underlying components

	2019	2020	2021	June 2022
WACI % change YoY	-37%	37%	-38%	-15%
Economic emissions intensity % change YoY	-64%	-45%	45%	25%
Orsted Total Emissions % change YoY	-46%	-0.4%	0%	0%
Revenue % change YoY	-13%	**-27%**	**61%**	17%
EVIC % change YoY	50%	**82%**	**-31%**	-20%

Using normalised assets under management can help account for variables such as inflation, ensuring prices are held constant over the objective period. Approaches to and calculations for normalising for revenue- and EVIC-based portfolio emissions metrics can be drawn from PCAF, the EU Technical Expert Group (EU TEG), and are detailed in Appendix B.

To ensure transparency, investors undertaking normalisation are recommended to disclose:

- The unadjusted *and* the adjusted economic emissions intensity
- The inflation adjustment factor used
- An explanation of how the adjustment factor was constructed and applied

Table 5: Portfolio level metrics for the Portfolio Decarbonisation Reference Objective

Emissions metric	Description	Advantages	Disadvantages
Financed emissions (tCO_2e)	This metric measures total emissions financed by an investor across equity and debt. It introduces the idea of emissions 'ownership' whereby emissions are attributed to an investor based on the proportion of EVIC owned by the investor. It is used to evaluate emissions ownership across equity and debt.	▪ Allows responsibility of emissions to be attributed to investors across equity and debt. ▪ Absolute emissions can be more directly linked to a carbon budget than emissions intensity metrics. ▪ Aligns with PCAF and TCFD recommendations.	▪ Volatility in EVIC denominator is not related to emissions, increasing the difficulty of understanding portfolio emissions movements. ▪ Value can move differently for equity and debt investors based on asset's financing structure. ▪ Difficult to compare portfolios as absolute metrics do not account for portfolio size. ▪ Difficult to compare assets as does not recognise emissions efficiency.
Economic emissions intensity (tCO_2e/\$m invested)	This metric measures total emissions owned by an investor across equity and debt, per million USD invested. It is used to evaluate emissions ownership, normalised by size of portfolio.	▪ Allows responsibility of emissions to be attributed to investors across equity and debt. ▪ Accounts for investor AUM, enabling comparison across portfolios and funds. ▪ Aligns with PCAF and TCFD recommendations.	▪ Volatility in EVIC denominator not related to emissions, increasing the difficulty of understanding portfolio emissions movements. ▪ Value can move differently for equity and debt investors based on asset's financing structure. ▪ Does not recognise carbon efficiency of firms
Weighted Average Carbon Intensity (WACI) (tCO_2e/\$m revenue)	This is the weighted average emissions of a portfolio normalised by revenue. IT is used to assess company carbon efficiency per dollar of revenue generated.	▪ Helps to manage carbon risk exposure. ▪ Enables capital to be allocated to industry best performers. ▪ Accounts for company size. ▪ Intensity metric enables comparison of funds and assets. ▪ Aligns with TCFD recommendations.	▪ Volatility in revenue denominator not related to emissions, increasing the difficulty of understanding portfolio emissions movements. ▪ Does not account for the different meaning of revenues across sectors.[28]

[28] LSEG (2022), Decarbonization In Equity Benchmarks

Additional metrics

Temperature ratings and ITRs

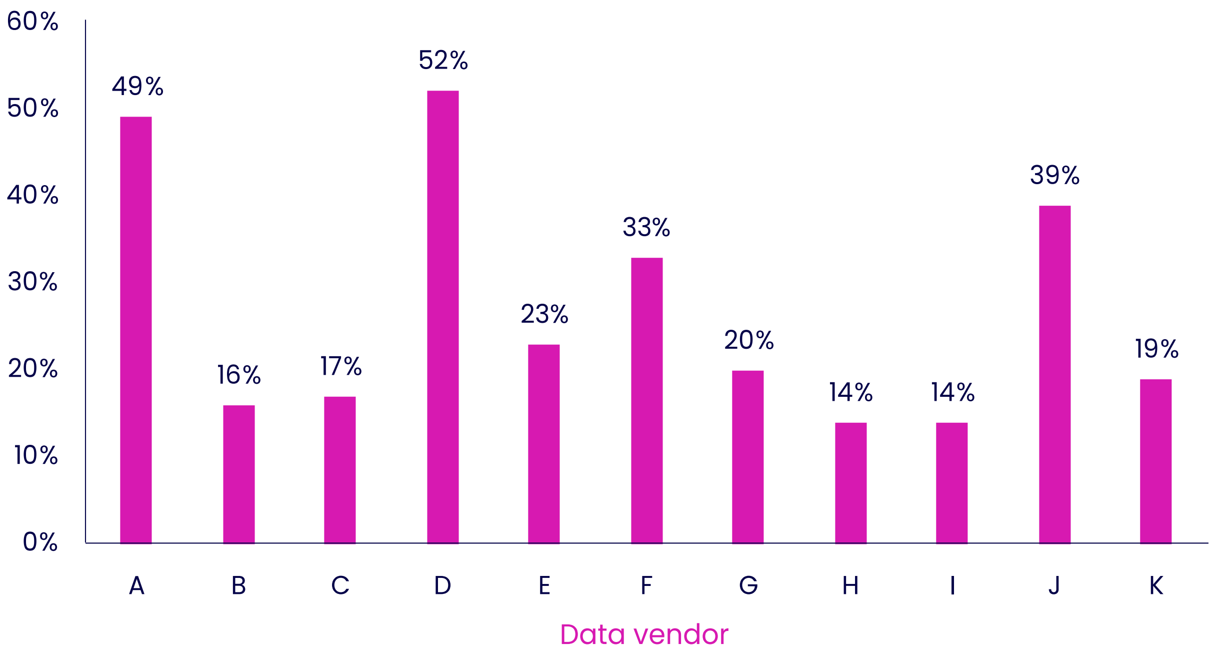
At present, NZIF does not promote the use of temperature ratings or implied temperature rise (ITR) metrics at portfolio level. Whilst temperature ratings may be most useful and intuitive when communicating with stakeholders due to the simplicity of the end values, there are challenges preventing their endorsement[29 30]:

- Methodologies rely on multiple assumptions, often with limited transparency.
- Widely differing methodologies can result in significantly different ITR scores for the same portfolio (as demonstrated in Figure 3).

The lack of standardisation in the calculation approach and transparency issues limit the robustness and integrity of these metrics when used as a portfolio level objective.

IIGCC's Data Catalogue[31] assesses data vendors' methodologies for corporate temperature ratings and alignment against a dummy portfolio. The findings are stark, with a widespread lack of conformity explained by differences in definitions (of 'aligned' and 'aligning') and methodologies. Figure 3 shows the number of companies rated 2°C or less and/or considered 'aligned' or 'aligning' by data vendors, ranging from 14% to 52% of the dummy portfolio's companies.

Figure 3: % of companies rated 2°C or less/considered aligned or aligning (dummy portfolio)



Cumulative Benchmark Divergence metric

IIGCC's Cumulative Benchmark Divergence (CBD) metric[32] is a methodology that can be applied to quantify the alignment of forward looking corporate (or real asset) carbon targets relative to a science based decarbonisation pathway, over a defined timespan. By aggregating and appropriately weighting individual CBD scores, a credible estimate of portfolio alignment can be calculated.

Using CBD for the portfolio decarbonisation reference objective could enable investors to quantify and account for projected future financed emissions at corporate, fund, and portfolio level, as well as account for the different pathways of high emitting sectors. As it looks at alignment, rather than emissions or emissions intensity, it does not incentivise emissions reductions through divestment. Nor does it suffer from some of the issues created by unstable financial denominators.

[29] TCFD (2020), Forward-Looking Financial Sector Metrics
[30] GFANZ (2022) Portfolio Alignment Measurement Report
[31] IIGCC (2022), Net Zero Data Catalogue
[32] IIGCC (2024), Assessing climate target alignment with Cumulative Benchmark Divergence

CBD could be used as an alternative approach to setting a portfolio decarbonisation reference objective, given CBD metrics can be aggregated at the portfolio level to project future financed emissions (with assumptions about portfolio composition over time). Such a metric can further support fund or portfolio level strategic asset allocation, as well as engagement and stewardship, by identifying assets decarbonising with sufficient ambition.

It is recommended that investors consider utilising the CBD metric to support with assessing alignment and engagement and stewardship efforts. The illustrative example below shows the assessment of four companies using the CBD metric.

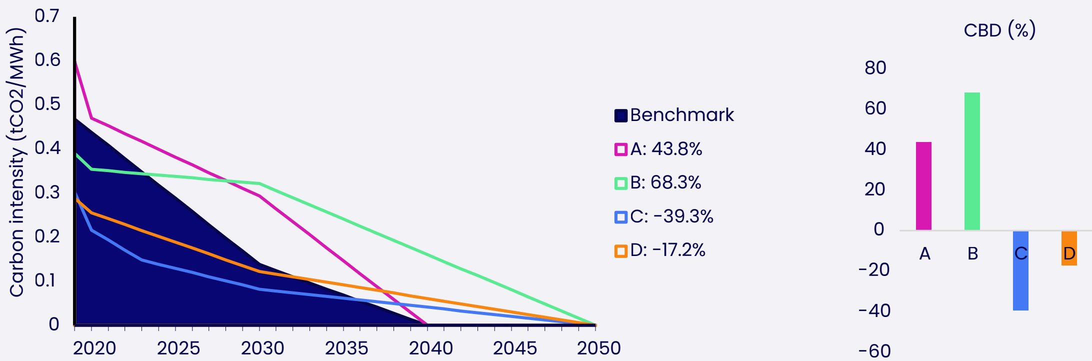
There is currently limited data available with only c. 500 companies' carbon performance assessed by TPI[33], making it difficult to apply CBD more broadly.

Box 8: Illustrative example: Using CBD to assess company alignment

Depicted below are the projected carbon pathways for four companies in the electricity utilities sector and a relevant net zero pathway, using TPI data. Over the course of the 2019-2050 window, the area under company A's emissions intensity pathway is less than B's and therefore its CBD score is lower. However, both scores are positive, with neither company setting targets ambitious enough to be considered aligned. Meanwhile, company C and D achieve negative CBD scores due to their short and medium term targets, and can therefore be considered aligned.

Investors may wish to use this information to inform engagement actions.

Figure 4: Assessing company alignment with CBD



33 As at June, 2024

Physical intensity metrics

Whilst physical intensity metrics cannot be aggregated up to portfolio level, and are therefore not considered for portfolio level metrics, they can prove useful for investors.

Physical intensity is the total emissions of a company divided by its total physical production or activity. Examples of physical intensity metrics include:

- Emissions per unit of energy produced, such as CO_2e/kWh of solar
- Emissions per unit of output produced, such as CO_2e/ton of steel produced
- Emissions per unit of activity, such as CO_2e/ Km driven

Physical intensity metrics help investors to assess the carbon efficiency of assets within a specific sector. They can support the assessment of assets against net zero pathways based on physical intensities, such as TPI sectoral decarbonisation pathways,[34] supporting with capital allocation decisions and engagement.

Challenges with using physical intensity metrics include that they make cross-sector applications difficult due to differing production units (e.g. barrels of oil or tonnes of steel) and do not allow for aggregated portfolio decarbonisation reference objectives to be set. Therefore, NZIF does not recommend the use of physical intensities for objective-setting at the portfolio level. However, when used selectively, they can provide useful insight.

If investors do use such metrics to inform net zero investment strategies, they are recommended to disclose the metrics and how they will support the strategy. In particular, investors are encouraged to demonstrate that the physical intensity metrics provide sufficient coverage across an investor's AUM and/or financed emissions.

[34] TPI (2022), TPI Sectoral Decarbonisation Pathways

4 Selecting science-based net zero pathways

The next step is to select science-based net zero emissions pathways to use when determining the emissions trajectory for the portfolio.

Using net zero pathways

Box 9: Climate scenarios vs net zero pathways

Net zero scenarios offer a range of possible future outcomes, based on assumptions such as policy action, economic developments and societal change. These can be used for stress testing investment portfolios against the potential consequences of climate change. Scenarios can help investors understand the transition and physical risks and opportunities related to their respective portfolios, enabling an assessment of the potential financial impacts of climate change under certain possible scenarios.

A **net zero pathway** is a scenario which defines a specific route to achieve net zero global emissions by 2050, or sooner. Pathways are also available for different temperature outcomes, for example, +2°C above pre-industrial levels. Pathways are usually developed using Integrated Assessment Models (IAMS), and can be developed on the global, country, sectoral, or entity level. Pathways help investors identify a trajectory of portfolio emissions required to achieve net zero portfolio emissions.

Investors can establish portfolio decarbonisation reference objectives that align with science-based net zero pathways produced by credible parties and are in line with the global carbon budgets provided by the IPCC.

For enhanced robustness, investors are encouraged to consider more granular net zero pathways, including sectoral and country pathways. Investor approaches to setting portfolio decarbonisation reference objectives are encouraged to aim to account for portfolio sectoral and regional composition. Certain pathways will be more suitable for certain portfolios; for instance, a sovereign bond portfolio may use country pathways to develop portfolio decarbonisation reference objectives, whilst an equity portfolio may use sectoral pathways.

Investors are further recommended to engage with pathway providers to develop more granular net zero pathways. This is with the intention that they can be used to set objectives for portfolios across a wide range of sectors and regions, and ensure investors are setting objectives in line with the appropriate ambition. Currently, whilst there are sectoral pathways for most high emitting sectors,[35] coverage of pathways on a regional and sectoral basis – whereby the required decarbonisation rate of each sector is also determined by the region – is significantly more limited.

In the short term, portfolio decarbonisation reference objectives may be benchmarked against global pathways which feature less granularity, but investors are encouraged to aim to account for sectoral and regional nuance where possible.

[35] UN Environment Programme – Finance Initiative (2020), Sectoral Pathways to Net Zero Emissions

Global net zero pathways

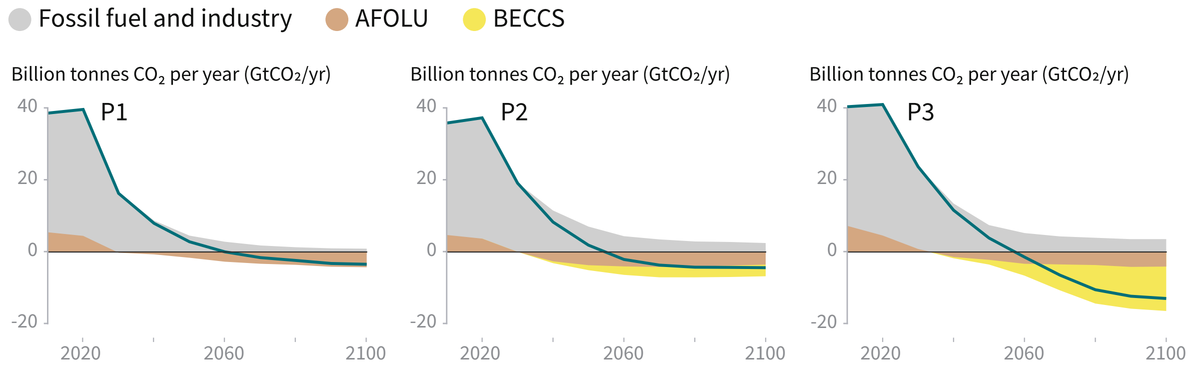
Investors can be guided by global 1.5°C pathways, such as the IPCC P1, P2, P3 scenarios with no or limited overshoot depicted below. Appendix C provides further detail around the key features of a credible global pathway and the guidance on which pathways investors can use.[36]

Investors are recommended to consider the factors below when baselining and calculating the objective. This can ensure the objective reflects the required decarbonisation rates implied by 1.5°C scenarios and any changes in real economy emissions:

- Accounting for rising emissions since the pathway baseline year
- All GHG emissions rather than carbon emissions only, such as methane
- Data lags between real economy emissions and reported data

The IPCC Special Report on Global Warming of 1.5°C (SR1.5) states that in mitigation pathways with no or limited overshoot of 1.5°C, global net carbon emissions must decline by between 41% and 58% from 2010 levels by 2030, reaching net zero around 2050.[37] However, according to The UNEP Gap Report (2023), emissions have continued to rise since 2010. Global GHG emissions reached a record high of 57.1 $GtCO_2e$ in 2023, growing by 1.3 per cent from the previous year. Therefore, emissions need to fall by 37 per cent between 2024-2030 and 57 per cent by 2035 at 7.5 per cent per year to remain in line with a 1.5°C pathway[38].

Figure 5: IPCC's illustrative 1.5°C pathways



P1: a low energy demand scenario

P2: a sustainability orientated scenario

P3: a middle-of-the-road scenario

Investors using the IPCC pathways, or other credible net zero pathways, as a basis for setting their portfolio decarbonisation reference objective will need to establish the emissions reductions that are required from the investor's chosen baseline year to reach global net zero emissions by 2050.

Sectoral net zero pathways

Sectoral pathways account for the different rates at which specific sectors and sub-sectors in the economy need to decarbonise to achieve global net zero emissions by 2050.

Using sectoral pathways enables investors to recognise the sectoral composition of their portfolios when setting portfolio decarbonisation reference objectives. TPI has developed sectoral decarbonisation pathways for multiple high emitting assets[39]. Particular industries have higher or lower rates of emissions reductions, given certain industries are easier to abate (e.g. electricity generation), compared with others (e.g. steel and cement manufacturing).

[36] IPCC (2018), Special Report on Global Warming of 1.5 °C

[37] IPCC (2018), Special Report on Global Warming of 1.5 °C

[38] UN Environment Programme (2024), Emissions Gap Report 2024

[39] TPI sectors covered include electric utilities, oil and gas, automobiles, aviation, shipping, aluminium, cement, diversified mining, pulp and paper, steel

Section 1 NZIF Implementation Guidance
Section 2 Portfolio Decarbonisation Reference Objective (PDRO)
Section 3 PDRO for sovereign bonds
Section 4 Climate solutions objective (listed equity)
Section 5 Asset level targets: all asset classes
Section 6 Listed equity and corporate fixed income
Section 7 Sovereign bonds
Section 8 Real estate
Section 9 Infrastructure
Section 10 Private equity
Section 11 Private debt
Appendices

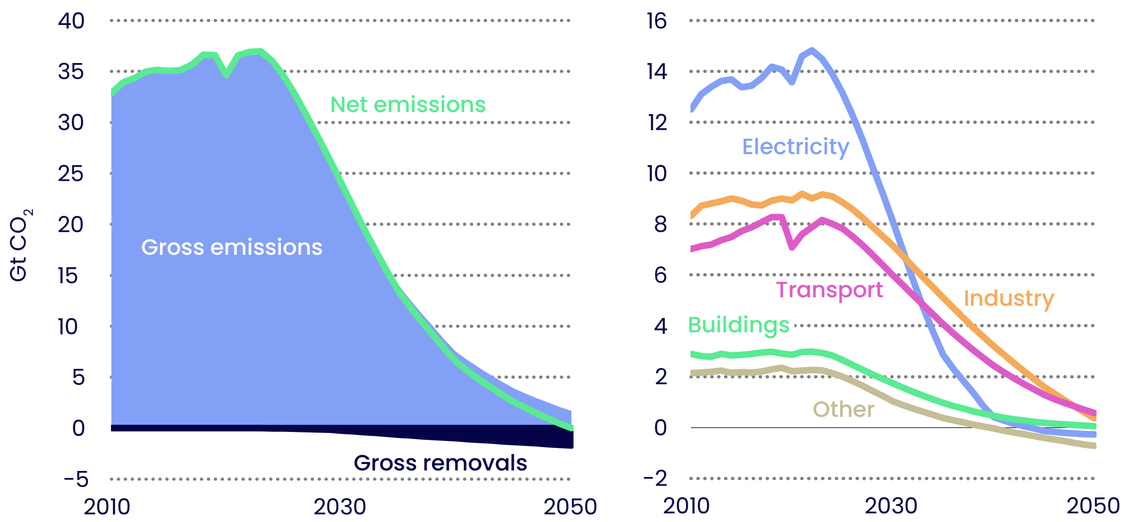
A fund exposed only to the electricity sector is, most likely, expected to decarbonise at a faster rate than a fund exposed to industrials. Figure 6 shows total net CO_2 emissions reductions required, and how this is disaggregated by sector, showing the different rates at which carbon emissions are expected to fall across the sectors covered by the IEA's Net Zero Emissions by 2050 scenario (IEA NZE).[40]

The most granular net zero pathways look to acocunt for *both* regional and sectoral nuances. TPI, for instance, has developed regional benchmarks for the power sector.[41] The International Renewable Energy Agency (IRENA) has developed renewable energy roadmaps for Central America and ASEAN.[42]

However, as noted previously, regional-sectoral pathway coverage is generally limited. As granularity and coverage improves, investors are encouraged to aim to incorporate the most granular net zero pathways into their portfolio decarbonisation reference objectives – and net zero strategies in general – to ensure they are as applicable to the portfolio's industry and geographical exposure as possible.

Section 3 step 4 further details the importance of integrating regional net zero pathways.

Figure 6: Energy sector gross emissions and removals, total net CO_2 emissions, and net emissions by sector in the NZE Scenario, 2010-2050



Appendix D outlines sectoral and regional net zero pathways available to investors when setting the portfolio decarbonisation reference objective, as well as details on custom pathways.

As per step 8, investors are recommended to disclose the science-based net zero scenario(s) or pathway(s) and critical assumptions used to guide the setting of their portfolio decarbonisation reference objectives to ensure complete transparency.

[40] IEA (2023), Net Zero Roadmap: A Global Pathway to Keep the 1.5 °C Goal in Reach (CC BY 4.0)
[41] TPI (2021), Carbon performance assessment of electricity utilities note on methodology
[42] IRENA (2022) Renewable Energy Roadmap for Central America: Towards a Regional Energy Transition and Renewable Energy Outlook for ASEAN: Towards a Regional Energy Transition

5 Setting a portfolio decarbon-isation reference objective

Investors are encouraged to set:

- **A <10-year CO_2e emissions reduction objective,** expressed in absolute or intensity terms. At portfolio level, this should include scope 1 and 2 emissions.

There are a number of decisions investors need to consider when setting a portfolio decarbonisation reference objective. Investors should develop an approach most appropriate for them, taking into account, where relevant to them, the potential advantages and disadvantages outlined in this step.

The first choice an investor can consider is the starting point that the objective is set against.

Table 6: Types of starting point

The self-decarbonisation approach	Investors taking a self-decarbonisation approach set decarbonisation reference objectives relative to the portfolio's own baseline emissions.
Benchmark-relative approach	Investors taking a benchmark-relative approach determine a starting point relative to a chosen benchmark and set a decarbonisation reference objective relative to the emissions of that benchmark.

Benchmark-relative approach

Investors opting for a benchmark-relative approach can use the different types of benchmarks, and are recommended to ensure that the benchmark represents the average carbon intensity of a portfolio with a similar regional and sectoral exposure:

1. A fund's own benchmark or universe-relative approach – where a portfolio's investable universe is reflected and a reasonable level of comparability in terms of sector, industry and regional exposures is provided.
2. A custom benchmark – constructed based on an aggregation of the average carbon intensities of specific holdings within a sector.[43]
3. A 'universal' benchmark – that is representative of the global economy, such as MSCI ACWI, or the economy of a specific region/country.

Investors can also consider how the objective will be calculated and quantified.

Table 7: Approaches to quantifying the objective

Point-in-time objective	Identifies a future year and selects an appropriate rate of emissions reductions, guided by the pathways identified in step 5. For example, 30% emissions reduction by 2025 or 55% by 2030, relative to the baseline year, 2019.
Portfolio carbon budget-based objective	A budget will be based on the cumulative GHG emissions applicable to a portfolio over a specific timeframe, such as between 2019 to 2025, 2030, or 2050. For example, a reduction of 940tCO_2e between 2019 and 2030.

[43] Appendix E outlines further detail on constructing custom pathways.

Below, three tables with examples are presented that outline the advantages and disadvantages of the different design choices listed above. Specifically, the:

1. Type of starting point investors can set the portfolio decarbonisation reference objective against
2. Type of benchmark investors can use for establishing a portfolio baseline when implementing the benchmark-relative approach
3. Type of approach to quantify the portfolio decarbonisation reference objective

Table 8: Advantages and disadvantages of different starting points

	Advantages	Disadvantages	May be suitable for
Self-decarbonisation approach[44] (Uses portfolio baseline emissions as starting point)	▪ Least complex where an investor only needs to determine the portfolio's own baseline emissions. ▪ Relatively easy to apply and communicate to stakeholders.	▪ Does not take into account the differences in the baseline carbon intensities of portfolios, or the assets within a portfolio. ▪ May be interpreted as implying that all assets must achieve the same rate of reductions regardless of sector or region or historical decarbonisation. ▪ May incentivise investors to achieve emissions reductions through re-allocating capital to lower carbon sectors, rather than seeking emissions reductions in high impact material sectors.	▪ Investors that wish to set an aggregated portfolio decarbonisation reference objective across asset classes, funds or portfolios. ▪ Portfolios or funds where there is no reasonably reflective benchmark, or where the investor has limited resources and analytical capacity to create a custom benchmark.
Benchmark-relative approach[45] (Accounts for representative benchmark as starting point)	▪ Creates a fairer playing field by accounting for emissions reductions already achieved by a portfolio. ▪ Increases fairness by ensuring laggards (that are more emissions intensive than the benchmark) contribute appropriate emissions reductions by pursuing a more rapid decarbonisation trajectory.	▪ Baseline portfolio emissions and portfolio decarbonisation reference objective may require re-calculating if there is a material change to the portfolio composition (see step 7). ▪ Communicating progress against targets may require more nuanced and detailed explanation.	▪ Portfolios or funds with significant sector or regional biases. ▪ Portfolios that have already achieved significant decarbonisation.

[44] Also referred to as 'rate of reduction benchmark' by other industry actors.

[45] Also referred to as 'convergence benchmark' by other industry actors.

Box 10: Illustrative example: Implementing the self-decarbonisation approach versus the benchmark relative approach to calculating baseline portfolio emissions

The self-decarbonisation approach shows a portfolio's baseline emissions of 125tCO_2e at year-end 2019 and a 50% portfolio decarbonisation reference objective by 2030, in line with a global net zero pathway. The benchmark-relative approach allows an investor to account for the relative emissions efficiency of a portfolio at the baseline year.

In this example, the portfolio is invested in industry leaders and is around 20% below the benchmark. In this case then, the portfolio can follow a less steep trajectory to 2030, setting a 37.5% portfolio decarbonisation reference objective by 2030 before continuing in line with the benchmark's trajectory to 2050. Similarly, if the portfolio was more emissions intensive than the benchmark at the baseline year, the portfolio would have to pursue a steeper trajectory to remain within a carbon budget.

Figure 7: Type of starting points for the portfolio decarbonisation reference objective

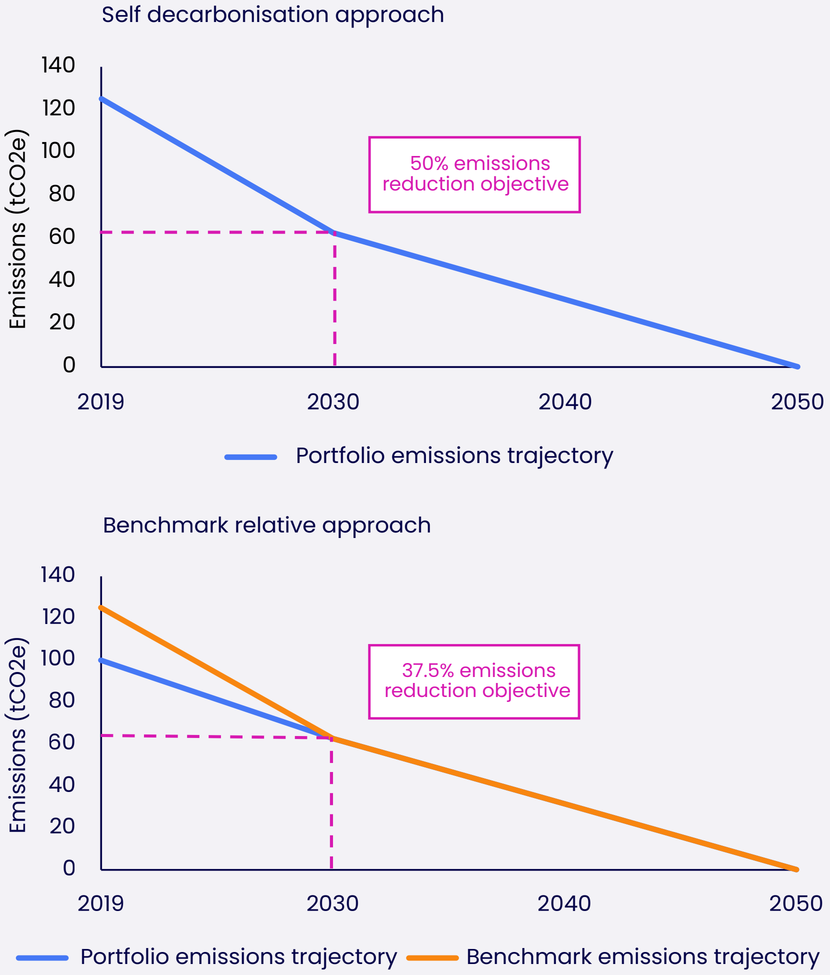


Table 9: Advantages and disadvantages of the type of benchmark used to establish a baseline

Benchmark	Advantages	Disadvantages
A 'universal' benchmark	▪ May reasonably be used as a default for global emissions, making it suitable for global, diversified portfolios.	▪ Few portfolios are reflective of the global economy so portfolio composition/emissions are generally not highly comparable to such benchmarks. ▪ May incentivise achievement of objective through sector reallocation.
Fund's own benchmark or universe-relative approach	▪ May be simpler to communicate, given comparing emissions to a fund's own benchmark reflects how investors report ESG and other financial information.	▪ May incentivise achievement of objective through sector reallocation.
Custom benchmark	▪ Provides a more accurate, granular reference point by allowing the calculation of decarbonisation performance against a benchmark with similar regional, sectoral, and industry exposure. ▪ Helps measure real economy emissions reductions rather than sector reallocation, incentivising allocation to best performers to achieve objectives.	▪ More resource-intensive, well suited to investors with strong analytical capabilities. ▪ Communication to stakeholders may require more careful explanation. ▪ Must determine the optimal level of granularity, as using more granular sector and regional categorisations will bring the custom benchmark to more closely reflect the portfolio composition itself and a less granular approach will reflect the fund's benchmark or universe-relative approach.

Box 11: Illustrative example: Different types of benchmarks in action

The illustrative Figure 8 shows how the granularity of the chosen benchmark can affect the way in which investors can achieve their objective of emissions reductions, and the implications on real economy emissions reductions.

A granular custom benchmark creates an internal mechanism to ensure investors achieve emissions reductions through allocating capital to the most carbon efficient issuers within a sector or industry. The actions set out in NZIF promote real economy decarbonisation through tilting portfolios to best performers within a sector or an industry, as well as through the emissions reductions achieved by assets themselves.

The custom benchmark is aligned with the objective to pursue real economy emissions reductions as it assesses asset emissions against the baseline level emissions of respective industries. Even when investing in lower carbon intensive sectors, these assets should still contribute to the further decarbonisation required in those sectors.

Figure 8: How the granularity of the chosen benchmark in terms of sector, sub-sector, and regional exposures, can effect the levers available to investors to reduce portfolio emissions

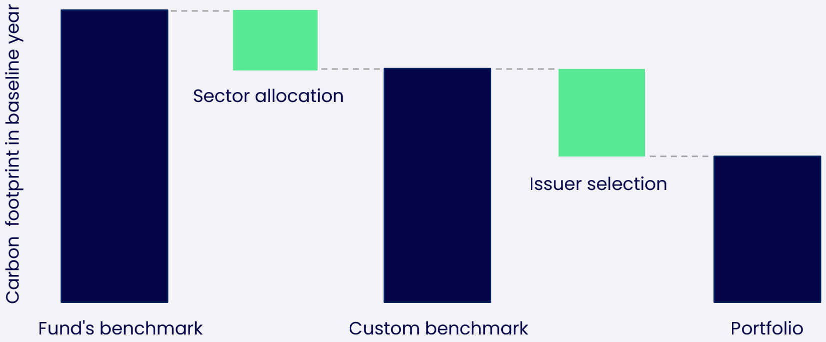


Figure 9: Optimal levers for reducing portfolio emissions

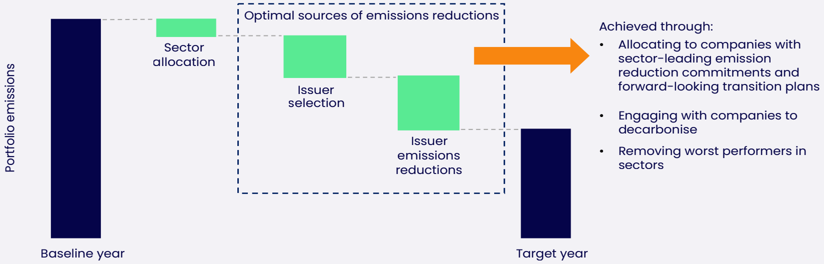


Table 10: Advantages and disadvantages of approaches to quantifying the objective

	Advantages	Disadvantages
Point-in-time portfolio decarbonisation reference objective (Relative to a baseline at specific time)	■ Clear expectations and simple to apply in line with global emissions reduction requirements. ■ Easy to communicate to clients and beneficiaries. ■ To mediate potential drawbacks around the risk of overshooting a carbon budget, objectives can be reviewed and updated on a 5-year basis to ensure sufficient progress.	■ Requires linear reduction, such as 7.6% per annum from 2019, to ensure portfolio emissions remain consistent with the carbon budget. Otherwise, investors will need to recalculate objectives when sufficient decarbonisation has not been achieved. ■ Recalculating objectives requires additional reporting and robust communication with stakeholders to prevent accusations of greenwashing. ■ A value at a specific point in time may not be representative of overall performance. ■ Pursuing a linear decarbonisation rate risks incentivising investors to achieve emissions reductions by reallocating capital to already lower carbon sectors.
Portfolio carbon budget-based decarbonisation reference objective (Relative to a baseline, over a specified timeframe)	■ Can support investors that want to shift capital into higher emitting companies that have strong transition plans and are likely to contribute to future emissions reductions if the budget is recalculated when introducing new holdings (See Box 11). ■ More accurate measure of emissions performance of a portfolio against a net zero pathway over a timeframe, compared with a point-in-time snapshot.	■ More complex to calculate and stakeholders may be less familiar with the concept of carbon budgets as it applies to investment portfolios. ■ It may be harder to communicate progress against a carbon budget, particularly if emissions increase in the near-term.

Box 12: Illustrative example: Setting a portfolio decarbonisation reference objective using a carbon budget approach

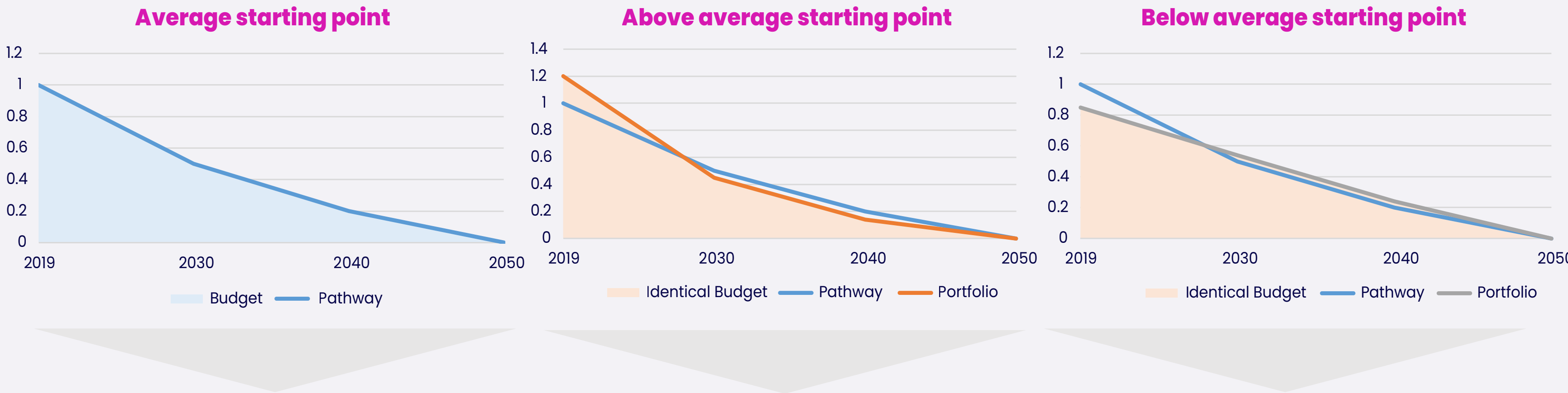
An investor can establish the carbon budget or cumulative emissions of a portfolio, based on an assessment of the sectoral composition, by aggregating the average cumulative emissions of sectors within a portfolio in line with a credible net zero pathway. This can define the relative baseline position of a portfolio made up of industry averages.

Investors can adjust the carbon budget to account for the portfolio starting point. This means adjusting the budget available to a portfolio that is either lagging behind the industry average, or that has already reduced emissions compared to the industry average. An investor's starting point can be either "average", "above average" or "below average". A benchmark will indicate the rate of decarbonisation that a portfolio with an average starting point would need to achieve, and provides information on the cumulative emissions (carbon budget) associated with that pathway.

In Figure 10 below, the concept of establishing a portfolio "starting point" can be understood visually.

The blue line represents the pathway for a portfolio with an average "starting point", calculated as per above. The blue area under the curve represents the cumulative carbon budget available to such a portfolio. A portfolio starting with an above average "starting point" needs to ensure a faster rate of reduction to ensure the area under the curve remains the same, whereas for the portfolio with a below average "starting point", a more gradual rate of decarbonisation suffices. The pathways in the figure are indexed to the baseline carbon intensity of the portfolio in the baseline year (2019, in the example below).

Figure 10: Calculating portfolio carbon budgets for the portfolio decarbonisation reference objective



Defines carbon budget for the portfolio

Needs to achieve faster decarbonisation to remain within budget

Can pursue more gradual decarbonisation to remain within budget

Box 13: Linking the portfolio decarbonisation reference objective to net zero engagement strategies

It is important that investors link their portfolio decarbonisation reference objective to their respective engagement strategies.

For instance, an investor whose strategy involves greater emphasis on escalation followed by divestment of high emitting assets may experience relatively rapid and consistent emissions reductions. On the other hand, an investor whose strategy involves holding carbon intensive assets with the aim to support the transition of these assets over time may have relatively high, and growing, portfolio emissions in the near term and experience a steeper curve to net zero in later years.

This may affect the trajectory chosen for the objective and result in greater requirements on investors to communicate and provide evidence for:

- How the strategy remains in line with a net zero pathway or carbon budget over time.
- How an investor's net zero stewardship and engagement policy is having impact.
- How the underlying assets are transitioning towards Paris-alignment.

Table 11 below outlines different potential engagement strategies for a company operating in an emerging market compared with a company in a developed market, as outlined in IIGCC's Net Zero Stewardship Toolkit.[46] For Company A (EM), engagements focus on ambition, targets, governance an emissions data, whereas for Company B (DM), engagements touch on capital allocation and decarbonisation strategy.

[46] IIGCC (2022), Net Zero Stewardship Toolkit

Table 11: A stewardship strategy tracker for priority company engagements

Company	Criteria	Engagement Stage	Objectives	Dialogue plan	Deadline for objectives	Escalation actions: Key stewardship strategy selected (escalations)	Escalation actions: Voting policy action	Real economy impact
EM Power Utility Company A	**Ambition**	Year 1	Net zero ambition and commitment	Letter to Chairman	End of Year 2	File shareholder resolution	Vote against Chair of Sustainability Committee or Chair of Board	Reduction of emissions by XXGt per year from 2023
	Targets		Set SBTi 1.5°C aligned targets (LT, MT, ST)	Meeting with Board and Sustainability Team				
	Governance		Board oversight on climate and net Zero	AGM statement				
	Emissions Data		Disclose scope 1, 2 and 3 emissions	Last ditch meetings (by end of year one)				
	Climate Accounting							
	Decarbon-isation Strategy							
	Capital Allocation							
	Policy Engagement							
	Lobbying							
	Just Transition							

Company	Criteria	Engagement Stage	Objectives	Dialogue plan	Deadline for objectives	Escalation actions: Key stewardship strategy selected (escalations)	Escalation actions: Voting policy action	Real economy impact
DM Oil and Gas Company B	**Ambition**	Year 2			End of Year 3	File shareholder resolution	Vote against Chair, Board Audit Committee and/or reappointment of auditor	Include climate risk in accounts, quantified capital allocation, phase out of coal and investment in renewables
	Targets							
	Governance		Climate KPIs / metrics linked to remuneration	Letter to Chairman				
	Emissions Data							
	Climate Accounting		Include climate risk in accounts	Meeting with Board and Sustainability Team				
	Decarbon-isation Strategy		Quantified decarbonisation and coal phase out	AGM statement				
	Capital Allocation		Capital allocation and green capex disclosure	Last ditch meetings (by end of year one)				
	Policy Engagement							
	Lobbying							
	Just Transition							

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6 Undertake decarbonisation attribution analysis

Investors are recommended to monitor progress against their net zero objectives to fully understand the drivers of their portfolio emissions changes and increase internal and external stakeholders' awareness of the effectiveness of their net zero strategy.

Investors are recommended to seek to understand which factors are driving the changes in portfolio emissions by conducting decarbonisation attribution analysis, which allocates emissions change to multiple variables or 'drivers'.

Decarbonisation attribution analysis offers a comprehensive way to assess and monitor the achievement of emissions reduction objectives, providing investors with key insights and action points.

Attribution analysis can support investors in a number of ways:

- Increases understanding of the drivers of portfolio decarbonisation, including drivers of 'real economy' decarbonisation versus 'paper' decarbonisation
- Informs net zero investment strategies and capital allocation decisions through identification of assets that are decarbonising
- Guides external engagements with underlying assets, clients, external managers, and data vendors
- Guides internal engagements with fund managers, analysts, and senior management
- Informs policy advocacy priorities that promote real economy and sustainable finance policy measures supporting the net zero transition
- Enhances transparency and supports with public disclosures and communication with stakeholders

Primary drivers of emissions reductions

IIGCC's Six Asks of Data Vendors[47] outlines multiple drivers of portfolio emissions change that can be identified through attribution analysis, as illustrated in Table 12. Investors are recommended to cover all four categories listed below when conducting attribution analysis.

At present, these drivers have been developed with respect to listed equity and corporate fixed income portfolios. Different drivers are likely applicable to other asset classes, such as real estate and sovereign bonds.

Investors are recommended to distinguish the effects of drivers that investors have no influence on (passive actions), such as the effects of financial metrics or increased data quality on emissions, from drivers that investors control (active actions), such as stock selection. This will provide useful information in the development of a net zero strategy, as it highlights where investors can influence and how effective it is in portfolio emissions reductions.

Once attribution analysis has been performed and investors have identified drivers of portfolio emissions change, there are several further steps investors may wish to consider.

[47] IIGCC (2023), Six Asks of Data Vendors

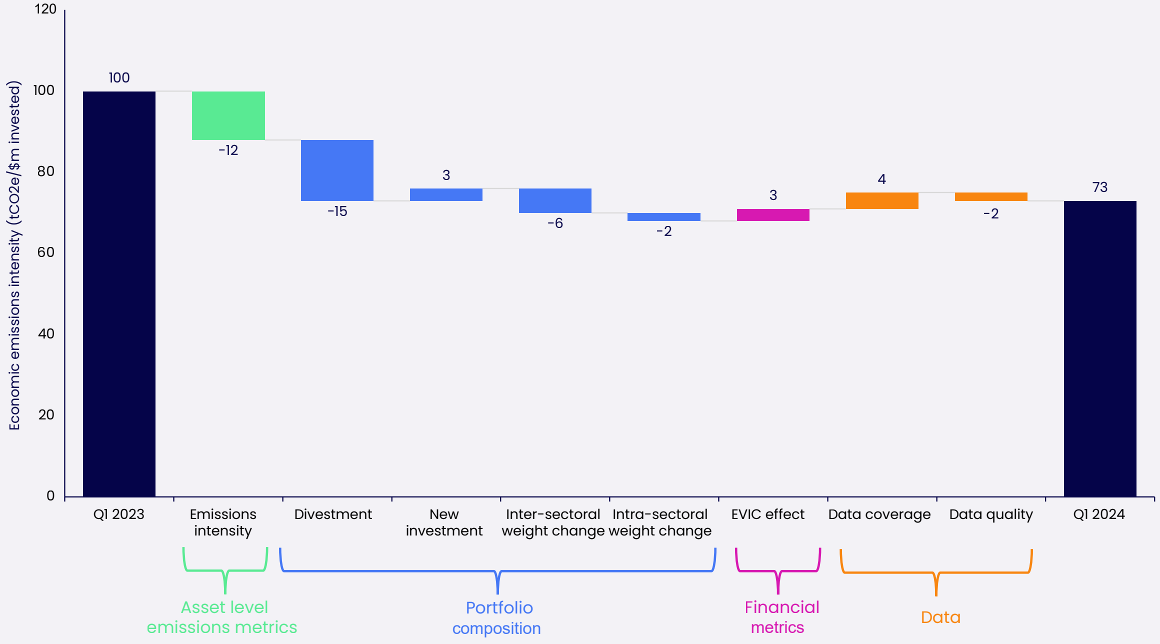
Table 12: Drivers of portfolio emissions change

Asset level emissions metrics	
Intensity	Emissions change due to reductions or increases in the underlying assets' emissions intensity profiles
Absolute	Emissions change due to reductions or increases in the underlying asset's absolute emissions profiles
Portfolio composition	
Divestment	Emissions change due to the removal of holdings from the portfolio
New investment	Emissions change due to the addition of new holdings to the portfolio
Inter-sectoral and/or regional weight change	Emissions change resulting from a shift in sectoral or regional composition of the portfolio
Intra-sectoral weight change	Emissions change resulting from the reweighting of holdings *within* an industry
Financial metrics	
EVIC	Emissions change due to a change in the value of Enterprise Value Including Cash (denominator)
Revenue	Emissions change due to a change in assets' sales or revenues (denominator)
Change in financing structure	Emissions changes due to the equity/debt financing structure of the company
Data	
Data coverage	Emissions change due to a change in data coverage across holdings
Methodological change	Emissions change due to a change in the underlying methodology for emissions data
Data quality	Emissions change due to an increase in data quality across portfolio companies, such as an asset restating emissions data

Box 14: Illustrative example: Attribution analysis in practice

Figure 11 shows an example of attribution analysis (using emissions intensity) that aims to assess, to some extent, the four categories listed in table 12 above. The graph shows the majority of reductions in a dummy portfolio came from portfolio construction decisions, particularly divestment and inter-sectoral weight changes. Substantial reductions also stemmed from the decarbonisation of the underlying assets' operations.

Figure 11: Drivers and categories of portfolio economic emissions intensity change (dummy portfolio)



Assessing real economy emissions reductions

Investors are recommended to prioritise assessing the emissions reductions that are derived from the underlying holdings decarbonising. This can often be seen as 'organic emissions' or 'real economy' emissions reductions.

However, investors should be wary of how the holdings are achieving these emissions reductions. For instance, a decrease in a power company's emissions intensity may be a result of that company selling a fossil fuel intensive plant to another company, rather than retiring the plant.

Hence, investors are recommended to consider developing a process for reviewing how emissions reductions (or increases) are achieved on an asset level to look beyond the initial outcomes of the attribution analysis, and assess whether the corporate strategy is achieving positive real economy impact. This can inform engagement strategies.

Utilising results for net zero strategies

It is recommended that investors utilise the results of the attribution analysis to inform their net zero strategies, as opposed to letting the results 'sit on the shelf'. For example:

- **Capital allocation** – Investors may choose to tilt portfolios towards assets expected to deliver emissions reductions, as opposed to decarbonising through changes in EVIC or revenue.
- **Corporate engagement** – Investors can use the findings to direct engagement to assets not decarbonising, given investors are recommended to prioritise portfolio emissions reductions through the decarbonisation of the underlying assets.
- **Policy advocacy** – Investors can use the results to engage with policymakers, for instance to inform them of limitations with regulation such as the Low Carbon Benchmarks Regulation.[48]
- **Stakeholder and market engagement** – Given data coverage, methodology and quality can affect portfolio emissions profiles, investors may use the results to engage with their data providers. Likewise, investors may engage with other stakeholders, for instance with index providers to assess the impact of climate-related indices.

Methodologies

Several methodologies have been developed to support investors undertake attribution analysis, with approaches identifying similar drivers of emissions reductions.[49]

The Net Zero Asset Owner Alliance (NZAOA) stresses the importance of performing attribution analysis for the tracking of climate goals and transparency reasons, and evaluated several methods.[50] The paper examines two approaches: a partial equilibrium and three-layer approach. See Appendix E for an overview of these approaches and the advantages and disadvantages, as well as a logarithmic mean Divisia index approach. Appendix E also outlines two potential three-layer approaches.

Frequency

Investors are recommended to implement an approach that enables an assessment against all four categories listed in Table 12 and to regularly perform and report on attribution analysis, at least on an annual basis. It is encouraged that attribution analysis is integrated into practice by decision-makers that are responsible for delivering the net zero targets, such as portfolio managers and their quant teams.

The granularity and regularity of the analysis may depend on the resourcing constraints of the investor. For instance, asset managers may be able to access more granular data. For an added level of granularity, investors can assess passive and active decisions that happen on a more frequent basis. Whilst comparing the beginning and end of period holdings provides an initial picture of the decarbonisation drivers, it is important to analyse data and portfolio management activities happening within those periods. For example, an investor may wish to break an annual analysis down into four quarterly attributions, and aggregate up to provide a more detailed one year attribution. Looking at daily transactions and portfolio events, such as inflows and outflows, adds even more granularity.

Case studies of investors performing attribution analysis are available on page 179.

[48] European Commission (2016), EU Low Carbon Benchmarks Regulation

[49] FTSE Russell, MSCI, Scientific Portfolio and 2DII have published papers and/or developed tools to support investors in performing decarbonisation attribution analysis on their portfolios.

[50] NZAOA (2023), Understanding the Drivers of Investment Portfolio Decarbonisation

7 Developing a rebaselining policy

Recalculating portfolio baseline year emissions, hereafter referred to as 'rebaselining', is a practice that investors may want to undertake to ensure consistency and relevance of reported GHG data over time and to reliably track progress against the portfolio decarbonisation reference objective.

Investors undertaking attribution analysis and transparently disclosing the key drivers of portfolio emissions changes on an annual basis may mediate the need to rebaseline portfolio emissions for all drivers of portfolio emissions changes, as noted below. The rebaselining process can be complicated and can vary depending on the type of baseline chosen and objective type[51]. Changes increase the need to communicate progress against targets transparently and clearly with internal and external stakeholders.

This step outlines key considerations for investors when developing a rebaselining policy, with a view to supplementing the PCAF Standard recommendation to develop a base year emissions recalculation policy[52], as outlined in Box 15.

As a general principle, the portfolio baseline is recommended to be reflective of the most recent emissions data and advanced estimation methodologies, and adjusted for changes in financial metrics unrelated to emissions.

A portfolio emissions rebaselining policy can cover:

- The drivers of rebaselining (e.g. taken from the drivers identified through attribution analysis)
- The frequency rebaselining will take place and/or "thresholds" that trigger rebaselining
- The process for communicating the outcomes of rebaselining and any impact on portfolio decarbonisation objectives[53]

Box 15: PCAF Standard's recommendations for a 're-calculation policy'

Recalculation and significance threshold: Financial institutions shall, in line with the GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard requirement,[54] establish a baseline recalculation policy to define under which circumstances a recalculating of (base year) financed emissions is necessary to ensure the consistency, comparability, and relevance of the reported GHG emissions data over time.

As part of this base year emissions recalculation policy, financial institutions **shall** establish and disclose the significance threshold that triggers base year emissions recalculations.

Drivers of rebaselining

Investors can use the drivers of portfolio emissions changes identified through attribution analysis (see step 6) to guide the selection of triggers for rebaselining.

[51] For example, whether the investor has chosen a self-decarbonisation or benchmark relative approach, and set a forward-looking alignment target or a backward-looking (point-in-time or cumulative target).

[52] PCAF (2022), The PCAF Standard

[53] GHG Protocol (2011), Corporate Value Chain (Scope 3) Standard

Table 13: How drivers of portfolio emissions changes interact with an investor's need to rebaseline

Driver	Rebaselining trigger	Description
Asset level emissions metrics	**No**	■ Changes to portfolio emissions due to changes in underlying asset emissions are the most important for investors to capture and account for because they are likely to represent 'real economy' emissions reductions.[54]
Portfolio composition	**In some circumstances**	■ Investors that wish only to measure and account for emissions reductions from underlying assets may want to consider rebaselining portfolio emissions when there have been substantial changes to sector and/or regional allocation since the baseline year. Transparent disclosure of attribution analysis may mediate the need to do this. ■ Depending on the starting point chosen for an investor's decarbonisation objective, investors may also need to consider whether a significant change in sector and regional allocation also triggers a recalculation of the emissions trajectory and objective itself as the baseline is no longer reflective of portfolio composition. This will be the case when investors have chosen a universe-relative benchmark or a custom benchmark using sector averages.
Financial metrics	**Yes**	■ Investors that wish only to measure and account for emissions reductions from underlying assets and active portfolio management decisions, such as intra-sectoral reallocation, will need to rebaseline portfolio emissions to isolate the effect of changes to EVIC and/or revenue. Such metrics can cause significant noise in portfolio emissions metrics over time through inherent volatility in a range of factors such as changes in capital structure of assets, changing stock prices, and growth/decline in revenue, as discussed in steps 2 and 3. ■ Investors can use the normalisation approaches outlined in step 3 and Appendix B to account for the impact of changes in non-emissions metrics on portfolio emissions over a specific time period.
Data	**Yes**	■ Investors will need to reflect significant changes to reported data, updates to data estimation methodologies and an increase in disclosure of certain lifecycle emissions, such as scope 3, in the baseline.
Portfolio growth/ decline	**Yes**	■ As portfolios grow or decline, such as through fund inflows or outflows and M&A activity, emissions at baseline year will need to be adjusted to reflect the portfolio weightings in new AUM across respective funds.
Changing scope of decarbonisation objective(s)	**Yes**	■ Including additional asset classes or funds within scope of a portfolio decarbonisation objective will require investors to restate baseline emissions.

When recalculating baseline emissions, investors can either:

a. Recalculate the carbon footprint for all positions that were in the portfolio in the baseline year

b. Opt for 'chain linking', meaning the baseline is recalculated by applying the realised CO_2e reduction to the latest footprint figure.

[54] As noted in step 6, investors will need to consider how holdings are achieving emissions reductions themselves to judge the extent to which emissions reductions reflect 'real economy' impact. For example, whether they are reducing fossil fuel intensive production or they are simply diluting with an increase in low carbon production, or selling emissions intensive assets to others.

Timeframes for rebaselining

Investors can be guided by attribution analysis and identify certain "triggers" for rebaselining. Alternatively, investors can choose to rebaseline periodically:

Dynamically: Investors can continuously rebaseline to assess whether the portfolio's holdings have contributed to meaningful decarbonisation compared to industry-specific baselines. Dynamic re-assessments will help ensure that there is no gap between the basis of the data that is reported on and the data that decisions are based on.

However, dynamic rebaselining likely requires significant resources and advanced modelling, and therefore is unlikely to be appropriate for all investors, such as small asset owners with limited resource.

Periodically: Investors can rebaseline after establishing periodic reassessments, either annually, every 2 years or every 5 years to allow data improvements to be accounted for as data quality improves.

Such an approach may be more suitable for buy and hold portfolios and will require less resource. More regular reassessments may suit more dynamic portfolios that see greater turnover of holdings.

Ad-hoc: Alternatively, investors can define specific conditions that would "trigger" a re-assessment of baseline emissions. Investors taking this approach may wish to set a quantitative or qualitative significance threshold which triggers such a reassessment. This may be a percentage of new data points received, a change in scientific data underpinning pathways used by an investor, or a threshold defining a minimum sectoral shift that must have occurred within the allocation.

Communication and transparency

Investors may wish to communicate the rebaselining policy to inform relevant stakeholders of the need to rebaseline, the approach taken and implications on annual portfolio emissions disclosures and/or targets. Investors can consider including the following information:

- Unadjusted baseline emissions and rebaselined emissions
- The drivers and/or frequency of rebaselining, and/or significance thresholds
- The methodology implemented to rebaseline
- If/how the rebaselining has affected the decarbonisation trajectory and objectives of the portfolio

Case studies: Attribution analysis and rebaselining

A growing number of investors are recognising the importance of attribution analysis, and have started developing their own methodologies. Some investors, despite the limited guidance available, are also developing rebaselining processes and policies:

- Implementation of an attribution analysis for decarbonisation: Allianz Investment Management
- Building an approach to attribution and rebaselining: National Grid UK Pension Scheme
- Developing internal guidelines for rebaselining: Phoenix Group
- Identifying emission reductions in the real economy: PIMCO
- Robeco: Rebaselining for a net-zero commitment
- IIGCC Net Zero Surgery: What's driving portfolio decarbonisation?

8 Ensuring transparency

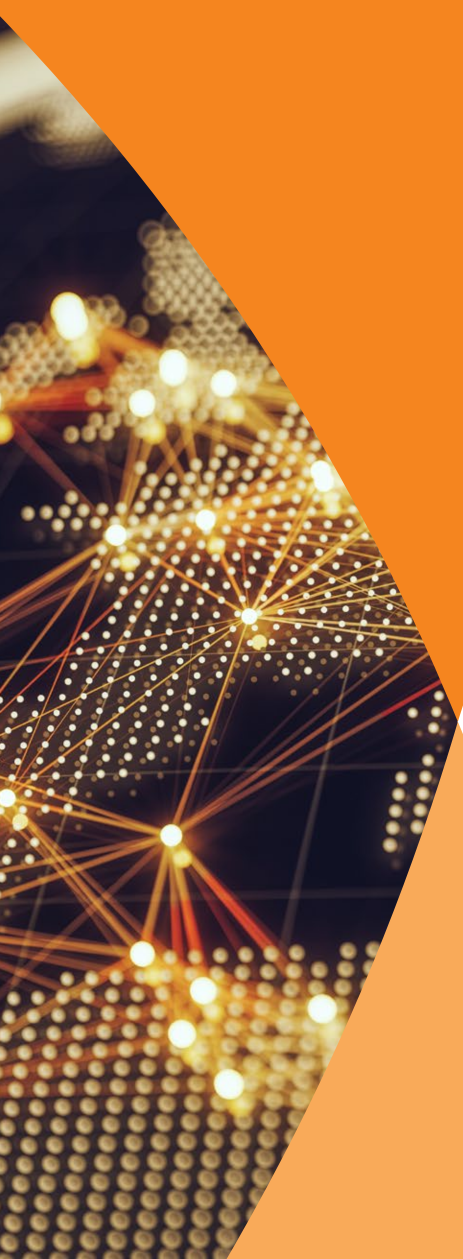
Investors are recommended to ensure transparency is always maintained in the setting and monitoring of the portfolio decarbonisation reference objective. This mitigates the risk of accusations of greenwashing and to ensure relevant stakeholders are fully informed of the investor's climate goals and the strategy to achieve those goals.

This step provides a comprehensive list of recommended disclosures for setting a portfolio decarbonisation reference objective. Although these disclosures may not be asked by net zero initiatives, such as NZAM or PAAO, including them in climate strategy reports and/or transition plans will be valuable in communicating the intended purpose and robustness of the objective to key stakeholders. Table 14 below can act as a disclosure template for the portfolio decarbonisation reference objective.

Table 14: Disclosure recommendations for the portfolio decarbonisation reference objective

Step	Disclosure recommendations
1. Setting the scope	■ Asset classes (and proportion of AUM, if relevant) in scope of the objective ■ Plans to incorporate additional asset classes ■ Emissions in scope (e.g. scope 1, scope 2, scope 3) ■ Baseline portfolio scope 3 emissions and the organisation's high level strategy to address scope 3 emissions of investments at portfolio level
2. Setting the baseline	■ Baseline date ■ When not setting the recommended baseline (31/12/2019), disclose: ▪ The rationale for deviating from the recommendations ▪ How it will be ensured that the objective is consistent with the ambition required of the portfolio, dependent on regional and sectoral composition, to achieving global net zero emissions by 2050 or sooner in line with relevant net zero pathways. ■ Process for reviewing and updating the objective
3. Selecting portfolio level metrics	■ Absolute financed emissions at the baseline date and at least one intensity metric ■ Any normalisation undertaken to account for non-emissions drivers of changes to portfolio emissions metrics
4. Selecting a net zero pathway	■ The credible, science-based net zero pathway(s) the objective is based on
5. Setting an objective	■ Baseline emissions ■ The approach taken to establish the baseline (self-decarbonisation or benchmark-relative) ▪ If taking a benchmark-relative approach, disclose the type of benchmark used/calculated ■ The approach to quantifying the objective (point-in-time or carbon budget) ▪ If taking a point-in-time approach, disclose the quantified emissions reduction objective (e.g. 50%) and objective year (e.g. 2030) ▪ If taking a carbon budget approach, disclose the quantified carbon budget of the portfolio, the remaining budget, and timebound reductions required
6. Performing attribution analysis	■ The methodology/approach used to conduct decarbonisation attribution analysis ■ The approach taken to addressing data gaps/quality (e.g. whether data will be estimated or companies are excluded when not reporting) ■ Results of attribution analysis, using the categories of drivers outlined in this guidance
7. Developing a rebaselining policy	■ The unadjusted baseline emissions and the rebaselined emissions ■ The rationale and methodology for rebaselining, including frequency and/or significance thresholds ■ How the rebaselining process has affected the decarbonisation trajectory of the portfolio and any recalculation of the portfolio decarbonisation reference objective
Monitoring progress	■ On an annual basis, disclose: ▪ Absolute emissions reductions achieved in aggregate at the asset level ▪ Progress towards an absolute or intensity target at the portfolio level

Section 3
Portfolio Decarbonisation Reference Objective: Sovereign bonds



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Sovereign bonds

Investors implementing NZIF[55] are recommended to set a portfolio decarbonisation reference objective for sovereign bonds. For further detail, references and citations, investors can revert to the IIGCC's Sovereign Bonds and Country Pathways discussion paper and target setting guidance.

Net zero objectives for sovereign assets are recommended to be distinct and not aggregated with corporate asset objectives to avoid double counting. This approach also acknowledges the structural differences when it comes to investors' engagement with corporates and sovereign entities.

When paired with carbon reduction attribution analysis and the asset alignment target, which recommends categorising countries according to their context regarding their historical emissions liability and the current capability, this can be a powerful tool to identify the assets that are climate leaders.

As with other asset classes, the portfolio decarbonisation reference objective sets the required ambition for an investor's portfolio across the short, medium, and longer term.

Box 16: Portfolio Decarbonisation Reference Objective for Sovereign Bonds

Defined as:

- A CO_2e absolute and intensity emissions reduction objective.

A five year stocktake is recommended to facilitate assessment of progress.

1. **When setting objectives:** Investors are recommended to provide evidence of the approach taken to determine the objective, including any data sources. If the portfolio holds sovereigns which are categorised as EMDEs, the decarbonisation reference objective can be qualified to account for 'fair share' principles.
2. **When monitoring and reporting progress annually**, investors are recommended to disclose:
    a. Portfolio absolute emissions ($MtCO_2e$, including and excluding LULUCF) and emissions intensity (following PCAF Standard), updating on an annual basis
    b. The progress towards an intensity objective at the portfolio level

[55] Paris Aligned Investment Initiative (2024), NZIF 2.0

The steps to set an objective for sovereign bonds are:

1. Set the scope of targets
2. Set the baseline year
3. Apportion emissions
4. Select science-based net zero pathways
5. Calculate the portfolio decarbonisation reference objective
6. Monitor progress, ensuring transparency and robustness

1 Setting the scope

For the portfolio decarbonisation reference objective, investors are recommended to include sovereign bonds of all maturities issued in domestic or foreign currencies.

2 Setting the baseline

Please revert to Section 2: Recommendations for listed equities, corporate fixed income, real estate, infrastructure, private equity and private debt.

3 Apportioning emissions

Investors are recommended to calculate the apportioned financed emissions of the portfolio. IIGCC endorses PCAF's financed emissions metrics as a suitable standard for apportioning 'financed emissions' for sovereign bonds[56].

$$\text{Attributed emissions} = \sum_{s} \frac{\text{Outstanding exposure}_s}{\text{PPP} - \text{adjusted GDP}_s} \times \text{Sovereign Emissions}_s$$

These calculations should cover GHG emissions from key sectors and categories such as energy, industrial processes and product use, agriculture, forestry, other land use, and waste.[57] One of the principles of PCAF for reporting on financed emissions from sovereign debt is the reporting including and excluding LULUCF.

When it comes to the attribution of sovereign bond emissions, absolute country emissions must be normalised to allow for comparison. The Standard uses GDP adjusted for Purchase Power Parity (PPP) in international USD as a normalisation factor; this is to ensure a fairer comparison considering the size of the economies and the exchange rate effect.

Consumption-based data is recognised as best practice, however current data is limited. Investors may therefore apply the holistic or consumption emissions view on a best effort basis.[58]

4 Selecting science-based net zero pathways

Investors are recommended to use regional and country decarbonisation pathways to set the portfolio decarbonisation reference objective, in an effort to account for the regional composition of the portfolio.

Given different regions are expected to decarbonise at different rates, investors can account for 'fair share' considerations when setting the objective, particularly when the portfolio is invested in emerging markets and developing countries.

[56] PCAF (2022), The PCAF Standard

[57] IPCC (2006), IPCC Guidelines for National Greenhouse Gas Inventories: Quality Assurance/ Quality Control and Verification.

[58] See PCAF Standard: Production emissions (scope 1): Territorial emissions approach adopted by UNFCCC for annual national inventories, referenced in NDCs; holistic view (scope 1 + 2 + 3). Requested by EU Sustainable Finance Disclosure Regulation; consumption emissions (Scope 1 - Exported Emissions + Scope 2 + Scope 3). Excludes emissions from exported goods and services from the holistic view. The normalization factor is population (instead of PPP-adjusted GDP in USD for the production and holistic view).

Box 17: Fair share

The concept of 'fair share' recognises that different countries have different levels of responsibility and capability in the transition to net zero, and should therefore not be treated identically.

Investors are encouraged to aim to ensure their portfolio decarbonisation reference objectives consider the 'fair share' concept, which considers nuance on a regional level. This nuance extends to sectoral decarbonisation pathways.

It acknowledges that there is a distinction between some developed economies and emerging and developing economies, in terms of the historic responsibility for GHG emissions and current capabilities to invest in decarbonisation efforts. The Paris Agreement instructs that its implementation should consider principles of equity and common but differentiated responsibilities and respective capabilities (CBDR+RC).

Whilst there can be differing interpretations of 'fair share', there are two generally agreed upon implications:

1. Developing countries will take longer to reach peak emissions and are expected to decarbonise at a slower rate
2. Developed economies are expected to provide resources for developing economies to meet their climate targets.

Most net zero scenarios produced using Integrated Assessment Models (IAMs) respond to cost optimisation criteria and often overlook elements of 'fair share'. To consider 'fair share' elements explicitly, some initiatives have provided 'fair share' country decarbonisation pathways. These pathways distribute the global carbon budget at the country level based on varied 'fair share' elements, such as responsibility (historical emissions), capability (GDP per capita), and equity (population).

IIGCC's discussion paper on sovereign bonds provides more detail on the concept of 'fair share', and the different indicators which can operationalise the many elements of 'fair share'.

Regional and country net zero pathways

To account for 'fair share' principles, where possible, investors are recommended to derive objectives from more granular net zero pathways.

Regional pathways account for the different rates at which geographical regions need to decarbonise to contribute to global net zero emissions by 2050.

For example, differentiated pathways are integrated in the IEA's NZE Scenario as an essential design principle, as outlined in Figure 12.[59]

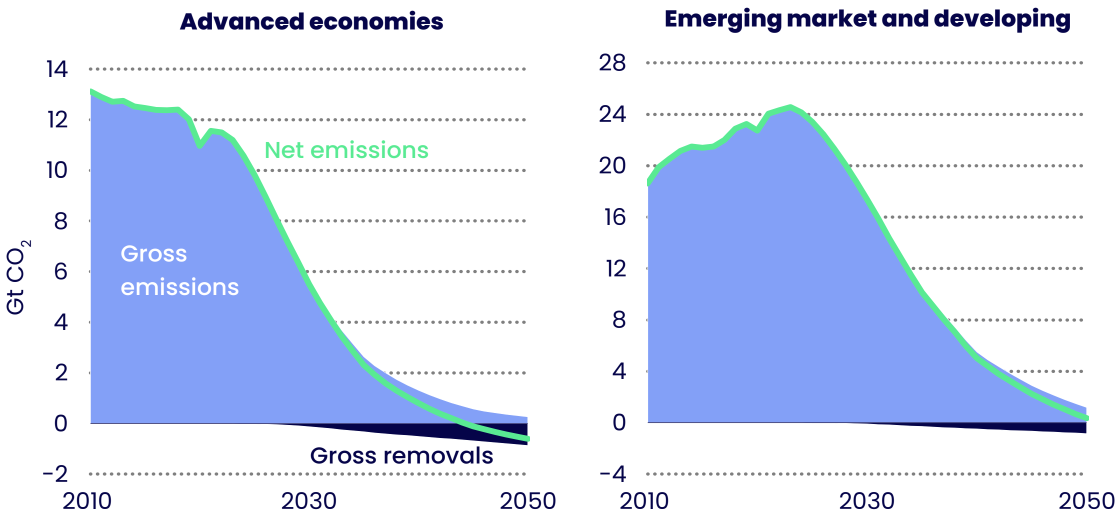
Beyond regional pathways, granularity is increasing. For some models, regions are further downscaled at the country level. These more accurate pathways are better at capturing the nuances of different countries and present investors a better choice to set emissions reduction objectives – particularly for sovereign bond portfolios.

For instance, a fund with high exposure to emerging markets is unlikely to have the same decarbonisation trajectory required than a fund exposed only to developed sovereigns with steeper required trajectories.

Therefore, using regional and country pathways allows investors to take regional exposures of a portfolio into account and develop a decarbonisation strategy that accounts for the emissions reduction rates required of individual regions.

[59] IEA (2023), Net Zero Roadmap: A Global Pathway to Keep the 1.5 °C Goal in Reach (CC BY 4.0)

Figure 12: Gross emissions and removals, and net emissions reductions by aggregated region in the NZE Scenario, 2010-2050



Investors are encouraged to engage with model producers to continue to advance the practicality and fairness of models used as pathways.

Appendix A outlines regional net zero pathways available to investors when setting the portfolio decarbonisation reference objective, as well as details on custom pathways.

5 Setting a portfolio decarbonisation reference objective

Investors are encouraged to set:

- A CO_2e absolute and intensity emissions reduction objective.

A five year stocktake is recommended to facilitate assessment of progress.

Investors can consider the approaches outlined in Section 2: Recommendations for listed equities, corporate fixed income, real estate, infrastructure, private equity and private debt:

- A self-decarbonisation approach
- A benchmark-relative approach

Investors are to decide on how the objective will be quantified:

- By applying a point-in-time GHG emissions reduction goal
- By calculating a portfolio carbon budget

6 Monitoring progress and ensuring transparency and robustness

Transparency

To ensure complete transparency, investors are recommended to:

- Report portfolio absolute emissions (including and excluding land use, land use change, and forestry (LULUCF)) and emissions intensity, updating the data on an annual basis.
- Disclose approach taken to the calculation of the objective and decarbonisation trajectory, including any 'fair share' principles integrated into the approach and the data sources.
- Consider consumption-based data, which is recognised as best practice. Investors may apply the holistic or consumption emissions angle on a best effort basis.
- Disclose the rationale for the objective (based on the portfolio's baseline emissions or benchmark and the corresponding country and regional pathways), stating whether the assessment will be made as a point-in-time, or on a cumulative basis.
- Where possible, seek to report portfolio decarbonisation attribution analysis. This will include some of the drivers noted in the attribution analysis step in section 2, such as portfolio composition changes through divestment.
- Disclose any rebaselining policy or process that has been developed or undertaken.

Robustness

To further progress the sophistication of net zero pathways available, investors are recommended to:

- Seek to understand the assumptions behind the models used as decarbonisation pathways.
- Engage with model producers to continue to advance the practicality and fairness of models used as pathways.
- Avoid implementing strategies that lead to systematically rebalancing away from more emissions-intensive emerging markets that are making efforts towards a fair low-carbon transition.

Section 4
Allocation to climate solutions objective

Contents

Allocation to climate solutions objective

Climate solutions can be defined as "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".[60] For the purposes of NZIF implementation, this section focuses exclusively on decarbonisation rather than adaptation.

NZIF[61] recommends that investors set a quantitative objective for scaling up investments in climate solutions, where possible. This is because credible net zero pathways demand a significant increase in investment in a range of activities, goods and services across sectors and technologies, as described in Box 19. Objective setting can support investors to determine an appropriate ambition, scale and pace at which they are able to operationalise such goals and take advantage of investment opportunities.

Box 18: Allocation to climate solutions objective

Defined as:

- A <10-year objective for allocation capital to climate solutions.

Whilst many net zero signatories have set targets to increase portfolio allocation to climate solutions over time,[62] IIGCC guidance does not offer recommendations on a specific level of allocation and/or threshold that investors need to achieve to be considered as having a Paris-aligned allocation to climate solutions.

There are a few reasons for this, which include the fact that these trajectories cannot be easily translated into total allocations within discrete investment portfolios, uncertainty about future technology mix and commercial viability, and risk return profiles of different solutions making them less or more well suited to different investment strategies.[63]

In 2023, IIGCC produced guidance to support investors to identify, classify, and measure allocation to climate solutions providers within listed equity and corporate fixed income asset classes, and committed to developing guidance for other asset classes in the future.

IIGCC has also developed guidance for investors to consider in their approach to quantifying their contribution to scaling renewable energy generation within the infrastructure asset class.[64] Investors are recommended to use this guidance for renewable energy generation infrastructure assets. This guidance is not included in this document.

The topic of climate solutions investment and measurement is rapidly evolving, and it is expected that guidance for investors will continue to evolve over the coming years. This also includes the relationships between climate solutions, transition finance, portfolio alignment and decarbonisation.

[60] IIGCC (2023) Investing in Climate Solutions: listed equity and corporate fixed income.

[61] Paris Aligned Investment Initiative (2024), NZIF 2.0

[62] See Box 5 in IIGCC (2023) Investing in Climate Solutions: listed equity and corporate fixed income.

[63] Despite these challenges, there have been some attempts to estimate a Paris-aligned allocation to climate solutions, such as FTSE Russell (2022), Green equity exposure in 1.5°C scenario: Applying climate investment trajectories with green revenues.

[64] IIGCC (2024), Investing in Climate Solutions: Renewable Energy generation Infrastructure.

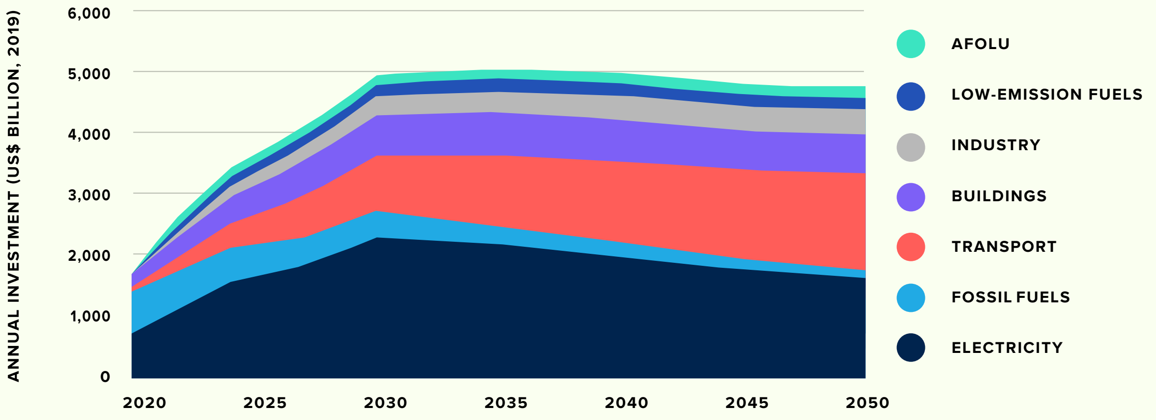
Box 19: Investment needs and the role of institutional investors

Estimates of investment needed between 2022 and 2050 across renewable energy, low carbon transport, energy efficient buildings, electrification of industrial processes and more, range from USD 109 trillion to USD 275 trillion.[65]

Net zero pathways 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. 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 (USD bn) to meet decarbonisation goals.

Utilising the IEA NZE Scenario, IIGCC's Climate Investment Roadmap[66] identifies over 100 technologies that are required for decarbonisation, covering energy-related sectors and agriculture, forestry and other land use (AFOLU), and provides an estimation of investment needs across different regions. Figure 16 below shows the average annual investment amounts needed to reach net zero by 2050 by sector, according to the Climate Investment Roadmap.

Figure 13: Average annual investment amounts needed to reach net zero in 2050, by sector



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. Through primary markets, investors are likely to have the greater impact on decarbonisation per unit of investment in climate solutions. 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.

In secondary markets, when capital allocation decisions happen at scale, such as tilting towards solutions providers, the behaviours of issuers and primary financiers can 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.

[65] FTSE Russell (2022), Green equity exposure in 1.5°C scenario: Applying climate investment trajectories with green revenues.
[66] IIGCC (2022), Climate Investment Roadmap

Listed equity and corporate fixed income

For further detail, references and citations, investors can revert to Investing in Climate Solutions: listed equity and corporate fixed income.

As per page 62, this guidance is continuously looked at with IIGCC members to ensure the recommendations remain relevant. The guidance may be updated in the future to reflect the evolving climate solutions landscape and to maintain consistency across other asset class guidance as they are developed.

At present, investors are recommended to take a dashboard approach to classifications and metrics for measuring allocation to climate solutions within listed equity and corporate fixed income. This is because no singular approach sufficiently captures all climate solutions activities and types of decarbonisation contribution made by solutions providers.

Priority metrics:

- Green revenue ratio
- Financed green revenues

Recommended metrics as data availability improves:

- Green capex ratio
- Financed green capex

Optional metrics, at an investor's discretion:

- Low carbon production-based metrics
- Avoided emissions

When identifying climate solutions providers and activities, investors can also choose to follow a taxonomy-based approach and/or a "taxonomy-plus" approach. They aim to capture both activities that transition a corporate's own performance, as well as activities that enable emissions reductions beyond a corporate's value chain in the wider economy.

Investors can be guided by the following four step approach, as set out in more detail below and illustrated in Figure 14.

1 Solutions classification:

Identify and classify activities, products and services that contribute to emissions reductions using net zero pathways and/or local taxonomies.

2 Contribution type:

Assess the type of contribution those activities make to decarbonisation.

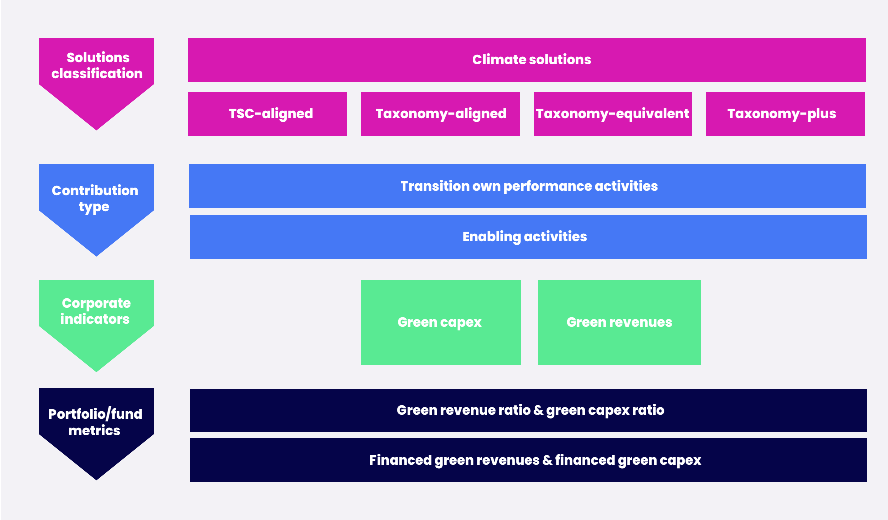
3 Corporate indicators:

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 14: A four step approach to classifying and calculating green revenues and green capex for listed equity and corporate fixed income



The table in Appendix A also shows the recommended disclosures investors can make to provide transparency over the approach taken.

1 Identify and classify climate solutions activities, products and services

Investors can identify and classify climate solutions using local taxonomies (taxonomy-based approach) and/or net zero pathways (taxonomy-plus approach). IIGCC's climate solutions 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.

In practice, mapping corporates' activities across various taxonomy criteria and classification systems requires significant manual analysis. It is expected that most investors will rely on third party data vendors to provide this information.

Taxonomy-based classification

To identify climate solutions activities, investors can use regional 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.

Under the taxonomy-based classification, investors can assess and disclose activities that:

- Are taxonomy-eligible
- Align with the taxonomy's technical screening criteria
- Additionally satisfy tests that confirm that the activity is meeting minimum social safeguards as well as Do No Significant Harm (DNSH) criteria, for example to climate change adaptation, and nature and biodiversity. These activities are considered fully "taxonomy-aligned".

Taxonomy-plus classification

This classification allows investors to identify activities that contribute to climate change mitigation in two situations where the taxonomy-based approach may not apply:

- When activities occur outside of a jurisdiction over which the taxonomy applies but the same thresholds or technical screening criteria are not applicable ("Taxonomy-equivalent").
- 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").

It is recommended that investors disclose activities under these distinct categories separately, particularly disaggregating taxonomy-aligned activities, which may be a specific disclosure requirement for investors in some jurisdictions.

2 Assess the type of contribution of climate solutions activities to decarbonisation

Investors then may find it helpful to understand the types of decarbonisation contribution each solutions activity is making to the net zero transition. The decarbonisation contribution types can be defined as follows:

- "Transition own performance" activities: An activity with a substantial contribution to emissions reductions relating to a company's *own performance*, as required by a 1.5°C pathway, and contributing to a reduction in the entity's own emissions profile.
- "Enabling activities": Activities that make a substantial contribution to the transition to net zero by *enabling emissions reductions beyond a company's own value chain* in the wider economy.

Whilst the distinction between transitioning own performance and enabling activities may support a qualitative assessment of corporate instruments in a portfolio, the indicators of revenues and capex related to climate solutions activities can help quantify the contribution of specific corporate instruments, as outlined in step 3.

3 Utilise key corporate indicators to assess the contribution of climate solutions activities

Investors can assess exposure to climate solutions activities via listed corporate instruments through an assessment of its revenues and capex associated with climate solutions activities.

Green revenue captures revenues from the sale of climate solutions products and services. It provides a point in time, a backward looking indicator of the exposure of a company's activities to the green economy. It is the most readily available data point through corporate disclosures and data vendors. The indicator is heavily influenced by pricing shifts and may incentivise investment in corporates already providing recognised climate solutions and regions with related regulatory reporting regimes.

Green capex captures capital expenditure in new climate solutions technologies and products. It is a forward looking indicator of a corporate's management priorities and potential future emissions reductions. Data availability and quality is currently low but is likely to increase in the short to medium term as disclosure expectations of companies in some jurisdictions are adopted, such as EU's Corporate Sustainability Reporting Directive (CSRD) and ISSB.

Alternative indicators include low carbon production capacity, low carbon production output and avoided emissions. See Table 2 of IIGCC's climate solutions guidance for the advantages and disadvantages of green revenues, green capex, low carbon production capacity and avoided emissions.

4 Aggregate climate solutions activities up to portfolio or fund level

To provide a company, portfolio or fund level view for listed equity and corporate fixed income, investors can use one of the following methods of aggregation:

- 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/financed green 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).

It is recommended that investors using NZIF disclose, as a minimum, green revenue ratio and financed green revenue. See Table 5 of IIGCC's climate solutions guidance for the advantages and disadvantages of aggregation method and calculations. The calculations are also provided in Appendix B.

Data

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.

The following data hierarchy is recommended, following similar approaches promoted by PCAF:

1. Corporate disclosures directly reported (e.g. through annual reports)
2. Corporate disclosures via third parties (e.g. Climate Action 100+)
3. Fundamental analyst estimates
4. Taxonomy-based datasets from data vendors using estimation models
5. Sector averages

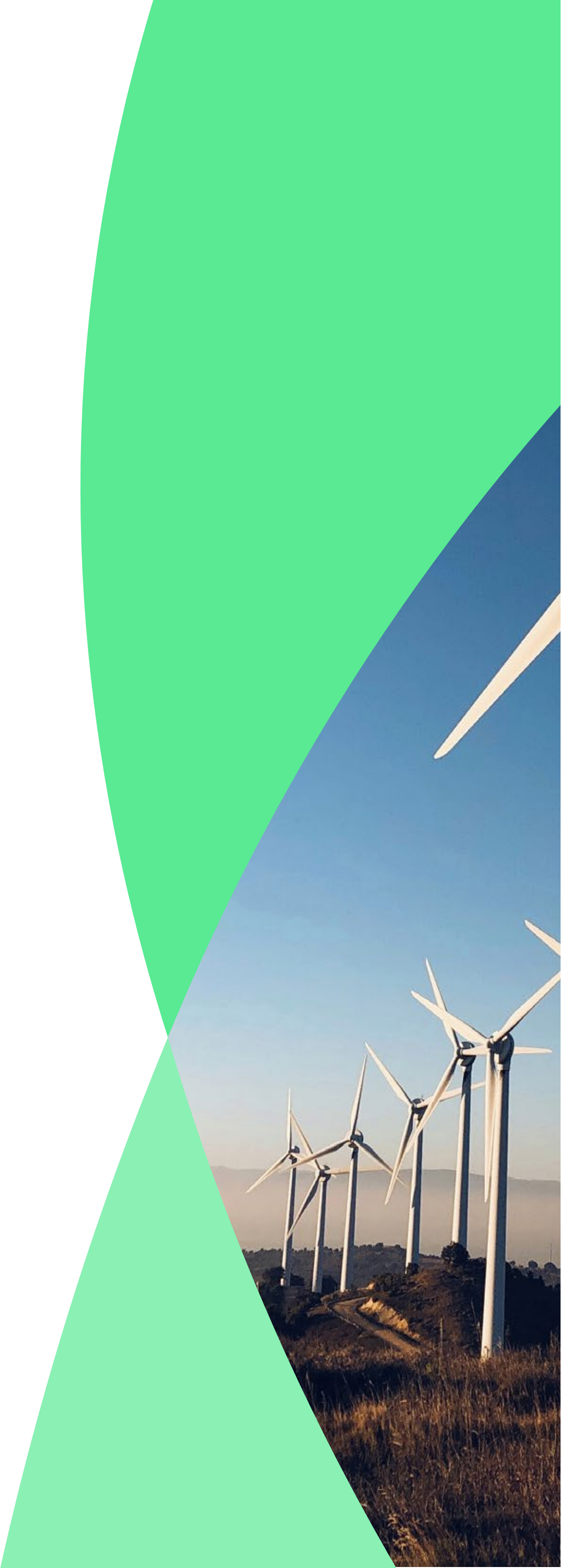
Disclosure

To support clear and transparent disclosures and protect the integrity of climate solutions classifications, it is recommended that investors follow two core disclosure principles.

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

A disclosure template is also provided in Appendix A to enhance standardisation of disclosures across the industry.

Section 5
Asset level targets: Alignment and Engagement Across all asset classes



Contents

Across all asset classes

Whilst guidance differs across asset classes covered by NZIF[67], this guide sets out a five-step process that investors may wish to consider to support them to develop, deliver and monitor an asset alignment target that can be applied across all asset classes.

This paper further provides guidance on setting an engagement threshold target and developing engagement strategies to help achieve the target.

1 Set the scope

according to NZIF's recommendations, to confirm which assets should be considered within scope of target setting.

2 Assess the alignment

of existing and new assets using NZIF's alignment criteria.

3 Set the target

to increase the alignment of assets to net zero in the short term.

4 Deliver the target

by implementing a strategy that utilises the many levers at an investor's disposal.

5 Monitor the target

to ensure sufficient progress is made and targets can be updated when necessary.

[67] Paris Aligned Investment Initiative (2024), NZIF 2.0

Sectors

For all asset classes (except for sovereign bonds), all sectors considered "material" to the net zero transition, defined as those in NACE code categories A-H and J-L, are recommended to be considered for assessment and subject to the asset alignment target and engagement threshold target. Sectors which are not considered "material" are not the recommended subject of NZIF net zero objectives and targets. This is so that investor net zero efforts are channelled to material sources of GHG emissions.

Companies in high impact material sectors are required to meet more of the alignment criteria to be determined 'aligned' to a net zero pathway. High impact material sectors are those with representative companies on the Climate Action 100+ or Transition Pathway Initiative focus lists; plus banks, real estate, as well as agriculture, forestry, and fishing[68]. See Appendix A for a complete list of high impact material sectors.

A separate scoping exercise is required for sovereign bonds, as detailed in the sovereign bond section.

Scope 3 for asset alignment

For asset alignment targets across asset classes, investors are recommended to take the following approach:

- If opting to base the asset alignment target on % financed emissions, material scope 3 is recommended to be included. The approach to materiality and any exclusions due to data gaps or limitations is recommended to be explained and justified alongside the disclosure.[69]
- If choosing to base the asset alignment target on % AUM, emissions are not a component of calculating % AUM and therefore scope 3 considerations are not applicable.
- Regardless of whether the asset alignment target is based on % financed emissions or % AUM overall, material scope 3 is recommended to be included in assessing individual asset alignment. Specifically, the asset alignment criteria and subsequent assessment are recommended to cover scope 1, 2 and material scope 3 emissions.

Investors can draw on IIGCC's Supplementary Guidance on Scope 3 for further support in implementing scope 3 considerations[70].

Scope 3 for engagement

For engagement targets, investors are recommended to take the following approach:

- The engagement threshold target is recommended to be based on % of scope 1 and 2 financed emissions, but this is asked to be accompanied by a description of the investor's approach or strategy regarding engagement with assets with material scope 3 emissions.
- As an advanced action point, in addition to an engagement threshold target for scope 1 and 2, investors are recommended to set a 'shadow' engagement threshold for material scope 3, to indicate the proportion of material scope 3 covered that is aligned with net zero or under direct or collective engagement and stewardship actions.
- This applies to the point in time calculation and for assessment of progress. The approach to materiality is encouraged to be explained and justified alongside the disclosure.

[68] IIGCC (2023), AAgriculture, forestry and fisheries reclassified as 'high impact' in Net Zero Investment Framework

[69] Where this document refers to material scope 3, the following considerations apply: assessment of scope 3 materiality is at the ultimate discretion of the investor; the approach to materiality and any exclusions – for example, due to factors such as data gaps or limitations – should be explained and justified alongside the disclosure; investors can refer to a number of additional resources on scope 3 produced by PAII Network Partners for additional implementation support.

[70] IIGCC (2024), Supplementary guidance: Scope 3 emissions of investments

Asset owners and asset managers

Asset owners and asset managers may have different scopes, depending on their respective net zero commitments.

Table 15: Asset owner and asset manager considerations for scope of alignment and engagement targets

Asset owners	Asset owners committed to net zero through the PAAO commitment are recommended to include all investments within their asset alignment targets, where possible. This may require a phased approach, with certain asset classes prioritised and data coverage improves.
Asset managers	In the context of NZAM, asset managers may only have committed to manage a proportion of assets in line with net zero. Therefore, the assessment and target would apply to that portion of investments. Asset managers may also choose to assess assets' alignment and set the target per fund or mandate, rather than in aggregate across all AUM.

2 Assessing alignment

To set these targets, investors will first need to undertake an assessment of the current and past alignment of underlying assets against the alignment criteria set out in NZIF. This will help investors:

- Categorise an asset along NZIF's maturity scale
- Assess whether a company has a credible, science-based net zero transition plan[71]
- Assess the current and past performance against targets and a net zero pathway
- Understand future performance based on targets against a net zero pathway

Baseline

An assessment of a portfolio's holdings performance against the criteria allows an investor to establish the portfolio "baseline" alignment position. Box 20 later provides examples of a baseline assessment of the alignment of a portfolio and a 5-year and 10-year asset alignment target.

Investors are recommended to develop a cycle for conducting the alignment assessment of assets covered by the target, and, to the extent possible, assets not covered by the target, with the intention of phasing these assets into scope as soon as possible.

Criteria

NZIF sets out a criteria of ten backward, current and forward looking measures against which investors can assess the alignment of companies.

There is a subset of six alignment criteria used to determine asset alignment, which varies across asset classes. The other four criteria are seen as additional. The alignment criteria is specified in more detail under each asset class to ensure they are contextually specific.

The ten criteria recommended are:

- Ambition
- Targets[72]
- Emissions performance
- Disclosure
- Decarbonisation plan
- Capital allocation alignment
- Climate policy engagement
- Climate governance
- Just transition
- Climate risk and accounts

Given guidance for the asset alignment target differs by asset class, investors may wish to set separate net zero targets for each asset class, as opposed to an aggregated target.

[71] IIGCC (2023), Investor Expectations of Corporate Transition Plans: From A to Zero

[72] These do not have to be targets accepted and verified by the Science Based Targets initiative; however, they should be equivalent in terms of robustness.

NZIF's maturity scale

Assets are recommended to be categorised along NZIF's maturity scale, from 'not aligning' to 'achieving net zero':

- **'Achieving net zero':** This typically refers to when assets meet all relevant criteria and have an emissions performance at net zero which can be expected to continue.
- **'Aligned to a net zero pathway':** Refers to assets which have science-based targets, a decarbonisation plan, and current absolute or emissions intensity at least equal to a relevant net zero pathway. This category broadly signifies that transition risk is being managed at an asset level.
- **'Aligning to a net zero pathway':** Refers to assets with emissions performance not equal to a contextually relevant net zero pathway. However, importantly they have science-based targets and a decarbonisation plan, and are thus ready to transition.
- **'Committed to aligning':** Refers to assets with a long term decarbonisation goal consistent with achieving global net zero by 2050.
- **'Not aligning':** Refers to assets without a commitment to decarbonise in a manner consistent with achieving global net zero.

Box 20: Data challenges

Target setting will likely require an iterative approach. Whilst data has significantly improved in recent years and will continue to do so, coverage and quality remain a challenge to setting comprehensive targets at the asset level.

Investors are encouraged to start the target setting process by familiarising themselves with the data requirements, and establishing key sources of data. Investors can then begin assessing and monitoring the alignment of assets within a portfolio using available data to establish a baseline and set an initial target.

Investors are recommended to use the alignment data to develop and inform a stewardship and engagement strategy and to inform portfolio construction, as two key tools to drive the alignment of assets. Over time, investors should be able to broaden the coverage of the target and include a more comprehensive set of data points as data coverage and quality improves.

Further guidance is outlined for each asset class.

3 Setting the target

Investors are recommended to set a short term target for increasing the % of AUM or financed emissions that can be considered 'aligned' to a net zero pathway or achieving net zero. In the case of sovereign bonds, this is based on % of sovereign bonds allocation to issuers that are categorised as 'aligned' or 'achieving net zero'.

Box 20 provides examples of a baseline assessment of the alignment of a portfolio and a 5-year and 10-year asset alignment target

Performance expectations

This guidance outlines recommendations of expectations that, by 2040, 100% of assets are meeting the criteria to be considered at least 'aligned' to a net zero pathway. This applies across all asset classes set out in the document. This expectation aims to enhance the probability that 100% of assets are consistent with the global goal to achieve net zero by 2050.

Investors utilise a range of approaches and face a number of constraints to aligning portfolios with a net zero pathway, some of which they do not have full agency to address. Consequently, generic industry wide performance expectations are not generally considered possible. However, investors can disclose their individual performance against these generic performance expectations, explaining the reasons for any divergence.

Box 21: Illustrative example: Asset alignment baseline and targets (% of AUM)

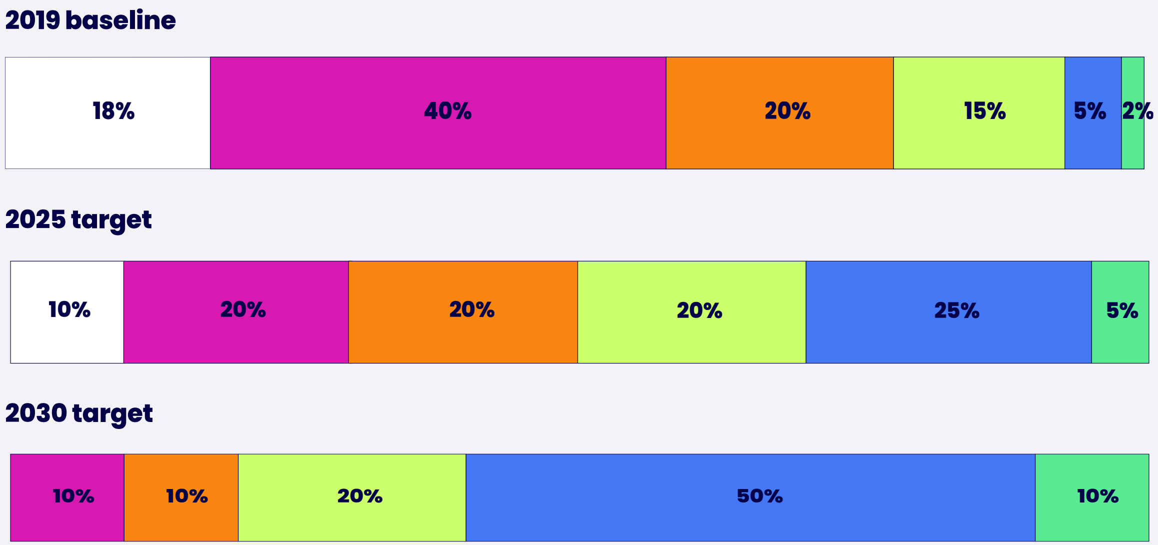
Setting baselines and targets

Here we show how investors can set targets compared to a baseline, to increase investments that are classified as aligning, aligned and net zero. As few assets are currently aligned to net zero, we may expect an investor's portfolio to contain a high proportion of assets that are not aligning, and a low proportion of assets that can be considered net zero or aligned, according to the criteria set out in the NZIF as the example shows.

Table 16: Example alignment baseline, short-term alignment target and medium-term alignment target

Year	Insufficient data	Not aligning	Committed to aligning	Aligning	Aligned	Achieving net zero
2019 baseline	18%	40%	20%	15%	5%	2%
2025 target	10%	20%	20%	20%	25%	5%
2030 target	0%	10%	10%	20%	50%	10%

Figure(s) 15: Example alignment baseline, short-term alignment target and medium-term alignment target



Section 1 NZIF Implementation Guidance
Section 2 Portfolio Decarbonisation Reference Objective (PDRO)
Section 3 PDRO for sovereign bonds
Section 4 Climate solutions objective (listed equity)
Section 5 Asset level targets: all asset classes
Section 6 Listed equity and corporate fixed income
Section 7 Sovereign bonds
Section 8 Real estate
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Appendices

Using AUM or financed emissions to set asset alignment targets

It is important investors understand the implications of the metric – AUM or financed emissions – chosen for the alignment target.

Setting the asset alignment target based on AUM avoids the issues of declining financed emissions proportions over time, as a greater proportion of assets can be considered "aligned"; this will only change if investors change their asset allocation. Using AUM is also likely to change the types of industries and sectors that are in focus.

Selecting financed emissions as the metric may support investors in prioritising efforts to increase the net zero alignment of the highest emitting assets within the portfolio. For many portfolios, financed emissions are highly concentrated into a manageable number of industries and holdings, meaning that it can be more resource effective to channel engagement to those assets whilst most impactful to address the biggest contributors to portfolio emissions.

A disadvantage may be that, over the medium to longer term, as those emissions-intensive holdings decarbonise, they will be responsible for a smaller proportion of portfolio financed emissions. This means that investors may have to change focus of engagement and stewardship to other holdings in a portfolio to maintain a high threshold of financed emissions considered at least "aligned" to a net zero pathway. Over time, the holdings that made up the significant proportion of financed emissions in the base year will decrease, meaning the investor is further away from the alignment target, as shown in the illustrative example below.

Box 22: Illustrative example: Using financed emissions and AUM to set alignment targets

The graphs below show how setting and achieving alignment targets can vary dependent on the metric chosen using a dummy portfolio.

Figure 16 shows a growing portfolio that is assessing alignment based on AUM. The portfolio scales up the degree of alignment to at least 50% 'aligned' by 2030 and 100% 'aligned' by 2040. Meanwhile the portfolio's financed emissions decreases by 50% by 2030 (from 2019), and reaches net zero in 2050.

Figure 16: Alignment of AUM over time

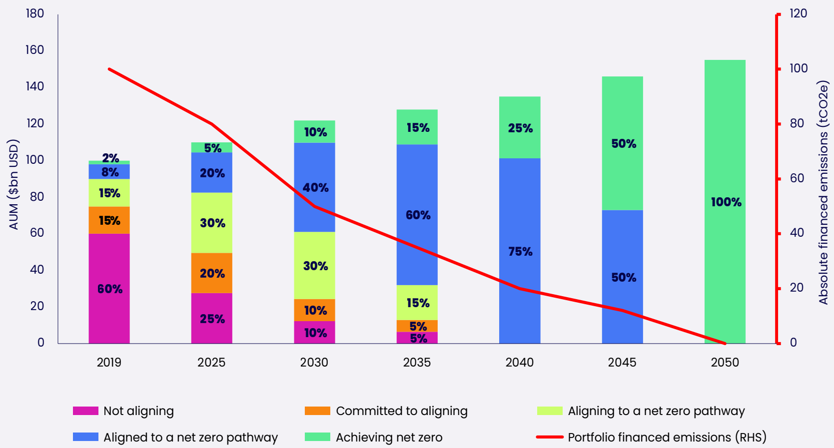
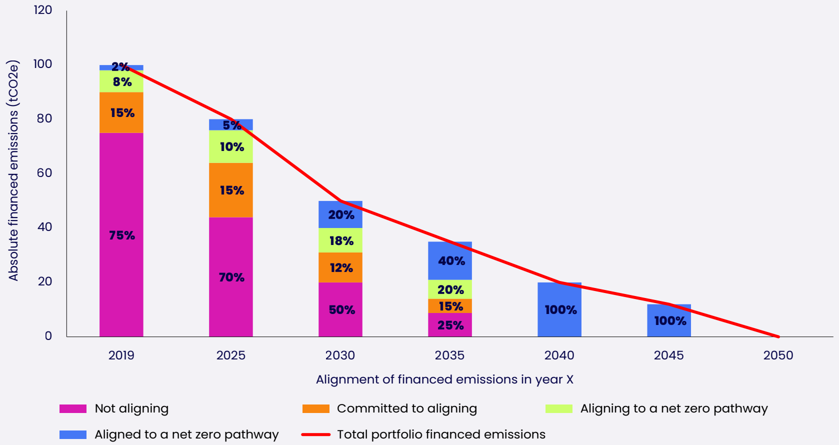


Figure 17 shows the same portfolio but uses financed emissions to assess alignment.[73] The portfolio sees the same emissions trajectory, however, the degree of alignment at each point in time differs to the AUM example. For example, in 2030, despite making up only 10% of AUM, the 'not aligning' assets make up 50% of financed emissions. This trend is present throughout, with 'not aligning' far more present when using financed emissions until the point of 2040, at which point all assets within the portfolio are 'aligned' to a net zero pathway according to this guide.

Another notable difference is that when assessing the alignment of AUM, 'achieving net zero' is a present category.

Investors are recommended to consider these potential implications upon deciding which metric will inform alignment targets.

Figure 17: Alignment of financed emissions over time



[73] As noted in this document, it will be difficult to assess some assets' alignment due to a lack of data. An 'insufficient data' category is not included in the graph for simplicity.

4 Delivering the target

Across all asset classes, portfolio construction, capital allocation decisions and engagement and stewardship are key levers to support the achievement of the asset alignment target. Guidance for implementing these levers, among others, are detailed for each asset class.

5 Monitoring the target

Investors are encouraged to develop processes for monitoring the asset alignment targets, including undertaking robust disclosure practices, and to disclose progress against targets on an annual basis.

Disclosure

To ensure targets remain robust and are updated appropriately, and progress can be communicated clearly with relevant stakeholders, investors are recommended to provide the following backward looking disclosures relating to how asset alignment has been achieved:

- Methodology/approach used to assess asset alignment, and why/when the approach has deviated from NZIF's recommendations
- Datasets used for the alignment criteria
- % of AUM or financed emissions that can be considered:
  - i. Achieving net zero
  - ii. Aligned to a net zero pathway
  - iii. Aligning towards a net zero pathway
  - iv. Committed to aligning
  - v. Not aligning
- Actions taken to increase alignment
- Process for reviewing and updating the asset alignment target

Attribution analysis

Investors can perform attribution analysis to understand the drivers of changes to the proportion of assets classified along the alignment maturity scale. This can inform net zero strategies, guide engagement and enhance transparency. See Section 2 step 6, which provides guidance on undertaking attribution analysis for portfolio emissions changes; many of the drivers recommended for decarbonisation assessment below are relevant for alignment assessment.

Case studies: Asset level targets across asset classes

A growing number of investors are recognising the importance of assessing asset alignment and setting targets to scale up alignment. To date, most investors have prioritised certain asset classes, however, some are setting targets across a range of asset classes, including:

- Implementing alignment and engagement strategies across multiple asset classes: Local Pensions Partnership Investments (LPPI)

Section 6

Asset level targets: Alignment and Engagement Listed equity and corporate fixed income

Contents

Listed equity and corporate fixed income

Asset Alignment Target

For listed equity and corporate fixed income, the asset alignment target is defined as:

- A 5-year asset alignment target for increasing the percentage of AUM or financed emissions in material sectors that are 'aligned' or 'aligning' to a net zero pathway, or 'achieving net zero'.

This target is recommended to increase towards the goal of 100% of AUM or financed emissions to be net zero or aligned to a net zero pathway by 2040.

1 Setting the scope

All assets within listed equity and corporate fixed income portfolios and funds are recommended to be considered within initial scope. Within this, all sectors considered "material" to the net zero transition, defined as those in NACE code categories A-H and J-L, are recommended to be considered for assessment and subject to the asset alignment target. See Section 5 to understand how scope 3 emissions should be considered.

2 Assessing alignment

NZIF[74] sets out 10 backward, current and forward looking criteria against which investors are recommended to assess the alignment of companies and categorise using NZIF's alignment maturity scale accordingly.

The alignment assessment utilises six alignment criteria, with four additional criteria. The additional criteria is recommended to be incorporated into the assessment to the extent possible, for a more comprehensive approach to company assessment and to identify best performers across industries.

High impact companies are encouraged to be assessed against all six alignment criteria, which includes the asterisked criteria in the table below. All other companies are deemed material but 'lower impact'. Investors can assess the alignment of lower impact material companies against the criteria: ambition, targets; disclosure; and emissions performance.

[74] Paris Aligned Investment Initiative (2024), NZIF 2.0

Table 17: Criteria underpinning alignment assessment

Criteria	Committed to aligning	Aligning to a net zero pathway	Aligned to a net zero pathway	Achieving net zero
Asset with emissions intensity required by the sector and regional pathway for 2050 and whose operational model will maintain this performance.				✓
Emissions performance: Current absolute or emissions intensity is at least equal to a relevant net zero pathway.			✓	✓
***Capital allocation alignment:** A clear demonstration that capital expenditures are consistent with a relevant net zero pathway.			✓	✓
***Decarbonisation plan:** A quantified set of measures exists to achieve short and medium term science-based targets by reducing GHGs and increasing green revenues, when relevant.		✓	✓	✓
Disclosure: Disclosure of operational scope 1, 2 and material scope 3 emissions.		✓	✓	✓
Targets: Short and medium term science-based targets to reduce GHG emissions.		✓	✓	✓
Ambition: A long term goal consistent with the global goal of net zero by 2050.	✓	✓	✓	✓
* Additional alignment criteria that a corporate within a high impact material sector needs to meet	Additional alignment criteria to be met to progress to that alignment category			
Additional criteria to be incorporated where feasible				
Climate policy engagement	The company has a Paris-aligned climate lobbying position and demonstrates alignment of its direct and indirect lobbying activities.			
Climate governance	Clear oversight of net zero transition planning and executive remuneration linked to delivering targets and transition.			
Just transition	The company considers the impacts from transitioning to a lower carbon business model on its workers and communities.			
Climate risk and accounts	The company provides disclosures on risks associated with the transition through TCFD reporting and incorporates such risks into its financial accounts.			

Data

As noted in Box 20 in Section 5, data coverage and quality remain a challenge to setting comprehensive targets at the asset level. However, there are public sources providing granular data across an increasing number of companies.

It is recommended that the data sources and methodologies set out below are prioritised to assess asset alignment, and can be supplemented by data from third party vendors as part of a data hierarchy.

An overview of some of the available public datasets investors are recommended to use and a mapping of the datasets against NZIF's alignment criteria is detailed below.

Climate Action 100+ Net Zero Company Benchmark

The Climate Action 100+ Net Zero Company Benchmark[75] is used by investors to assess the climate performance of the highest emitting publicly listed companies. Around 170 companies are assessed by TPI against the Benchmark's disclosure framework, with results released in October annually. The disclosure framework is made up of 11 indicators, which can be mapped against NZIF's alignment criteria. Investors are recommended to use the benchmark assessments to assess the alignment of the Climate Action 100+ focus companies, which fall within the NZIF's definition of high impact companies.

Transition Pathway Initiative (TPI)

TPI[76] uses publicly disclosed data to assess the progress companies are making on the transition to a lower carbon economy and provides underlying data for some of the Climate Action 100+ Benchmark disclosure framework indicators. Data from TPI is open-access and can be downloaded from the TPI website. TPI assesses companies' alignment to net zero using two approaches:[77]

- Management quality – Assessment covers companies' governance of GHG emissions and the risks and opportunities arising from the low-carbon transition.
- Carbon performance – Assessment involves quantitative benchmarking of companies' emissions pathways against different climate scenarios consistent with the Paris Agreement.

The Carbon Performance assessment is based on the Sectoral Decarbonisation Approach (SDA), which translates GHG emissions targets made at the international level (i.e. the Paris Agreement) into appropriate sectoral benchmarks. Companies' emissions targets can then be compared against these benchmarks. The SDA recognises that different sectors of the economy are likely to decarbonise at different rates. This analysis also underpins the Climate Action 100+ disclosure framework target indicators.

Science Based Targets Initiative

SBTi[78] provides information for investors to assess corporates against alignment criteria: targets, disclosures and emissions performance.

Investors should note that SBTi requires disclosure through standardised and comparable data platforms such as CDP's climate change annual questionnaire, rather than through annual disclosures published on its own website.

At the time of writing, SBTi do not have, but are developing, a monitoring, reporting, and verification system to track how well corporates are performing relative to their submitted and validated science-based targets. This system is currently being developed and expected in the short term. The view that a verified science-based target (SBT) fulfils the emissions performance criteria is ideally dependent on this system becoming operational. In the interim, investors may wish to use additional data to determine whether NZIF's emissions performance criteria is being fulfilled. However, previous empirical evidence suggested that corporates with verified SBTs were delivering on their targets.[79]

Also of note is the current lack of corporates in high impact material sectors with validated SBTs and that, currently, transition plans needed to achieve SBTs are yet to be incorporated into SBTi's work.

[75] Climate Action 100+ (2024), Climate Action 100+ Net Zero Company Benchmark
[76] TPI (2024), Transition Pathway Initiative
[77] TPI (2023), TPI's Methodology Report: Management Quality and Carbon Performance
[78] SBTi (2024), Science Based Target initiative
[79] SBTi (2020), How companies are cutting emissions at scale with science-based targets

CDP Climate Change Questionnaire

The CDP[80] Climate Change Questionnaire overlaps with certain NZIF alignment criteria and can be used to assess a corporate's alignment.

When responding to the CDP Climate Change Questionnaire, companies are rated based on their transparency and climate performance and receive a CDP score. Companies are graded by their answers to both sector-agnostic and specific questions, normalised to 100 and classified into bands from A to D- (8 bands, 4 levels: leadership, management, awareness, disclosure). A score of A indicates the highest quality of disclosure.

Carbon Tracker

Carbon Tracker[81] performs analysis on the impact of the energy transition on capital markets and the potential investment in high-cost, carbon-intensive fossil fuels. Carbon Tracker's company profiles provide analysts, portfolio managers, and other stakeholders with key information to assess an asset's performance against NZIF's capital allocation alignment criteria and companies' transition plans more broadly.

Net Zero Standards

IIGCC, in collaboration with various partners, develops sector-specific Net Zero Standards. These standards are developed in alignment with NZIF, and support investors in assessing the robustness of companies' transition plans in emissions intensive sectors and support investor engagement efforts.

The sector standards map onto the Climate Action 100+ disclosure framework indicators and support assessments of disclosure, alignment and climate solutions.

TPI assesses companies against the standards and the information is made publicly available on the TPI and Climate Action 100+ websites. Investors can utilise the results to support asset alignment assessment.

Box 23: Net Zero Standards

Read Net Zero Standards for banks,[82] oil & gas,[83] and mining.[84]

Standards will continue to be developed across the global value chain.

Private providers

Investors can also use third party data providers to assess company alignment. A multitude of providers in the market are assessing companies against varying performance indicators underpinned by different methodologies and models. Investors are therefore recommended be transparent about the data sources used and ensure a good understanding of the providers' methodologies.

Investors can also use IIGCC's Net Zero Data Catalogue to understand the extent to which the products and datasets offered by third party data vendors are in line with the criteria and parameters set out in NZIF.

To represent best practice, data vendors providing assessments consistent with NZIF criteria are encouraged to ensure alignment with the latest detailed guidance on indicators from Climate Action 100+.

Box 24: IIGCC's Net Zero Data Catalogue

IIGCC's Net Zero Data Catalogue[85] assesses 16 data vendors' products/datasets against NZIF's recommended datapoints for corporates, real estate and sovereigns.

The catalogue details the data needs to implement NZIF and provides a comprehensive and comparable assessment of the vendors' products and datasets against NZIF's alignment criteria.

Version 1 of the catalogue is exclusively for IIGCC members and is up to date as of September 2022. IIGCC aims to update the data catalogue so investors have access to the most up to date product offerings.

[80] CDP (2024), CDP
[81] Carbon Tracker (2024), Carbon Tracker
[82] IIGCC, TPI (2023), Net Zero Standard for Banks and Assessment Framework for Banks
[83] IIGCC (2023), Net Zero standard for Oil & Gas
[84] IIGCC (2023), Net Zero Standard for Diversified Mining
[85] IIGCC (2022), Net Zero Data Catalogue

Data limitations

In the near term, investors may wish to identify the companies where there is insufficient disclosure or data to assess alignment. Box 24 presents an example baseline and example target, showing the intended increase in alignment across an investor's portfolio. This includes a grey section where there is insufficient data to assess alignment.

IIGCC encourages investors to help accelerate improvements to data quality and coverage by engaging with companies to disclose the required information for assessing alignment and with data providers to provide products and services that are aligned to the alignment criteria set out in NZIF.

Box 25: Engaging with data vendors

IIGCC's Six Asks of Data Vendors[86] supports investor engagements with data vendors to help increase the overall quality and usability of net zero data used in alignment assessments and target setting. Specifically, the six expectations focus on:

1. **Multidimensional data** – Offer data that allows a multidimensional assessment of an asset, to establish its net zero alignment beyond current GHG emissions and decarbonisation targets.
2. **Data granularity** – Deliver granular data as part of alignment assessments to facilitate investor action, such as engagement and target setting, monitoring and reporting.
3. **Converging methodologies** – Build climate and net zero alignment methodologies in line with guidance, recognised best practice and available standards where relevant to ensure the highest data quality.
4. **Data quality and regular updates** – Update approaches regularly to ensure that the latest science is considered.
5. **Increasing coverage** – Increase coverage through time, especially on additional asset classes such as sovereigns, real estate, infrastructure, private equity and private debt, without compromising on quality.
6. **Robust monitoring frameworks** – Assist investors in attributing year-on-year climate and alignment performance changes by developing robust monitoring frameworks and tools

Case studies: Approaches to assessing alignment

A growing number of alignment assessment frameworks have been developed by investors, working from NZIF's alignment criteria and maturity scale to enhance robustness of assessment approaches and alignment targets. This includes:

- Setting asset level targets using the Net Zero Investment Framework: Comgest
- An alignment methodology using publicly available data: AP7

[86] IIGCC (2023), Six Asks of Data Vendors

Table 18: Mapping of datasets against NZIF's alignment criteria for listed corporates

Dataset	Ambition	Targets	Emissions Performance	Disclosure	Decarbon-isation plan	Capital allocation alignment	Climate Policy Engagement	Climate Governance	Just Transition	Climate Risk and Accounts
Climate Action 100+ disclosure framework	1	2, 3, 4	11	10, 11	5	6	7	8	9	10
TPI: 'MQ scores' (Q=question)[87] and 'carbon performance'	Q3	Q4, Q7, Q13, carbon performance assessment	Carbon performance assessment	Q5, Q8, Q9 Q12	Q18, Q19, Q20	Q21, Q22	Q10, Q23	Q1, Q6, Q11, Q14,	-	Q2, Q11, Q15, Q16
SBTi	-	Yes	Yes[88]	Yes[89]	-	-	-	-	-	-
CDP Climate Change Questionnaire[90]	C4.2, C4.2c	C4.1, C4.1a, C4.1b	C4.1a, C4.1b, C6.10	C6.1, C6.3, C6.5	C3.1[91], C3.5, C3.5a, C3.5b, C3.5c, C4.5a	C3.5, 3.5a, C3.5b, C3.5c	C12.3, C12.3a, C12.3b, C12.3c	C1.1, C1.1a, C1.1b, C1.3, C1.3a	No	C2.1, C2.3, C2.3a, C3.3, C3.4
Carbon Tracker	-	-	-	-	-	Yes	-	-	-	-
Net Zero Standards	Yes	Yes	Yes	Yes	Yes	Yes[92]	Yes	Yes	Yes	Yes

[87] See Appendix J for a detailing of the TPI MQ Questions

[88] See SBTi section above for more detail on applying SBTi data to the alignment criteria.

[89] See SBTi section above for more detail on applying SBTi data to the alignment criteria.

[90] See Appendix J for a detailing of the CDP Climate Change Questionnaire Questions

[91] CDP details the KPIs associated with a credible climate transition plan (including quantitative and qualitative indicators) in this technical note (June 2024). This report (June 2024), outlines the assessment methodology used against each of these indicators in the appendix.

[92] Note for the Net Zero Standard and Assessment Framework for Banks, the 'capital allocation alignment criterion' is amended to 'climate solutions'. To fulfil this criterion, investors are also recommended to consider indicator 5.2 of the Assessment Framework, 'Capital allocation to misaligned activities'

3 Setting the target

Once the investor carries out a baseline year assessment, the investor can set an asset alignment target:

- A 5-year asset alignment target for increasing the percentage of AUM or financed emissions in material sectors that are 'aligned' or 'aligning' to a net zero pathway, or 'achieving net zero'.

As a minimum, NZIF recommends that the target is set with the ambition to achieve 100% asset alignment by 2040, and that engagement and stewardship action continues until companies are aligned or net zero.

Box 20 in Section 5 provides an illustrative example of how an investors baseline and target may look in their respective years.

4 Delivering the target

Investors may utilise multiple levers to support the transition of assets and increase the likelihood of achieving an asset alignment target. NZIF identifies three main levers – engagement and escalation strategy, portfolio construction, and investment mandates – that can be used alongside other levers that are not necessarily asset class specific, such as policy advocacy and engagement with other industry actors.

Engagement and escalation strategy

An effective engagement strategy is a key lever for investors to increase the proportion of assets that will meet the alignment criteria. This will include linking engagement actions, including voting, to a company achieving NZIF's alignment criteria over time. See the engagement threshold target section for listed corporates below for further guidance on effective engagement strategies.

Portfolio construction

Benchmark characteristics

An asset owner or manager may select a benchmark that incorporates tightening alignment criteria requirements to inform portfolio weights, resulting in improved portfolio alignment over time. The target can be set in line with the benchmark characteristics. Alternatively, a benchmark may be selected or mandated that enables achievement of a particular target level over time.

Box 26: Net zero benchmarks

IIGCC provides high level principles and recommendations that investors may wish to consider when aiming to incorporate a net zero objective on an index level in *Enhancing the Quality of Net Zero Benchmarks*.[93] These recommendations are to:

1. Prioritise real economy emissions reductions
2. Ensure transparency of benchmark rules and their consequences
3. Incorporate a sectoral and regional based approach
4. Prioritise publicly available data and integrate alternative alignment metrics
5. Facilitate engagement to improve issuer behaviour

The European Commission introduced Low Carbon Benchmark Regulations in 2019 to provide a standardised approach to incorporating carbon budgets into index investing. Due to the emissions reductions requirements in Paris-Aligned and Climate Transition Benchmarks (PAB/CTB) not accounting for sectoral and/or regional nuance, IIGCC does not recommend investors use them to guide portfolio target setting.

Following such emissions pathways is likely to incentivise actions that result in rapid portfolio decarbonisation through the removal of high emitting sectors, but is likely to result in limited real economy reductions. Hence, developing benchmarks that follow IIGCC's principles are more appropriate to guide portfolio target setting.

Active management (portfolio turnover and new investment decisions)

When taking an active management approach that integrates alignment assessments, to ensure alignment targets are robust and can be delivered, investors are recommended to forecast future portfolios to inform the expected pace of achieving the target. This can include:

- The expected turnover of the portfolio
- The potential screening of new investments based on the achievement of NZIF's alignment criteria

The progression against alignment targets may also be linked to emerging mechanisms for ensuring companies that are not currently meeting criteria will do so over time, such as KPI-linked corporate bonds. It is important investors also consider the role and timing of selective divestment if companies are no longer able to be aligned to net zero pathways.

[93] IIGCC (2023), Enhancing the Quality of Net Zero Benchmarks

Investment mandates and engagement of external managers

Investors using external managers may want to set expectations within investment mandates or through engagement with managers. This can support managers delivering against their clients' asset alignment targets, as well as supporting broader climate goals, such as investment in climate solutions, policy advocacy, and focusing on real economy decarbonisation.

Investors that have mandates with external managers may wish to consider including a predetermined linear target for an external manager to increase the proportion of assets that are considered net zero, or aligned or aligning to a net zero pathway over time, subject to relevant fiduciary and risk/return requirements. Similarly, setting explicit expectations around stewardship and engagement with underlying holdings may lead to enhanced capacity and resources allocated to asset level engagement by external managers.

Expectations are likely to differ based on the asset class(es) covered by the manager, jurisdictional and legal differences, and the starting point of the manager. For example, a private equity manager may be expected to increase disclosure in the near-term before developing a plan to engage portfolio companies and set alignment targets. Whereas a developed market public equities manager may be expected to have the following: multiple targets and objectives, a transition plan that covers both the mandate or fund, as well as firm-level efforts to undertake supportive policy advocacy.

Investment in pooled funds presents additional challenges as managers are required to meet the diverse needs of multiple clients. Further approaches and methods are needed to support investors in pooled funds to engage and work with managers to help them meet the climate goals of their clients. As a first step, investors in these types of funds may wish to focus on firm-level expectations rather than fund-specific expectations.[94]

Box 27: IIGCC's Asset Owner Stewardship Questionnaire

IIGCC's Asset Owner Stewardship Questionnaire[95] can support asset owners to incorporate climate stewardship into selection, appointment and monitoring of external asset managers.

It provides asset owners with qualitative questions for due diligence when selecting managers, and quantitative reporting when monitoring asset managers.

5 Monitoring the target

Investors are recommended to review and update targets, with portfolio alignment assessments and disclosures recommended to take place on at least a yearly basis.

See Section 5 step 5: Monitoring the target for more detail on disclosure and attribution analysis.

[94] IIGCC has started to explore new levers and targets for asset owners and asset managers with externally managed investments. See Net zero strategies for externally managed investments: new levers and targets (2024)

[95] IIGCC (2023), Asset Owner Stewardship Questionnaire

Engagement Threshold Target

Investors are recommended to develop an engagement threshold target for their listed equity and corporate fixed income assets:

- A short term (<5 years) engagement threshold target ensures that at least 70% of financed emissions in material sectors are either assessed as achieving net zero or 'aligned' to net zero, or are subject to engagement and stewardship actions.

This threshold is recommended to increase to at least 90% by 2030 at the latest.

To meaningfully deliver against the engagement threshold target, investors are encouraged to develop a robust approach to engagement and escalation in place, guided by IIGCC's stewardship resources.

Engagement and escalation strategy

IIGCC emphasises the importance of taking an outcomes-based approach to stewardship. Engagement strategies can play an important role in moving assets along the alignment maturity scale thus mitigating financial risk.

IIGCC's Net Zero Stewardship Toolkit[96] outlines six key steps investors can use as the foundations of an effective engagement strategy for equities. IIGCC's Bondholder Stewardship Guidance[97] mirrors the toolkit for corporate bonds. Step 2 for listed equities and corporate fixed income also outlines sector-specific standards which can be used as the basis for engagements across sectors along the energy value chain.

Different asset classes require different engagement strategies. Any strategy will need to reflect and recognise the different rights and responsibilities associated with the asset, such as the right to vote for shareholders.

[96] IIGCC (2022), Net Zero Stewardship Toolkit

[97] IIGCC (2023), Net Zero Bondholder Stewardship Guidance

Table 19: A 6-step approach to developing an engagement strategy

Net Zero Stewardship Toolkit – key steps	Net Zero Bondholder Stewardship Guidance – additional considerations
1. Undertake portfolio analysis, set portfolio net zero alignment goals and develop a stewardship prioritisation framework	▪ Use debt relevant metrics for prioritisation
2. Set net zero alignment criteria, alignment levels and time bound engagement objectives specific to each priority company	▪ Implementing a stewardship approach across the financing lifecycle, from issuance to refinancing to maturity ▪ Setting time bound objectives extending beyond issuance maturity dates, with milestones along the way
3. Develop engagement strategies for priority companies	▪ Priority company approach including bondholder specific approaches to stewardship implementation including dialogue and escalation ▪ Progress assessment, recalibration and ongoing capital allocation strategy
4. Develop baseline engagement and voting policy approach for all companies[98]	▪ Feed views into equity stewardship teams where applicable ▪ Voting on consent solicitations
5. Ensure alignment of asset owner and manager alignment on net zero goals	▪ Asset owner expectations for fixed income stewardship
6. Develop a framework for transparency	▪ Similar to equities

Box 28: Engagement initiatives

Engagement initiatives enable investors to engage with some of the highest emitting listed companies. The initiatives can be valuable resources for investors aiming to scale up effective engagements and achieve engagement targets.

Climate Action 100+[99] (CA100+) is the largest investor global engagement initiative, engaging 170 of the world's biggest greenhouse gas emitters. It has established a common highlevel agenda for company engagement to achieve clear commitments to cut emissions, improve governance and strengthen both climate-related financial disclosures and transition plans, in order to create long-term shareholder value.

IIGCC's **Net Zero Engagement Initiative**[100] (NZEI) aims to help investors align more of their individual portfolios with the goals of the Paris Agreement, by scaling the number of companies covered by engagement. It was set up to extend the reach of engagement beyond the Climate Action 100+ focus list.

Through the **Banks Working Group**, IIGCC supports investors to engage 20 banks across Europe, Canada and Asia, supported by the investor-led Net Zero Standard for Banks[101] and TPI Assessment Framework.[102]

Nature Action 100[103] (NA100) supports greater corporate ambition and action on combatting nature and biodiversity loss. Although NA100 is focused on supporting investors to engage with companies on broader nature-related issues, many of the activities associated with nature loss are also contributing to emissions from Agriculture, Forestry and Other Land Use (AFOLU).

The **Finance Sector Deforestation Action** (FSDA) initiative brings together financial institutions which are working towards eliminating commodity-driven deforestation risks in their investment and lending portfolios by 2025. Investors participating in FSDA can address emissions associated with deforestation, which accounts for approximately half of AFOLU emissions.

[98] IIGCC has also developed Net Zero Voting Guidance (2024) to support asset owners and asset managers in developing net zero voting policies and practices that align with NZIF

[99] Climate Action 100+ (2024) Climate Action 100+

[100] IIGCC (2024), Net Zero Engagement Initiative

[101] IIGCC, TPI (2023), Net Zero Standard for Banks

[102] TPI (2023), TPI Assessment Framework

[103] Nature Action 100 (2024), Nature Action 100

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Baseline and priority company engagement

IIGCC's Net Zero Stewardship Toolkit recommends that investors consider developing a baseline level of engagement and voting approach for all companies to ensure that portfolio companies deliver on basic features of a climate strategy.

It is recommended that the baseline engagement and voting approach is supplemented by an enhanced engagement strategy for priority companies. Priority companies can be determined based on considerations of the materiality of companies to an investor's net zero portfolio objectives; for example, the proportion of financed emissions represented or likelihood of successful engagement.

Baseline engagement includes communicating net zero alignment expectations, defining a net zero voting policy for routine votes and a Say on Climate Vote policy, voting communications, and stewardship integration. Enhanced engagement can include additional voting expectations, increased dialogue and escalations, as well as capital allocation decisions.

There is no single definition of engagement; IIGCC recognises engagement strategies can vary. For instance, one strategy may be to focus on the highest emitting assets in a portfolio, whereas another may be to focus on the value chains of these assets. Investors will also take differing approaches to quality versus quantity of engagements, depending on a range of factors including resources and influence. Asset owners and managers that rely on external managers, for instance, face unique challenges that affect their engagement strategies.[104]

Investors are recommended to clearly set out their own definition of engagement and describe how it helps achieve the investors' stated individual net zero objectives and targets. The definition is also recommended to describe how the baseline engagement strategy and enhanced engagement strategy applies to the companies included in the engagement threshold target.[105]

Transparency framework

It is essential that investors are transparent about their engagement threshold target and their stewardship and engagement strategy to achieve it. Transparency ensures clients and beneficiaries whose mandates require a net zero investment strategy are kept informed of the investor's approach to the following: assets that are not aligning with net zero, to the mitigation of transition and physical risk, and to real economy decarbonisation.

Transparency is also key to supporting alignment between asset owners and managers in their approaches to engagement. The main objectives here are to ensure that engagement activity from an asset manager:

- Delivers what asset owners require to align their portfolios with net zero
- Optimises uses of resources
- Ensures consistency of goals and approaches across asset owner portfolio engagement efforts.

[104] IIGCC (2024), Net zero strategies for externally managed investments: new levers and targets

[105] Please see the Net Zero Stewardship Toolkit, Bondholder Guidance and Net Zero Voting Guidance for more details on developing engagement strategies.

In public reporting, investors are recommended to consider developing a transparency framework or process, building on the steps outlined in the Net Zero Stewardship Toolkit and Net Zero Bondholder Stewardship Guidance. This could include outlining:

- **Objectives** – The outcomes the investor aims to achieve through their engagements, including timebound objectives
- **Strategy** – The key principles and components of a net zero engagement and stewardship strategy, including:
  - The prioritisation framework
  - The engagement strategy for priority companies, including the approach to escalation and time bound engagement objectives
  - The baseline approach to engagement for non-priority companies and voting policy
  - Approaches across listed equities and corporate fixed income
- **Actions** – The engagement, stewardship and direct management actions undertaken
- **Outcomes** – The performance against the engagement threshold and the key outcomes that have been achieved

Case studies: Engagement targets & strategies

Investors continue to ramp up engagement efforts with their assets, recognising it as a key lever for influencing the transition. Investors have developed engagement targets through various approaches and are deploying robust strategies to meet the targets:

- Using the Net Zero Investment Framework to develop an effective engagement programme: KBI Global Investors
- Implementing a robust engagement strategy: Nest Pensions

Section 7
Asset level targets: Alignment and Engagement Sovereign bonds

Contents

Sovereign bonds

For further detail, references and citations, investors can revert to the IIGCC's Sovereign Bonds and Country Pathways discussion paper and target setting guidance.

Asset Alignment Target

For sovereign bonds, the asset alignment target is defined as:

- A 5-year target for increasing the percentage of sovereign bonds allocation to issuers that are categorised as 'aligned' to a net zero pathway or 'achieving net zero'.

Given the limitations of aligning sovereign bond portfolios with net zero pathways, a 2040 target of 100% of assets being aligned is not required. More detail is provided in the discussion paper.

1 Setting the scope

For the asset alignment target, investors are recommended to include sovereign bonds of all maturities issued in domestic or foreign currencies.

The asset alignment criteria applies to issuers exclusively; labelled bonds or climate-related issuances should not be allocated an alignment status. Providing that they meet external validation and safeguards, labelled bonds and other climate related issuance can be considered under the climate solutions objective.

Table 20: Setting scope recommendations for sovereign bonds

Issuer	Recommendations for inclusion
National government	■ All sovereign issuance from national governments is considered in scope for the asset alignment target, including holdings required for liability matching, regulatory purposes, or cash management. ■ However, inevitable restrictions are likely to exist that will affect the practical extent that these assets can be aligned. Any restrictions are recommended to be disclosed.
Sub-sovereigns, municipal or state authorities and supra-nationals	■ Such bonds are not expected to be included in alignment targets, although investors may apply similar concepts on a best effort basis. ■ Labelled and climate-related instruments issued by these entities may be considered under the Climate Solutions Objective.
Publicly (majority) owned company (i.e., State-Owned Enterprises)	■ Investors are recommended to include these companies in the corporate fixed income alignment target.

2 Assessing alignment

Investors are recommended to develop an approach to assessing the alignment of sovereign bonds within their portfolios, while incorporating 'fair share' considerations in line with the Common but Differentiated Responsibilities and Respective Capabilities (CBDR+RC) principles of the Paris Agreement. In doing so, investors are recommended to refrain from implementing strategies that lead to systematically rebalancing away from emissions-intensive emerging markets that are making efforts towards a fair transition.

This section outlines key considerations for investors when developing an approach to alignment assessment.

Consider 'fair share'

When assessing issuers against the criteria, investors are recommended to consider 'fair share' elements underpinning the distinction between developed and developing economies in terms of historical emissions responsibility and current capability.

See step 4 of the portfolio decarbonisation reference objective for sovereign bonds section for an explanation of 'fair share'. See Appendix A to understand how the alignment criteria can be adjusted for Emerging Market and Developing Economies (EMDEs) to account for 'fair share' considerations, as well as the additional four criteria which investors may consider using in their engagement interactions.

Assign a CBDR+RC category

Investors are recommended to assign a CBDR+RC category for every sovereign in the portfolio. This means distinguishing between developed economies with higher historic emissions liability and EMDEs that require more time to reach peak emissions, as well as external support to meet their mitigation goals. Investors are encouraged to disclose the frameworks of reference chosen for this categorisation (e.g., Annex I and Annex II Parties of the UNFCCC, OECD membership,[106] World Bank income categorisation,[107] or others for example by private vendors).

Integrate appropriate net zero pathways

Multiple net zero pathways have been developed on a country level which aim to consider equity elements. Investors are recommended to disclose the decarbonisation pathway used as a benchmark to assess the alignment of the sovereign bonds. For 'High Income' or 'Developed Markets', a relatively more ambitious net zero pathway may be considered. For EMDEs, a 'fair share' pathway may be considered.

Specifically, when assessing sovereigns against the emissions performance criterion, it is recommended investors assess if this is a satisfactory performance, relative to a specified country or regional decarbonisation pathway. Investors can find more guidance on country pathways in Step 4 of the portfolio decarbonisation reference objective section for sovereigns.

Assign NZIF alignment maturity metric

The table below outlines the alignment criteria for sovereign issuers and which criteria is recommended to be met to move up the maturity scale. Investors are recommended to use the criteria below to determine the alignment category of the issuer.

[106] Parties and observers (2024), UNFCCC

[107] World Bank country classifications by income level for 2024-2025 (2024), World Bank

Table 21: Criteria underpinning alignment assessment

Criteria	Committed to aligning	Aligning to a net zero pathway	Aligned to a net zero pathway	Achieving net zero
Budget/capital allocation alignment: A clear demonstration that the budgeting actions of the country are consistent with global net zero goals (e.g. climate budget tagging, where an ambitious share of the budget is green).				✓
Emissions performance: Current absolute GHG emissions trend is at least equal to a relevant net zero pathway, or converging in a manner that is satisfactory.			✓	✓
Decarbonisation plan: A robust quantified plan setting out the measures that will be deployed to deliver GHG targets (LT-LEDS), and how the sovereign is enacting the policies necessary to deliver against its NDCs.		✓	✓	✓
Disclosure of emissions: Comprehensive and timely disclosure of emissions (e.g. data quality, historical data, LULUCF, etc).		✓	✓	✓
Targets: Short and medium term emissions reduction targets aligned with global net zero goals. These are set at the production emissions level (scope 1) and should be consistent with the Paris Agreement (NDCs).		✓	✓	✓
Ambition: A long term goal consistent with the global goal of achieving net zero by 2050, as well as interim goals and targets that are coherent with it (NDCs absolute emissions targets).	✓	✓	✓	✓
To account for 'fair share' considerations, investors can relax some of the criteria for the countries they classify as EMDEs. For example, countries that are currently carbon sinks do not need to satisfy the other criteria to be considered as 'Achieving net zero'.	Additional alignment criteria to be met to move to that alignment category			

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Tools

There are multiple tools available to support investors in assessing countries against the alignment criteria.

Table 22: Tools for assessing country alignment

Tool		Description
ASCOR Fair share pathways	**ASCOR**[108]	■ **Assessment tool** specifically created by investors to support sovereign engagement and investment decision-making. ■ **Coverage:** 25 countries initially (to be expanded to 70 in 2024). ■ **3 pillars:** Emissions pathways, climate policies, climate finance. ■ Investor-driven, all from public sources, fully transparent and replicable methodology.
CCPI Climate Change Performance Index	**Climate Change Performance Index**[109]	■ **Ranks, rates and scores countries'** climate policies and climate performance. ■ **Coverage:** 63 issuers + EU. ■ **3 pillars:** Policies and actions, emissions reduction target, climate finance. ■ Scores available since 2005, easy to understand. Commercial use possible with a licence.
Climate Action Tracker	**Climate Action Tracker**[110]	■ **Ranks countries'** climate policies and climate performance. ■ **Coverage:** 40 issuers, including EU. ■ **4 pillars:** Current emissions, energy usage, renewable energy, and climate policy progress. ■ Solid scientific base plus 'fair share' considerations. Commercial use possible with a licence.

Furthermore, the Net Zero Tracker[111] focuses on emissions accounting and reporting, and includes data for several cities and states. The Green Future Index[112] offers a comparative annual ranking of 76 nations and territories on their progress and commitment toward building a low-carbon future.

Beyond these tools, there are other data sources that are commercially available. For example, Bloomberg's Government Climate Scores (GOVS) measures 140 governments' decarbonisation transition efforts across +100 metrics, including forward looking data. This can be used by investors to analyse each country's progress and preparedness in meeting the global Paris Agreement goals, relative to their peers.

[108] Assessing Sovereign Climate-related Opportunities and Risks (2024), ASCOR
[109] Climate Change Performance Index (2024), CCPI
[110] Climate Action Tracker (2024), Climate Action Tracker
[111] Net Zero Tracker (2024), Net Zero Tracker
[112] MIT Technology Review (2023), Green Future Index

3 Setting the target

Once an approach to assess and classify sovereign issuers in the alignment scale has been established, investors can set a target to scale up the proportion of aligned assets:

- A 5-year target for increasing the percentage of sovereign bonds allocation to issuers that are categorised as 'aligned' to a net zero pathway or 'achieving net zero'.

Inevitable restrictions are likely to exist that will affect the practical extent these assets can be aligned. Any restrictions (such as due to liability management and or cash management) are recommended to be disclosed.

4 Delivering the target

Acknowledging nuance

IIGCC recognises achieving net zero targets for sovereign bond portfolios will be particularly challenging. Such challenges are outlined in the table below, and can be disclosed by investors when setting out net zero strategies for sovereigns.

Table 23: Challenges in integrating sovereign bonds into net zero strategies

Challenge	Description
Regulatory and mandate constraints	Regulatory requirements and specific mandates can limit cross-country investments. Most sovereign bond portfolios operate under liability management restrictions.
Limited number of issuers and concentrated nature of the market	A limited and concentrated market (<150 issuers vs. thousands of corporate issuers) means that reducing the exposure to some sovereigns in the portfolio may force others to be overweighted, potentially leading to concentration risk and other material risks.
Risk management	Sovereign bonds often play a critical role across portfolios in terms of duration management, FX exposure, hedging and cash management, among others. In the context of fiduciary duty, this can make exclusions, optimisations or tilts a sensitive approach.
Data availability and quality	Availability and quality of data on emissions and alignment efforts varies greatly across countries. Gaps remain, for example, in accounting for consumption-based emissions and LULUCF emissions.
Internal capacity constraints	The ability of a country to gather and aggregate data requires significant resources and coordination amongst relevant ministries, resulting in data gaps creating challenges for index providers and investors.
Concerns around engagement	These include limited opportunities for investor engagement, the non-credible threat of exit, the complex and multifaceted nature of sovereign entities, a lack of metrics to assess causation, and the ability to assess impact and 'fair share' considerations.
Electoral cycles	Sovereign policy is prone to changes due to electoral cycles. These cycles can materially impact commitments and progress of countries, as well as hinder engagements, which could result in sudden unintended portfolio misalignment.
Flaws in global frameworks	Stemming from inconsistency in definitions among countries' NDCs, a lack of accountability for targets set, discrepancies between commitments and the goals of the Paris Agreement, as well as ambition and implementation gaps.
Lack of regulation	Limited regulation for assessing and reporting on sustainability issues, such as taxonomies which are available for assessing corporates. Reporting standards for public sector entities are also lacking.

Despite the limitations, more resources are increasingly available to facilitate discussions between investors and sovereigns, and to support the delivery of an asset alignment target for sovereign bonds. These include new assessment tools and better data, improved granularity in sectoral and regional decarbonisation pathways, new opportunities to engage, and enhanced target setting and implementation guidance for sovereign bonds.

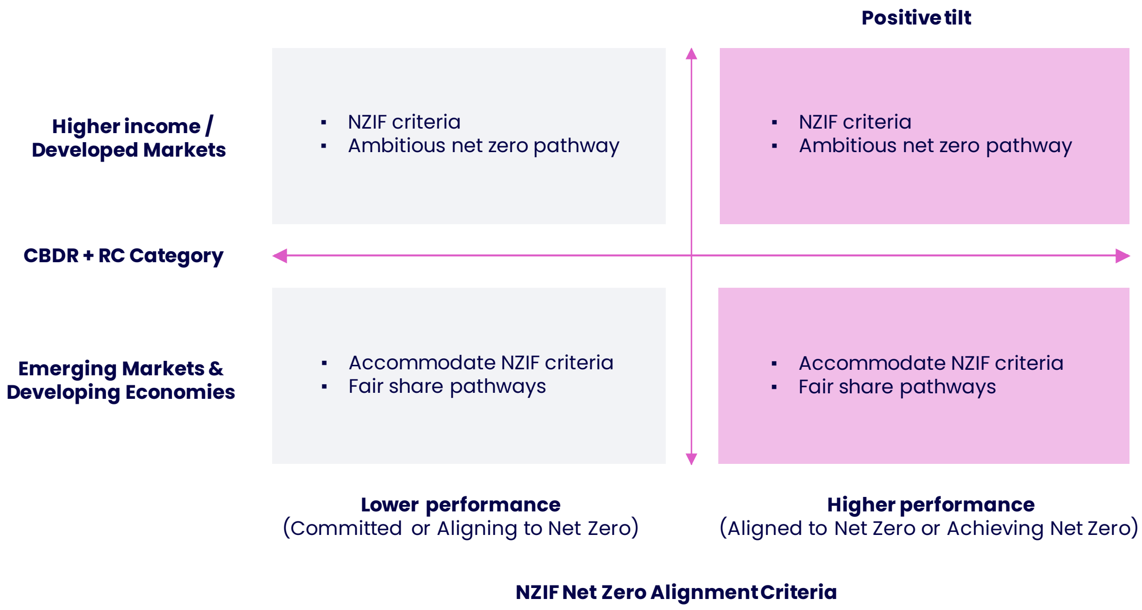
Capital allocation

While acknowledging the multiple potential limitations to exercise portfolio allocation decisions for this asset class, over time the framework seeks to incentivise portfolio tilts towards climate high-performing issuers, while qualifying the alignment criteria for EMDEs to consider CBDR+RC and 'fair share' principles.

Engagement

While the sovereign engagement toolkit is currently relatively limited compared to corporate assets, investors have a growing range of actions available for engaging with policymakers to boost the necessary climate action of governments. See the engagement threshold section below for further guidance.

Figure 18: Tilting towards high sovereign performers



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5 Monitoring the target

Review categorisations

Investors are recommended to establish a process to periodically review the categorisation of sovereign issuers, at least once a year, and commit to update with any new information, such as an update to NDC commitments.

Disclosure

To enhance transparency, investors are recommended to disclose relevant information relating to the development of their alignment approach and setting of targets. This includes:

- Data sources used
- The criteria used for CBDR categorisation
- Alignment assessment methodologies implemented
- Targets, including updates to targets
- Restrictions, such as holdings required for liability matching purposes
- Exceptions, such as due to data limitations and the methods used to fill information gaps

Case studies: Sovereign bond alignment

Challenges around a lack of available methodologies and data have hindered investors developing alignment methodologies for sovereign bond portfolios. However, some investors have tackled such barriers, developing innovative products and strategies for sovereign alignment, including:

- A fair assessment of governments' transition to net zero: Ninety One's Net Zero Sovereign Index
- IIGCC's Across the Asset Class Series

Engagement Threshold Target

Investors are recommended to develop an engagement threshold target for their sovereign bond assets, defined as:

- A threshold of financed emissions from sovereign bonds in a portfolio and undertake engagement actions with the relevant countries and territories.

Stewardship and engagement strategy

When developing a stewardship and engagement strategy, investors are recommended to integrate and report on the following actions:

Prioritisation: Seek active engagement with highest impact sovereigns or largest exposures that do not perform well against the criteria.

Direct and indirect engagement: Participate in engagement efforts both directly with governments or indirectly through networks such as IIGCC, AIGCC, Ceres, and IGCC.

Labelled bonds: Engage with issuers, investment banks and development agencies to increase issuance of labelled bonds, including SLBs with Paris-aligned KPIs, and other climate solutions.

Early engagement: Commence engagement well in advance of the issuance process and seek opportunities to shape bond characteristics, such as KPIs for SLBs, in a manner that enhances climate ambition.

Engaging on data: Advocate for data providers to develop indicators to assess criteria set out by the asset alignment target methodology.

Engaging on pathways: Advocate for pathway tools to incorporate and make explicit the inclusion of 'fair share' principles within national level assessments.

Engaging on disclosures: Engage to enhance and standardise national disclosures based on the alignment criteria set out, improve quality and consistency of LULUCF and methane emissions reporting, and improve quality and consistency of consumption emissions disclosures.

Engagement: Seek opportunities for dialogue between investors and debt management offices and other national and subnational entities on the links between sovereign bond issuance, sovereign risk, and climate risk.

Section 8
Asset level targets: Alignment and Engagement Real estate

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Real estate

Asset Alignment Target

For real estate, the asset alignment target is defined as:

- A 5-year target for increasing the percentage of AUM or financed emissions that are 'aligning' or 'aligned' to a net zero pathway, or 'achieving net zero'.

This target is encouraged to increase towards the goal of 100% of AUM or financed emissions to be net zero or aligned to net zero by 2040.

1 Setting the scope

When setting the scope of the asset alignment target for real estate, investors are recommended to include:

- **Investments:** Individual direct investments, investments in assets pooled through a fund structure, and investments in listed real estate companies, and real estate debt.
- **All types of real estate:** Retail, office, industrial, residential, hotel, lodging, leisure & recreation, education, and technology/science.
- **Lifecycle stage:** Existing real estate assets and those in development.

2 Assessing alignment

Table 33 shows the criteria that real estate assets are recommended to be assessed against in order to move up NZIF's maturity scale[113], from committed to aligning to achieving net zero.

For real estate assets being managed in line with net zero, investors are recommended to assess the current and past performance and forward-looking alignment based on carbon emissions and energy intensity in line with net zero pathways. Assessments are recommended to include scope 1, 2 and material scope 3 emissions.

[113] Paris Aligned Investment Initiative (2024), NZIF 2.0

Table 24: Criteria underpinning alignment assessment

Criteria	Committed to aligning	Aligning to a net zero pathway	Aligned to a net zero pathway	Achieving net zero
Asset with emissions intensity and energy intensity required by the sector and regional pathway for global net zero by 2050 and whose operational model will maintain this performance.				✓
Emissions performance: Current absolute or emissions intensity and energy intensity is at least equal to a relevant net zero pathway.			✓	✓
Decarbonisation plan: Development and implementation of a quantified plan setting out a decarbonisation strategy for scope 1, 2, and material scope 3 emissions.		✓	✓	✓
Governance: Governance/ management responsibility for targets/ decarbonisation plan.		✓	✓	✓
Disclosure: Disclosure of scope 1 and 2 emissions, and disclosure of material scope 3, in line with regulatory requirements where applicable or the PCAF standard.		✓	✓	✓
Targets: Short and medium term (absolute or intensity) targets for scope 1, 2 and material scope 3 emissions in line with science based 'net zero' pathways, using: a. Where available, a sectoral decarbonisation/carbon budget approach b. For other assets, a global or regional average pathway.		✓	✓	✓
Ambition: Long term goal consistent with the global goal of achieving net zero by 2050 or sooner.	✓	✓	✓	✓

Due to the nature of decarbonising real estate portfolios and assets, and aligning with the Carbon Risk Real Estate Monitor (CRREM) pathway[114], over time assets may move between 'aligned' and 'aligning' on the maturity scale as a result of an asset's decarbonisation plan and emissions performance.

For example, a real estate asset may be 'aligned' to the CRREM pathway at a point in time, and over time move above the required 1.5°C decarbonisation pathway. This may be as a result of the decarbonisation plan being in place for the asset, and, for example, the renovation is due to take place after the lease has expired. Therefore, the asset would be 'aligning' until the renovation takes place and it falls below the 1.5°C decarbonisation pathway.

For projections of future alignment, this is recommended to account for:

- Assumptions about the energy mix and demand in different buildings and locations.
- Potential for, and plans relating to, renovations, refurbishments and retrofit and other investments to address emissions and energy use.
- Fugitive emissions and transmission losses associated with the relevant energy system.

The Framework recommends that investors use the CRREM tool to assess the alignment of real assets. This has the functionality to assess current and past performance, as well as forward looking alignment including assumptions on the effect of future actions, such as planned retrofits, etc. When first launched in early 2020, CRREM was only available for European commercial real estate. Now, the tool provides pathways against which investors can assess their residential and commercial assets in over 44 jurisdictions globally. Investors are encouraged to use the latest version of the CRREM tool – Version 2.0.

Box 29: Use of other methodologies

In regions where CRREM is currently less applicable due to market-specific differences, investors may use alternative Paris-aligned methodologies or tools to assess alignment.

When using other methodologies or tools, investors are recommended to disclose when this has occurred, alongside explaining which methodology or tool has been used and why.

For investors setting embodied carbon targets, this is recommended to include the emissions associated with the production, transport and installation of building materials and components, as well as the construction or renovation process itself. For full transparency, these are encouraged to be disclosed in any decarbonisation plan and regularly updated.

Box 30: IIGCC's Whole Life Carbon Guidance

Further information on addressing whole life carbon emissions and whole life carbon data can be found in IIGCC's *Addressing Whole life carbon in real estate portfolios: A step-by-step guide*[115]

Assessment of embodied emissions performance against a net zero pathway can be accounted for as they become available. For example, SBTi's 1.5°C embodied carbon pathway for the global buildings sector and in the UK, the UK Net Zero Carbon Buildings Standard.[116, 117]

Data

To the extent possible, investors are asked to obtain accurate operational and embodied emissions data. Where this is not possible, investors can rely on industry proxies to estimate missing data.

[114] CRREM (2024), CRREM Decarbonisation Pathways
[115] IIGCC (2023), Addressing Whole life carbon in real estate portfolios: A step-by-step guide
[116] SBTi (2023), Embodied carbon pathway development description
[117] Net Zero Carbon Buildings (2024), Net Zero Carbon Buildings

3 Setting the target

Once the baseline year assessment has been made, investors are recommended to set:

- A 5-year target for increasing the percentage of AUM or financed emissions that are 'aligning' or 'aligned' to a net zero pathway, or 'achieving net zero'.

This target is encouraged to increase towards the goal of 100% of AUM or financed emissions to be net zero or aligned to net zero by 2040.

This is recommended to be a five yearly target cycle. Depending on an asset owner or manager's strategy, investment style, and flexibilities, the target may be informed by a number of factors and choices.

Mandate

An asset owner may simply seek to mandate an asset manager to achieve a predetermined linear target to increase the proportion of assets that are considered net zero, aligned or aligning over time, subject to relevant fiduciary and risk/return requirements.

The manager would then meet this expectation through a combination of engagement and portfolio management as relevant (see next step).

4 Delivering the target

Investors may utilise multiple levers with the aim of transitioning real estate assets towards meeting the alignment criteria and achieving the asset alignment target.

Portfolio construction

Investors are recommended to make portfolio construction decisions that consider the alignment performance of assets. This may include:

- Collecting necessary data to assess a portfolio using the relevant decarbonisation pathway, e.g. CRREM tool or equivalent standard, and/or estimations and approximations for missing data.
- Screening new investments using the CRREM model or equivalent standard to assess alignment and incorporate into decision-making in order to achieve targets over time.
- For direct investments (and own buildings), investors can determine expected investment/management plans that could be implemented to align assets through retrofits to reduce energy use and increase renewable energy use.
- An asset manager or owner can consider expectations – and minimum alignment criteria – for new investments to determine portions of a target that could be met through new investments meeting alignment criteria.

Management

Investors are recommended to integrate alignment assessments and targets into core management decisions:

- Develop a clear timebound management and investment strategy supported with strong ESG policies and carbon reduction commitments that, over time, achieve a portfolio consistent with CRREM pathways, or equivalent standard.
- Strategies and plans adopted and implemented by all relevant stakeholders and translated into agreements with relevant parties involved in the management of real estate assets.
- Align direct investments (and own buildings) via investment/management plans to improve energy efficiency and increase renewable energy use.

Engagement and stewardship

Investors in real estate are recommended to implement a robust engagement and stewardship strategy to improve the climate performance of real estate assets.

The engagement threshold section below provides further detail for developing a robust engagement strategy and target.

5 Monitoring the target

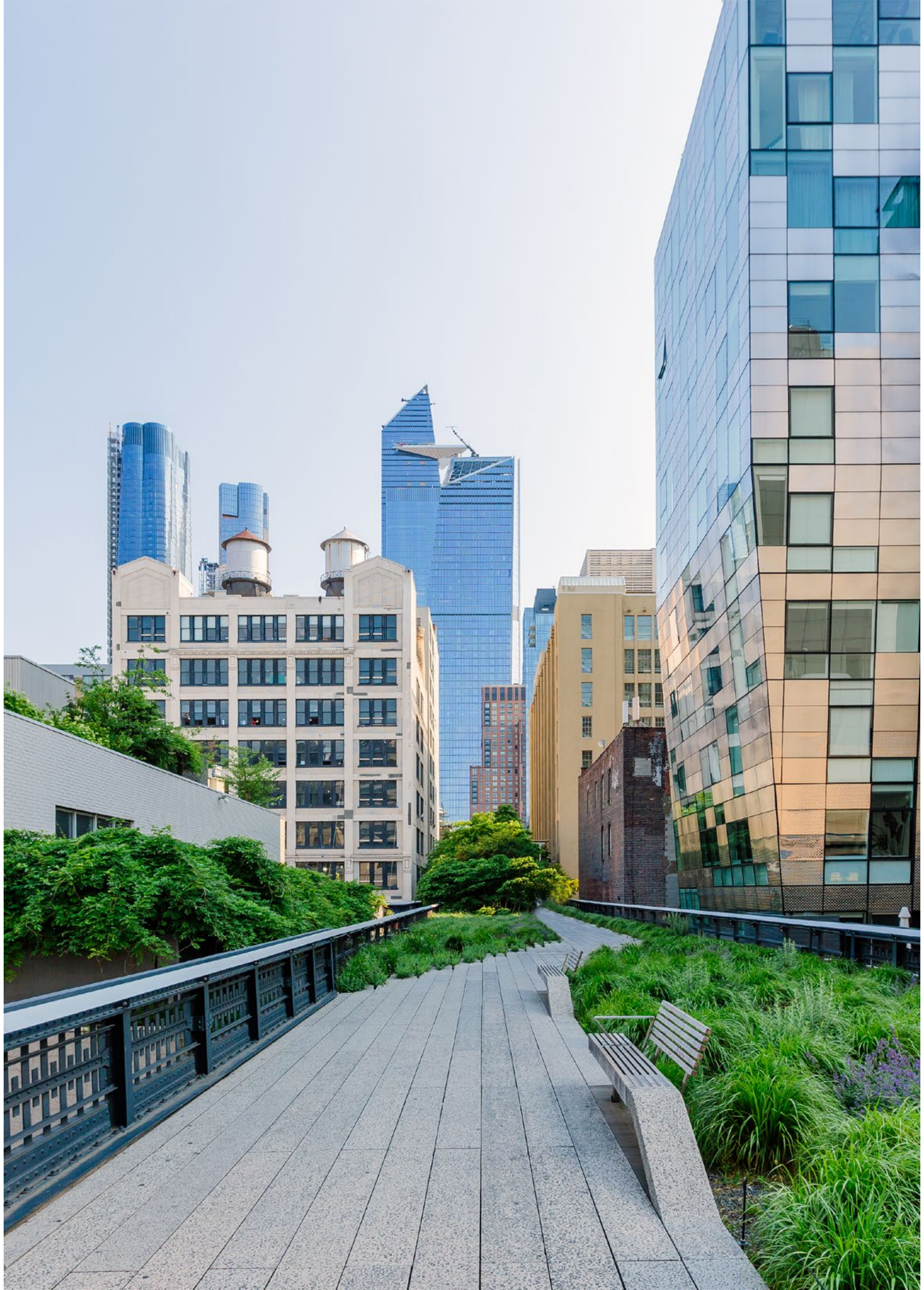
Investors are recommended to review and update targets, with portfolio alignment assessments and disclosures recommended to take place on at least a yearly basis.

See 'Monitoring the targets' in the 'across all asset classes' section for more detail on disclosure and attribution analysis.

Case studies: Asset level targets across asset classes

A growing number of investors are recognising the importance of assessing asset alignment and setting targets to scale up alignment. To date, most investors have prioritised certain asset classes, however, some are setting targets across a range of asset classes, including:

- Implementing alignment and engagement strategies across multiple asset classes: Local Pensions Partnership Investments (LPPI)
- IIGCC's Across the Asset Class Series



Engagement Threshold Target

Investors are recommended to develop an engagement threshold target for their real estate assets, defined as:

- A short term (<5 years) engagement threshold target which ensures that at least 70% of financed emissions are either assessed as 'aligned' to a net zero pathway or 'achieving net zero', or subject to engagement and stewardship actions.

This threshold is encouraged to be increased to at least 90% by 2030 at the latest.

Engagement and escalation strategy

When developing an engagement and escalation strategy for real estate investments, investors may want to consider the following points:

As a general principle, investors are recommended to prioritise engagement based on stranding risk and exposure.

Listed real estate companies: The approach would be similar to that for listed equity and corporate fixed income (see engagement threshold section), involving an escalation strategy that allows forecasting the timeframes over which listed companies will meet alignment criteria responding to engagement actions.

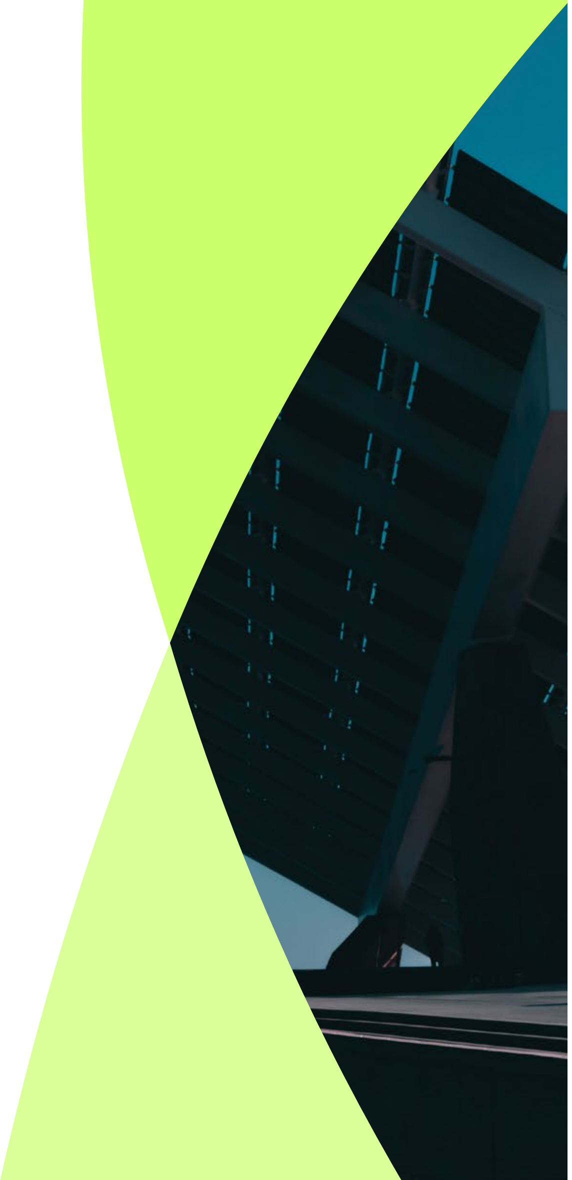
Non-listed real estate companies: The approach may consider the engagement approach outlined in the listed equities and private equity engagement sections of this guidance.

Directly owned assets: Investors are recommended to engage with tenants, whilst prioritising engagement based on the level of stranding risk and size of exposure to assets. This could involve:

- Improving the data collection process for energy use by encouraging, or even requiring, tenants to share energy use data with building owners
- Facilitating actions and investments that reduce energy costs for tenants and owners, and reduce emissions in line with net zero pathways
- Addressing any split incentive between building owners and tenants and allow the costs of retrofits to be shared through building service charges
- Encouraging corporate tenants to adopt corporate emissions reduction targets consistent with net zero
- Strengthening the role of green leases
- Strengthening cooperative policy engagement to improve the policy framework around investments in building retrofits
- Reporting and disclosing, with the objective of achieving a positive scoring on GRESB tenant engagement indicators related to climate and energy use
- Joining real estate engagement initiatives to support the aligning of assets

Section 9

Asset level targets: Alignment and Engagement Infrastructure



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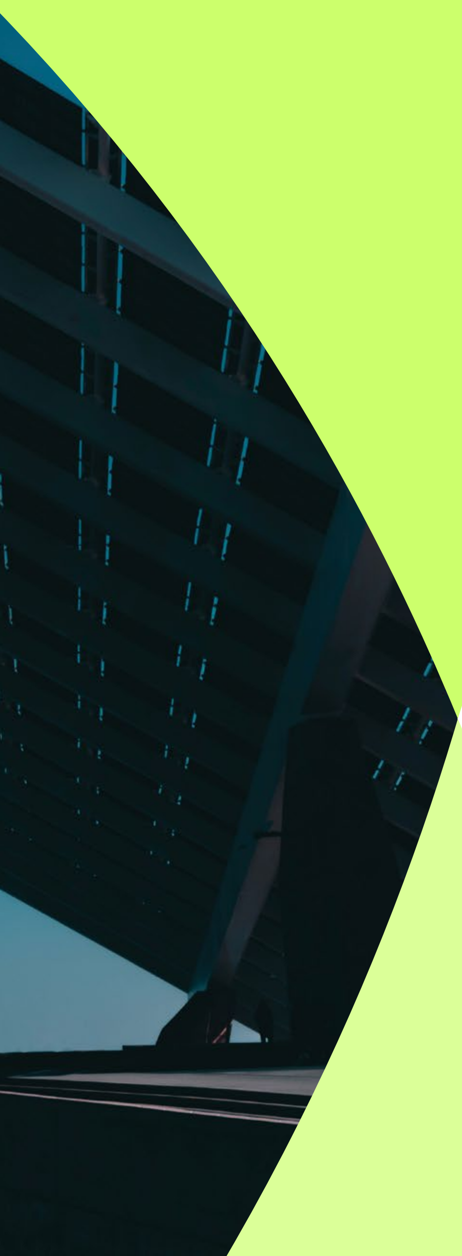

For further detail, references and citations, investors can revert to the Infrastructure Component of the Net Zero Investment Framework.

Additional guidance is available for investors which adapts NZIF recommendations for application specifically in private markets investment when dealing with the infrastructure asset class[118]. This guidance is not integrated into this document.

Asset Alignment Target

For infrastructure, the asset alignment target is defined as:

- A 5-year asset alignment target for increasing the percentage of AUM or financed emissions in material sectors that are 'aligning' or 'aligned' to a net zero pathway, or 'achieving net zero'.

This target is encouraged to increase towards the goal of 100% of AUM or financed emissions to be net zero or aligned to a net zero pathway by 2040.

1 Setting the scope

Infrastructure alignment targets are recommended to incorporate equity and debt exposure held through direct or co-investments, listed and unlisted infrastructure funds, project finance or passive investments.[119] It typically includes greenfield and brownfield investments in economic and social infrastructure.

Potential crossover with other asset classes is high, which is why investors will need to assess which asset class methodology is most appropriate.

[118] IIGCC (2024), Supplementary NZIF implementation guidance: Private markets infrastructure

[119] Natural infrastructure is not in scope

2 Assessing alignment

Operational assets

For operational assets, investors are recommended to determine where an asset sits on the alignment maturity scale from achieving net zero to not aligning, using Table 25 below.

Table 25: Criteria underpinning alignment assessment

Criteria	Committed to aligning	Aligning to a net zero pathway	Aligned to a net zero pathway	Achieving net zero
Asset with emissions intensity required by the sector and regional pathway for 2050 and whose operational model will maintain this performance.				✓
Emissions performance: Current and forecast emissions performance (scope 1, 2 and material scope 3) relative to target or net zero benchmark/ pathway, or an asset's science-based target. An aligned asset would need to see emissions decline consistent with targets set to converge an asset with a net zero pathway.			✓	✓
Decarbonisation plan: Development and implementation of a quantified plan setting out a decarbonisation strategy for scope 1, 2, and material scope 3.			✓	✓
Governance: Governance/ management responsibility for targets/ decarbonisation plan.		✓	✓	✓
Disclosure: Disclosure of scope 1 and 2 emissions, and disclosure of material scope 3, in line with regulatory requirements where applicable or the PCAF standard.		✓	✓	✓
Targets: Short and medium term targets for scope 1, 2 and material scope 3 emissions in line with science based 'net zero' pathway. These may be absolute, or intensity based: a. Where available, a sectoral decarbonisation/carbon budget approach is encouraged to be used b. Minimum for other assets is a global or regional average pathway.		✓	✓	✓
Ambition: A long term goal consistent with the global goal of achieving net zero by 2050.	✓	✓	✓	✓

Additional comments on 'achieving net zero'

Investments could be categorised as achieving net zero when:

- Emissions are being disclosed;
- Emissions performance is already at least equal to what is required by its sector/regional pathway for the year 2050; and
- An operational model will maintain this performance.

They do not need to fulfil the preceding criteria as these, along with the preceding categories, represent steps towards the ultimate achievement of net zero emissions. This means the ambition, decarbonisation strategy, and governance criteria do not have to be fulfilled.

This does not negate the utility of these criteria. For instance, science-based targets and decarbonisation plans are important for the ongoing maintenance of facilities or the importance of issues such as embodied emissions. However, currently it is considered that the lack of these should not inadvertently demote the categorisation of investments.

Greenfield assets

For greenfield assets, the highest status that can be achieved is 'aligning'. To achieve 'aligning', greenfield assets are recommended to meet the ambition, targets, decarbonisation plan and climate governance criteria, as well as the following criteria:

- **Asset delivery:** The asset will be or is being constructed in a way that is designed to deliver an asset that can be aligned to a net zero pathway, including consideration of whole lifecycle emissions to minimise embodied emissions and avoid carbon lock-in.
- **Construction phase:** There is a decarbonisation or management strategy to minimise emissions in the construction phase.

In transitioning from greenfield to operational status, it is recommended investors ensure scope 1, 2 and 3 emissions data is compiled and disclosed, as well as a target set to maintain aligning status[120].

Data

For both operational and greenfield assets, achieving emissions disclosure (and several other indicators) may take a significant period of time. Investors will need to use the best available data or estimates to address gaps and engage with companies, users and regulators to improve disclosure. It will be possible, over time, to credibly benchmark embedded emissions related to steel and concrete with a 1.5°C scenario. It will be important for infrastructure investors to incorporate this into their assessment of the value chain.

Investors are encouraged to work towards their assets achieving these indicators as soon as possible. However, the expectation is that assets will achieve these indicators progressively, and the targets relating to alignment can be set to take account of the timeframes it may take to achieve these.

Annual third party verification of an asset's disclosures associated with the criteria is recommended[121].

[120] As an asset becomes operational, beyond meeting the required criteria for a greenfield asset to be aligning, an investor would need to ensure that scope 1, 2 and 3 emissions data are compiled and disclosed as well as a target set. Although this is a distinct requirement, the first criteria for greenfield assets to be aligning requires a plan for the lifecycle of the asset to be consistent with net zero. Providing the asset follows the expected trajectory for emissions in the plan, the correct disclosures and establishment of a target should be consistent with aligning status being maintained in operation.

[121] Other aspects of asset alignment that are potentially of common interest to infrastructure investors as well as other asset classes – for example, concerning the use of offsets – will be addressed in future guidance for NZIF.

3 Setting the target

Following the assessment of infrastructure assets' alignment, investors are recommended to set alignment targets to increase alignment of assets:

- A 5-year asset alignment target for increasing the percentage of AUM or financed emissions in material sectors that are 'aligning' or 'aligned' to a net zero pathway, or 'achieving net zero'.

This target is encouraged to increase towards the goal of 100% of AUM or financed emissions to be net zero or aligned to a net zero pathway by 2040.

Targets are recommended to be set on a fund-by-fund basis by asset management but may also be set as an aggregate for the portfolio if more relevant.

It is recommended that the different types of infrastructure assets and the different levels of influence investors may have should be acknowledged in the target-setting stage.

Table 26: Recommendations for type of infrastructure asset or influence of investor

Type of asset / influence	Recommended timelines
Meaningful influence	For any new assets where the GP has a meaningful influence or control influence[122], it is recommended that the alignment criteria should be achieved progressively, towards the goal of 100% of operational assets to be classified as 'aligned' or 'net zero' by 2030, or, for acquisitions after 2025, within five years of investment. Assets in the construction phase are recommended to be required to meet the 'aligning' criteria.
Fund of funds	For fund of funds, the asset owner or asset managers shall aim, by 2030 at the latest, to only invest with firms or fund managers who themselves are setting asset alignment targets.
Closed ended funds	For closed ended funds, where the end of fund date is sooner than the recommended target dates (2030, 2040), an appropriate shorter term end target is recommend to be set.

4 Delivering the target

To help deliver the alignment target, investors are recommended to develop and disclose a net zero investment strategy. Investors may utilise multiple levers to inform this strategy and to help infrastructure assets transition towards meeting the alignment criteria and achieving the asset alignment target.

Portfolio construction

A number of portfolio construction decisions are recommended to be considered within an investor's net zero strategy.

Negative screening for emissions intensity:

- Assess emissions intensity of the asset including scope 3 and facilitated emissions, and potential for the asset to align with a net zero pathway.
- For greenfield assets, this assessment is recommended to consider full lifecycle emissions.
- Where assets cannot be aligned, new investment is recommended to not be considered.

Negative screening for debt: For debt investments, given the more limited ability to influence during the holding period, the screening test is recommended to be higher, including whether the asset has an alignment target/strategy, or if the investor has a reasonable expectation that they can engage the issuer to achieve this.

[122] Meaningful influence defined as a shareholding of 25% or more and board representation.

Negative screening for internal rate of return: Undertake climate risk assessment and, to the extent possible, assess marginal abatement cost curves, and forecast internal rate of return (IRR) in a net zero scenario and only invest in assets where forecast IRR hurdles can be achievable in net zero scenarios.

Positive screening: Investors are encouraged to seek to increase exposure in assets that are meeting the alignment criteria.

Conduct a Do No significant Harm assessment: Where opportunities with credible strategies/pathways to address harm can be identified and implemented, investment is not precluded.

Engagement and stewardship

Investors can engage with their assets to encourage improved climate performance and scale up exposure to 'aligned' assets. See the engagement threshold section below detailing the engagement actions investors can use to develop their infrastructure engagement strategy.

5 Monitoring the target

Investors are recommended to review and update targets, with portfolio alignment assessments and disclosures recommended to take place at least annually.

See 'monitoring the targets' in the 'across all asset classes' section for more detail on disclosure and attribution analysis.

Case studies

Since its publication, investors have been implementing NZIF's infrastructure guidance to develop robust targets, including:

- Implementing the Net Zero Investment Framework for infrastructure: Macquarie Asset Management

Engagement Threshold Target

Investors are recommended to develop an engagement threshold target for their infrastructure assets, defined as:

- A short term (<5 years) engagement threshold target which ensures that at least 70% of financed emissions in material sectors are either 'aligned' to a net zero pathway or 'achieving net zero', or subject to engagement and stewardship actions.

This threshold is encouraged to increase to at least 90% by 2030 at the latest.

Given the scale and impact of energy intensive infrastructure assets, it is additionally recommended that, for infrastructure investments, 100% of carbon-based energy and transport assets are the subject of collective or direct engagement.

Stewardship and engagement strategy

When developing a stewardship and engagement strategy, investors are recommended to integrate and report on the following actions:

- Direct engagement/management to establish timebound KPIs for emissions measurement/ disclosure, target setting, development, and implementation of strategies, possibly including support through training and knowledge sharing.
- Ensure governance and management responsibilities for climate change are defined for each asset/operator, including establishing remuneration linkage.
- Stewardship/engagement with escalation strategy based on achievement of alignment indicators.
- For debt holdings, use change/waiver processes to introduce relevant ESG requirements.
- Monitoring and reporting on carbon performance and achievement of milestones/actions defined in company strategies.
- Engagement of employees, suppliers, regulators and community to ensure a just and effective transition process.
- Engagement with suppliers and greenfield developers to advocate for reducing emissions from purchased materials and assets' embodied emissions.

Section 10

Asset level targets: Alignment and Engagement Private equity

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Private equity

For further detail, references and citations, investors can revert to the Private Equity Component of the Net Zero Investment Framework.

Asset Alignment Target

For private equity, the asset alignment target is defined as:

- A percentage of invested capital (for GPs) or committed capital (for LPs) or financed emissions to be 'managed in alignment' with net zero by 2030.

An increased target is recommended to be set for 2040, and a target of 100% net zero by 2050.

Portfolio companies (PCs) can be deemed as "managed in alignment with net zero" when they meet the *committed to aligning/aligning/aligned/net zero criteria* within the milestones outlined in this guidance.[123]

Extra considerations:

- **Structure –** The organisation's structure, whether they are a Limited Partner (LP) or General Partner (GP), will affect the metrics chosen and determine the level of ambition recommended at the milestone years of 2030, 2040 and 2050.
- **Fund vintages –** The timing of target alignment milestones will depend on when the fund is launched.

1 Setting the scope

Scope of investments

Private equity investors are recommended to use the guidance for setting targets for buyout and growth equity investments, including related strategies such as co-investments, fund of funds, and secondaries.

New funds – It is recommended investors establish the proportion of invested or committed capital to be managed in alignment with net zero ahead of each new fund launch, according to respective circumstance and fiduciary obligations.

Existing assets – GPs and LPs are also encouraged to manage as many of their existing assets in alignment with net zero ambitions as possible. However, certain funds may be difficult to commit to aligning to net zero. Investors are recommended to fully disclose where funds have not been included in asset alignment targets, and the reasons for that.

For example, legacy funds; because of legal commitments made to LPs as part of legacy funds, it may be difficult to add a net zero commitment after capital has been committed and deployed. Equally, full disclosure of any acquisitions excluded from the asset alignment target and alignment progress reporting is recommended.

[123] The concept "managed in alignment with net zero" is used to address the asymmetric information relationship between GPs and LPs with respect to underlying Portfolio Companies (PCs).

Influence Bands

Because of the different levels of influence GPs and LPs have, the assessing of alignment, the setting of targets, and approaches to delivering targets will differ. This guidance delineates between GPs' and LPs' approaches to target setting, based on the influence bands methodology.

For GPs and LPs to acknowledge their differing levels of influence when setting targets, 'influence bands' have been introduced. The influence bands establish objectives that are ambitious yet reflective of the practical circumstances that each investment type faces.

There are six influence bands in total that can be broadly grouped into two categories: 1) direct influence; and 2) indirect influence. Table 27 below defines the six bands and how the investor holds influence. Expectations for the speed at which net zero alignment can be achieved vary across influence bands, and a GP's or LP's exposure to different bands will inform appropriate asset alignment targets, as detailed later. Each influence band has associated:

- Expectations for achieving alignment
- Recommended asset alignment targets
- Engagement actions designed around the influence levers available

Table 27: Private equity influence bands

Asset classes	Band	Criteria	Influence Level
DIRECT ■ GP buyout fund ■ GP growth fund ■ GP continuation fund	**1a**	> 50% of board voting seat appointments (usually the majority shareholder)	Strong (with PCs)
	1b	≤ 50% of board voting seat appointments (usually a significant minority shareholder)	Moderate (with PCs)
	1c	No board votes	Limited (with PCs)
INDIRECT ■ LP investments in buyout, growth or continuation funds ■ LP co-investment ■ GP fund of funds ■ LP-led secondaries	**2a**	Big ticket investors and/or first close investors	Strong (with GPs)
	2b	Investment made during fundraise not included in 2a; co-investment	Moderate (with GPs)
	2c	Investment made through secondaries market	Limited (with GPs)

2 Assessing alignment

General Partners

GPs are recommended to assess PCs against NZIF's alignment criteria.

Table 28 below shows the criteria that the PCs are asked to meet to move up NZIF's maturity scale, from committed to aligning to achieving net zero.

Table 28: Criteria underpinning alignment assessment

Criteria	Committed to aligning	Aligning to a net zero pathway	Aligned to a net zero pathway	Achieving net zero
Asset with emissions intensity required by the sector and regional pathway for 2050 and whose operational model will maintain this performance.				✓
Emissions performance: Cumulative YoY reduction meets or exceeds the linear annual reduction established as the target for scope 1, 2, and material scope 3[124] emissions.			✓	✓
Climate strategy: A proportionate plan is established that sets out the measures to deliver the target. For high impact material sectors, the strategy is recommended to be quantified and include capex and opex required to achieve targets.			✓	✓
Disclosure: Annual disclosure to investors of scope 1, 2, and material scope 3 absolute GHG emissions. Public disclosure is best practice but not an expectation.		✓	✓	✓
Targets: 5– to 10-year Paris-aligned GHG emissions reduction target (scope 1, 2, and material scope 3)		✓	✓	✓
Governance: Board oversight for climate risk and execution of climate strategy. Climate risk management and strategy are discussed by the Board at least once a year.	✓	✓	✓	✓
Ambition: Long term goal for the company to be net zero emissions by 2050 or sooner.	✓[125]	✓	✓	✓

[124] Where this document refers to material scope 3, the following considerations apply. Assessment of scope 3 materiality is at the ultimate discretion of the investor. The approach to materiality and any exclusions – for example, due to factors such as data gaps or limitations – should be explained and justified alongside the disclosure. Investors can refer to a number of additional resources on scope 3 produced by PAII network partners for additional implementation support.

[125] Board should acknowledge the importance for the company to take action toward a net zero future and encourage the company to begin exploring pursuit of Aligning and Aligned criteria

PCs can be deemed as "managed in alignment with net zero" when they meet the *committed to aligning/aligning/aligned/net zero* criteria within the milestones described in Table 29 below. The capital invested in them (or financed emissions) will count towards alignment targets established by LPs.

A PC that misses a milestone will be considered "not aligned" until it can achieve the required criteria. It is important to note that timelines and measurement of net zero action are focused on the fund cycle, as investors can only be influential while the company is within their portfolio.

Additional considerations

Paris-aligned targets and exceptions – Paris-aligned targets should, in most cases, conform with guidance from a credible-third party, such as SBTi, or well accepted sectoral decarbonisation pathways/carbon budget approaches.

Determination of appropriate alignment milestones – The alignment milestones are determined by the year the fund was launched and not the year a particular PC was acquired. For example, if a fund launched in 2029 closes a deal with a PC in 2030, that PC would have until exit to reach the aligned status, in accordance with the pre-2030 requirements.

Cadence of assessment against criteria – At a minimum, GPs should assess each PC's performance against the criteria at each milestone. Disclosure and emissions performance should be assessed at the applicable milestone and then annually thereafter.

GPs are asked to report to LPs annually following established reporting cycles and can report alignment status of PCs as of the time of reporting. PCs acquired within one year of the date at which GPs provide annual reporting to LPs should be excluded from calculations of progress toward targets.

Acquisitions and buy-and-build strategies – PCs that complete material acquisitions should update their goals and progress by re-baselining[126]. Acquisitions should be brought into the scope of the goal within one year.

Exits prior to alignment milestones – GPs that exit a PC prior to the date of an alignment milestone can be considered "managed in alignment with net zero" upon exit if they have achieved the alignment milestones up to the point of exit and if the GP can demonstrate that the PC was on track to meet the next milestone. For fund vintages through 2029, PCs have until exit to achieve aligned criteria, but do not need to achieve this criterion if they are exited prior to four years from close and are on track to achieve the aligned milestone by the four-year mark.

Table 29: Private equity milestones

Fund vintage alignment milestones	Committed to aligning	Aligning to a net zero pathway	Aligned to a net zero pathway	Achieving net zero
Funds launched until 2029	1 year after deal close	2 years after deal close	By exit	Not required
Funds launched 2030-2050	1 year after deal close	2 years after deal close	4 years after deal close	No later than 2050

Limited Partners

For the milestone years of 2030, 2040 and 2050, LPs are advised to assess and increase the amount of committed capital that GPs plan to manage in alignment with net zero.

On an annual basis, LPs should also calculate and disclose the percentage of invested capital being managed in alignment with net zero, as this reflects the reality of how investments are actually being managed. These calculations should be based on actual performance reported by GPs.

[126] See step 7 of the Portfolio decarbonisation reference objective for private equity

3 Setting the target

General Partners

The asset alignment target for GPs is defined as:

- A percentage of invested capital or financed emissions to be 'managed in alignment' with net zero by 2030. An increased target is recommended to be set for 2040, and a target of 100% net zero by 2050.

The influence bands inform the target thresholds that GPs should seek to achieve by 2030, 2040, and 2050. By 2050 all investments should achieve net zero. Examples are provided below.

Glide paths

Glide paths of target thresholds can be developed by an investor who should consider their respective influence band. An example glide path is provided below, which can be used by GPs to develop appropriate alignment targets.

Most funds and portfolios will include investments that span across more than one influence band. In this case, the weighted average of invested capital based on the anticipated distribution across bands should inform the target.

An example glide path with 2030, 2040 and 2050 milestones for level 1 influence bands is outlined in Table 31 below.

Based on the glide path established in Table 31, a GP expecting to have 80% of invested capital in band 1a and 20% of invested capital in band 1b could set a target to manage 70% of the total invested capital in alignment with net zero by 2030.

Table 30: Target recommendations for GPs

GP investments in band 1a	GPs are encouraged to meet the threshold of 80% of invested capital managed in "alignment with net zero" by 2030.
GPs Investments in bands 1b and 1c	GPs are asked to achieve the same threshold only by 2040. In practice by 2040 all GPs should aim to be in the 80-100% range of invested capital "managed in alignment with net zero" across all three direct investment bands.

Table 31: Level 1 influence band example glide path

Asset classes	Band	% of invested capital managed in alignment with NZ by...		
		2030	**2040**	**2050**
Direct ▪ GP buyout fund ▪ GP growth fund ▪ GP continuation fund	**1a**	**80%** Invested cap.	**100%** Invested cap.	**100%** Invested cap.
	1b	**30%** Invested cap.	**80%** Invested cap.	**100%** Invested cap.
	1c	**20%** Invested cap.	**80%** Invested cap.	**100%** Invested cap.

Illustrative glide path thresholds

NZIF targets

Fund level targets

For all new funds raised after committing to net zero, the GP can establish a target percentage of the fund's invested capital that will be managed in alignment with net zero using the recommendations above.

The fund level alignment target should be shared with LPs during fundraising in the fund marketing materials. This will enable LPs to make asset allocation decisions in furtherance of their own net zero commitments and calculate their net zero committed capital.

Because of legal commitments made to LPs as part of legacy funds, it may be difficult to add a net zero commitment after capital has been committed and deployed. As a result, funds raised prior to the GP making their net zero commitment do not need to be included, though GPs are encouraged to manage as many of their existing assets in alignment with net zero ambitions where possible.

Firm level targets

The second type of alignment target that GPs can commit to meet are firm-level portfolio milestone targets for 2030, 2040, and 2050 across their full PE portfolio (excluding funds that launched prior to the GP committing to net zero).

A firm-level portfolio milestone target for 2030, 2040 and 2050 is recommended to be assessed as of December 31 of the target year. Progress toward the target should be assessed annually.

Limited Partners

The asset alignment target for LPs is defined as:

- A percentage of committed capital[127] or financed emissions to be 'managed in alignment' with net zero by 2030. An increased target is recommended to be set for 2040, and a target of 100% net zero by 2050.

In practice, it means that LPs should seek to increase the amount of committed capital that GPs plan to manage in alignment with net zero, to meet or exceed the recommended percentage at the milestone years of 2030, 2040 and 2050.

By 2050, 100% of committed capital across the indirect bands should be net zero. By this milestone, 100% of invested capital should also achieve net zero.

Most LP investments will fall into indirect investment bands 2a, 2b, and 2c. Co-investments made by LPs into specific portfolio companies are also categorised into indirect influence bands. If LPs have direct investment programs, those investments should be considered under bands 1a, 1b, and 1c.

Appropriate ambition is informed by the anticipated distribution of investments across the influence bands. An example glide path with 2030, 2040 and 2050 milestones for level 2 influence bands is outlined in Table 32 below. The glide path presented can be used by LPs as a starting point for establishing appropriate alignment targets for the milestone years.

[127] LPs set their targets using committed capital because it is a metric they have more direct control over, and it more accurately reflects current actions taken. LPs are encouraged to simultaneously report current performance using invested capital, as this reflects how capital is actually deployed at a given time. Because of investment periods and the one-year window to achieve the first milestone, invested capital performance is expected to lag committed capital.

Table 32: Level 2 influence band example glide path

Asset classes	Band	% of committed/invested capital managed in alignment with NZ by...		
		2030	2040	2050
Indirect ■ LP investments in buyout, growth or continuation funds ■ LP co-investment ■ GP fund of funds ■ LP-led secondaries	2a	**44%** Committed cap.	**100%** Committed cap.	**100%** Invested cap.
	2b	**33%** Committed cap.	**90%** Committed cap.	**100%** Invested cap.
	2c	**10%** Committed cap.	**80%** Committed cap.	**100%** Invested cap.

Illustrative glide path thresholds

NZIF targets

Accounting for GPs

The LP's milestone target and calculation of performance can consider the percent of invested capital that the GP plans to manage in alignment with net zero. Especially in early years, many GPs will set fund level targets to manage less than 100% of invested capital in alignment with net zero.

LPs should apply the GP's fund level commitment percentage (based on final invested capital) to the capital they are committing to the fund. For example, if an LP commits $100 million to a fund and the fund manager has committed to manage 70% of the funds invested capital in alignment with net zero, then the LP would count $70 million towards their committed capital target.

Fund of funds

Fund of funds are recommended to follow target-setting guidance for LPs while taking into account the following important exceptions for alignment targets:

1. Set fund level alignment targets in addition to firm level portfolio milestone alignment targets, as asked of GPs, though these targets should be based on committed capital.
2. Communicate to prospective LPs a target percentage of the fund's invested capital that will be managed in alignment with net zero for all new funds raised.

4 Delivering the target

GPs and LPs may utilise multiple levers at various stages in the investment cycle with the aim of transitioning assets towards meeting the alignment criteria and achieving the asset alignment target.

General Partners

Portfolio Company engagement

Investors that have set asset alignment targets are recommended to implement a robust engagement strategy to help move PCs up the maturity scale, from committed to aligning to aligned. GPs can have significant influence in PC decisions and strategy, and can enhance effective engagement actions.

See the engagement threshold section below detailing the engagement actions GPs across all influence bands are encouraged to use to develop their engagement strategy.

Portfolio assessment and management

To support the delivery of an alignment target, investors are recommended to:

- Build skills and capacity to better understand the value of climate risk, opportunities and net zero, and commercialise net zero intellectual property.
- Implement TCFD recommendations, including scenario analysis, and disclosures in relation to climate-related financial risk as a firm across the portfolio.
- Develop capacity and resource to support PCs in the delivery of net zero through asset management.
- Enable 'climate-literacy' programs for investment teams and portfolio company board directors.

Before and during acquisition

Investors are recommended to:

- Expand due diligence to include climate risk analysis to inform valuations, exit strategies and identify opportunities to increase investment in climate solutions.
- Include net zero and climate risk assessment in investment committee sign-off processes/memos.
- Ensure shareholder agreement includes appropriate terms in relation to climate risk governance, performance, management and reporting.
- Consider inclusion of climate risk management KPIs in leverage for the deal. Details can be agreed at a later date in a competitive/time constrained deal situation.

During holding period

Investors are recommended to:

- Frontload decarbonisation strategy development and planning to include, as part of 100-day plans and value creation plans.
- Define TCFD aligned governance/ management responsibilities for climate change in each PC, including establishing remuneration linkage to delivering on targets/climate strategy as relevant.
- Support PC management with educational/operational guidance on managing climate performance and implementing a net zero strategy.

At exit

Investors are recommended to:

- Include an updated net zero and climate risk assessment profile of each PC as part of the exit documentation.

Limited Partners

GP engagement

LPs can have significant influence on the GP and thus indirectly on the PC. See the engagement threshold section below detailing the engagement actions LPs across all influence bands should use to develop their engagement strategy.

Manager and fund selection

When selecting funds and managers, LPs are recommended to consider:

- Selecting funds and managers that are committed to net zero, in order to support PCs in meeting the alignment criteria.
- Avoiding investments in industries whose primary activity is no longer considered permissible within a credible net zero pathway.
- Ramping up investment in funds managed in alignment with net zero as quickly as possible and in line with net zero pathways.
- Balancing the need for fast action with an understanding that increased adoption of net zero practices across the private equity industry will be necessary to provide adequate investment options to LPs.
- The LP's ability to influence existing GPs to take up net zero commitments.
- Assessing differences in GP net zero uptake across specific markets/ geographies in which the LP invests.
- The fund duration; if all investments need to be net zero by 2050, commitments made to a 12-year fund in 2038 should plan to be 100% managed in alignment with net zero.

- Selecting GPs based on compliance with TCFD recommendations and the Transition Plan Taskforce (TPT) in relation to climate-related financial risk and transition risk.

Portfolio assessment and management

Investors are recommended to:

- Include PE assets in net zero commitments, climate-risk governance and TCFD reporting. This includes monitoring and reporting on aggregated carbon performance and achievement of milestones/actions of PCs and funds based on requested reporting from GPs.
- Include net zero and climate risk assessment in investment committee sign-off processes/memos to approve commitments to new funds and GP co-investments.
- Refer to standard frameworks developed by Institutional Limited Partners Association (ILPA), TCFD, British Private Equity and Venture Capital Association (BVCA), Initiative Climat International (iCI) etc., to increase allocation to GPs who are more mature in their response to climate risk management.
- Introduce an appropriate energy investment policy[128] e.g., avoid new investment in thermal coal and tar sands.
- Upskill in-house legal counsel, compliance team, and fund administration teams with training and guidance to represent net zero alignment within side letters and deal terms.
- Collaborate with industry bodies to advance best practice and standards to facilitate Paris alignment in the PE sector.

Co-investment

Investors are recommended to:

- Consider "positive screening" to increase allocation to PCs which represent 'climate solutions'.

[128] IIGCC (2024), A five-step process to an energy investment policy: A building block for a robust transition plan

5 Monitoring the target

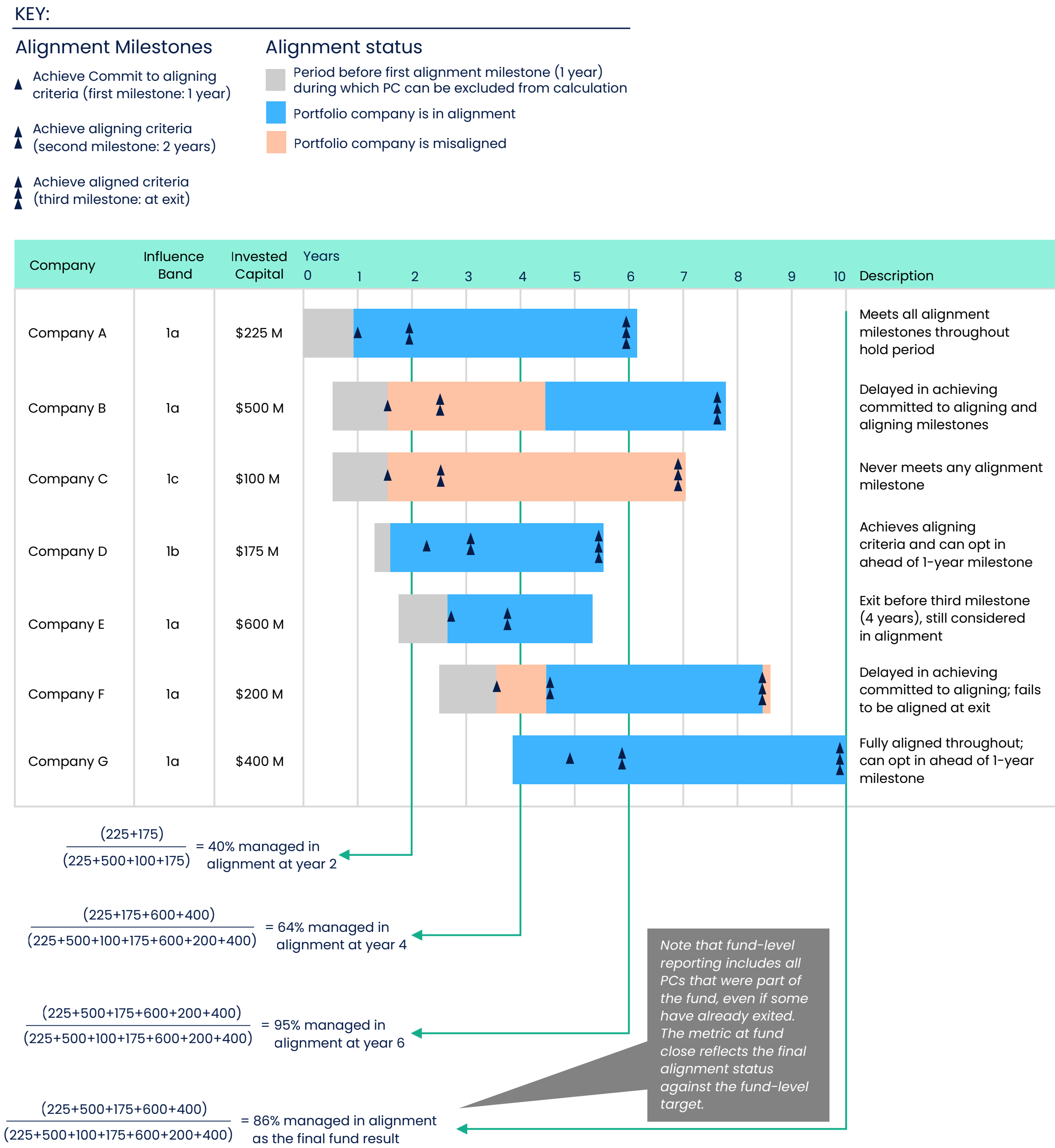
General Partners

Tracking progress

Figure 19 below depicts how a GP can calculate a fund's alignment at years 2, 4, 6 and at fund close (assuming fund vintage is prior to 2030), giving insight into progress against a fund level alignment target.

On the same date each year, the percent of the portfolio managed in alignment with net zero is calculated as the total invested capital of PCs managed in alignment with net zero, divided by the total invested capital of all PCs. These calculations would need to be completed annually.

Figure 19: Calculating fund alignment



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Disclosure

Transparent disclosure is a core part of robust monitoring of a target. GPs are recommended to make the following disclosures:

- For each PC owned by the fund:
  - Binary "Yes/No" assessment for each PC on their status of being "managed in alignment with net zero" (fund of funds and LPs should assume PCs are not managed in alignment if GPs do not report)
  - Scope 1 & 2 emissions (total PC emissions and financed emissions following PCAF guidelines where known—highlight data gaps)
  - Scope 3 emissions (total PC emissions and financed emissions following PCAF guidelines where known—highlight data gaps)
  - Total invested capital in the PC
  - Net asset value of the PC
- For the fund in which the LP is invested, report progress against net zero commitments made for the fund (i.e., the % of invested capital emissions being managed in alignment with net zero).
- Across all PE funds established after the GP's net zero commitment, report on progress toward the next firm-level asset alignment milestone target (2030, 2040, 2050).
- If a GP does not meet the expectation that high emitting assets are managed in alignment with net zero, they are recommended to report transparently to their LPs with an explanation.
- If relevant, investors should disclose:
  - How the target diverges from the example glidepath
  - The reasons for divergence
  - How, if relevant, future convergence will be realised

Fund of funds are recommended to report following guidance for GPs, though reporting on progress towards asset alignment targets should be based on committed capital rather than invested capital. Fund of funds should also pass through PC-level information to their LPs to the extent this information is available.[129]

Limited Partners

Tracking progress

Table 33 below shows how an LP might track progress against an alignment target. In the example below, the LP has invested in seven different funds, which are at different stages in deploying capital.

Two calculations are illustrated: calculation of committed capital, which represents progress toward the LP's target, and calculation of invested capital, which LPs should calculate annually and share with key stakeholders.

[129] Subject to restrictions on sharing any competitively sensitive information, to be assessed by the fund manager before disclosing.

Table 33: Example of a LP tracking progress against alignment target

	Committed capital calculation			Invested capital calculation			
Fund	**Fund-level net zero commitment**	**Committed capital ($M)**	**Committed capital to be managed in alignment ($M)**	**PC**	**Managed in alignment**	**Invested capital by the LP ($M)**	**LP's invested capital in Alignment ($M)**
Fund 1	80%	75	60	PC A	Yes	15	15
				PC B	Yes	20	20
				PC C	No	9	-
				PC D	Yes	12	12
				PC E	Yes	16	16
Fund 2	0%	82	0	PC F	No	7	-
				PC G	No	10	-
				PC H	No	19	-
				PC I	No	18	-
				PC J	No	13	-
				PC K	No	13	-
Fund 3	70%	80	56	PC L	Yes	12	12
				PC M	No	15	-
				PC N	No	10	-
				PC O	Yes	21	21
Fund 4	50%	86	43	PC P	No	5	-
				PC Q	No	16	-
Fund 5	90%	90	81	PC R	Yes	14	14
				PC S	Yes	11	11
				PC T	NA*	17	-
Fund 6	80%	50	40	PC U	Yes	18	18
				PC V	NA*	12	-
Fund 7	50%	64	32	PC W	NA*	14	-
				PC X	NA*	7	-
Totals:		**527**	**312**	**Totals**		**324**	**139**
$312/$527 = 59% of committed capital to be managed in alignment with net zero				$139/$324 = 43% of invested capital managed in alignment with net zero			

*PCs marked as NA reflect companies acquired within the last year which are not required to be included in alignment calculations.

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Disclosure

As with GPs, transparent disclosure is a central part of the robust monitoring of a target. LPs are encouraged to monitor their progress toward their targets no less than annually.

LPs are recommended to make the following disclosures:

- Across all PE investments, report on progress toward the next firm-level milestone asset alignment target (2030, 2040, 2050) by sharing the % of committed capital that will be managed in alignment with net zero (based on fund-level commitments).
- Across all PE investments, report on the % of invested capital that has been managed in alignment with net zero for the reporting year (based on data reported from GPs):
  - Performance can additionally be calculated and communicated using financed emissions or net asset value.
- If relevant, investors should disclose:
  - How the target diverges from the example glidepath (Table 36)
  - The reasons for divergence
  - How, if relevant, future convergence will be realised.

Case studies

Since its publication, investors have been implementing NZIF's private equity component to guide their net zero strategies, including:

- Net Zero Investment Framework for Private Equity in action: Investindustrial
- IIGCC's Across the Asset Class Series

Engagement Threshold Target

Investors are recommended to undertake specific engagement actions for all (100%) applicable private equity investments.

The engagement threshold target is an important tool to drive uptake of net zero commitments within the PE industry. LPs are asked to engage all GPs they invest in. GP engagement targets are focused on investments where the GP doesn't have a majority of board votes. For these investments, GPs are asked to engage the peer investment managers and other owners of these PCs.

The engagement actions PE investors are recommended to take vary dependent on influence band. Investors should deploy the relevant actions.

General Partners

GPs are recommended to set the following target:

- Complete the engagement actions specified in Table 34 below for all (100%) applicable PE investments.

The intention is that GPs build these practices into their standard operating procedures.

Engagement strategy

In situations where the GP does not get to appoint a majority of voting seats in a PC's board (bands 1b and 1c), engagement with other investors sitting on the board becomes an important practice to advance net zero efforts. Engagement also helps to drive broader uptake of net zero commitments across the PE ecosystem, making achievement of net zero more feasible for all actors.

Table 34 details the engagement actions investors are recommended to undertake.

Disclosure

For the fund in which the LP is invested, qualitative and quantitative updates on engagement actions taken should be shared to demonstrate that engagement expectations are being met. Investors should further consider sharing outcomes.

Table 34: GP recommended engagement actions

Asset classes	Band	Criteria	Recommended engagement actions	Timing
Direct ▪ GP buyout fund ▪ GP growth fund ▪ GP continuation fund	**1a**	>50% board votes	Engagement directly with PCs is recommended in pursuing alignment targets or portfolio reference targets but is not covered under the Private Equity Engagement Threshold Target.	N/A

	1b	≤50% board votes	**Universal**
			▪ Inform other board members of a firm's net zero commitment.
			▪ Request that climate risks and opportunities be a regular agenda item for board meetings.
			▪ Request that the PC be managed in alignment with net zero and that as a first step, management is asked to develop a net zero proposal that should be presented to the board of directors for a formal vote. The proposal should include:
			  ▪ Importance of net zero and business benefits for the company
			  ▪ Action plan for implementation
			  ▪ Estimates of cost and impact associated with the plan
			Conditional
			▪ If, prior to investment, the target company is in a high-emitting industry and co-owners are not in agreement to manage the company in alignment with net zero, the investment's potential misalignment with the net zero commitment should be explicitly raised at the investment committee.
				▪ Within 1 year
				▪ Within 1 year
				▪ Within 1 year
				
				▪ Prior to investment

	1c	No board votes	**Universal** ▪ Communicate with the largest co-owners/shareholders to share net zero commitment and express organization's desire to have the portfolio **Conditional** ▪ If, prior to investment, the target company is in a high-emitting industry and co-owners are not in agreement to manage the company in alignment with net zero, the investment's potential misalignment with the net zero commitment should be explicitly raised at the investment committee.	▪ Within 1 year ▪ Prior to investment

Limited Partners

- LPs are recommended to set the following target:

Complete the engagement actions specified in Table 35 below for all (100%) applicable private equity investments.

The intention is that LPs build these practices into their standard operating procedures.

Engagement strategy

For LPs to meet their alignment targets, they will need to be successful at engaging and influencing GPs to adopt net zero practices. Investors are recommended to integrate the actions outlined in Table 35 into their engagement strategies.

When engaging GPs, LPs mway also:

- Request information from the GP on climate risk management in pitch book materials. The ILPA Due Diligence Questionnaire (DDQ) 2.011, for example, includes questions that managers should address on climate in fund marketing materials.
- Work alongside other LPs, GPs and industry bodies to advance best practice and standards to facilitate Paris-alignment in the PE sector, such as adoption of science-based targets.
- Prioritise GP engagement strategies through the climate risk mapping and carbon footprinting of existing PE portfolios e.g. review high emitting sector exposures (by invested capital) where sector data for underlying PCs is available; or establish priorities using estimated carbon footprint data and modelling (where available) to identify the most exposed funds.

Beyond the specific actions described below, LPs are encouraged to think creatively about how to inspire rapid and broad uptake of net zero practices by GPs.

Disclosure

Across all PE investments, share qualitative and quantitative updates on engagement actions taken to demonstrate the private equity engagement threshold target is being met. Investors should further consider sharing outcomes.

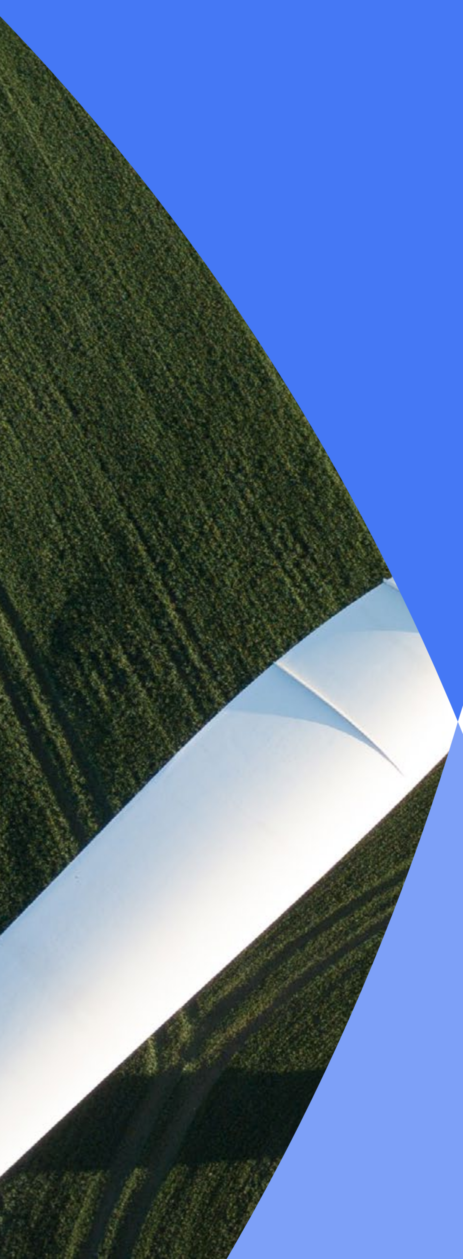
Table 35: LP recommended engagement actions

Asset classes	Band	Criteria	Recommended engagement actions	Timing
Indirect - LP investments in buyout, growth or continuation funds - LP co-investment - GP fund of funds - LP-led secondaries	**2a and 2b**	Investment made during fund raise	**Universal actions after committing to net zero** - Send a letter to all the following: the Chairman of the Board, the CEO, Investor Relations, and the ESG leader of every GP that is invested in. The letter should share the LP's commitment to net zero, as well as the expectation of GPs to adopt net zero practices in new funds, and how consideration of net zero could impact investment decisions going forward. Request that the GP make their own net zero commitment and have Limited Partnership Agreements stipulate a commitment to net zero. **Universal actions during fund selection** - Engage with senior leaders of the GP, including Investor Relations, to request the fund includes a commitment to net zero within the Limited Partnership Agreement. If that is rejected, propose a side letter with the GP that stipulates a commitment by the GP to manage a portion of the invested capital in line with net zero. The specific percent of invested capital can be negotiated. - LPs can choose to invest with GPs that refuse to align with net zero. But, over time, the proportion of capital that LPs can commit to GPs that don't manage in alignment will diminish rapidly. LPs should make sure this dynamic is clearly understood by GPs that refuse to align. **Conditional actions during ownership** If the LP has a LPAC seat: - Request that climate-related performance is integrated into LPAC reporting for the fund. - If the GP is not meeting its net zero targets, request net zero performance as an LPAC agenda item. If the LP does not have an LPAC seat: - Engage with other LPs to discuss and encourage uptake of net zero commitments at the GP level AND/OR when attending a GP's annual investor day, raise net zero as a concern and share the expectation that the GP will commit future funds. - If the GP is not meeting its net zero targets, hold a meeting with ESG lead and relevant senior leader(s) at the GP to raise concerns and seek assurances the situation will be rectified.	- Within 6 months of making the LP's net zero commitment - Before making fund selection - Within 1 year - If targets are not on track to be met - Within first three years - If targets are not on track to be met

Asset classes	Band	Criteria	Recommended engagement actions	Timing
Indirect ▪ LP investments in buyout, growth or continuation funds ▪ LP co-investment ▪ GP fund of funds ▪ LP-led secondaries	**2c**	Investment made through secondaries market	**Universal actions after committing to net zero** ▪ Send a letter to all the following: the Chairman of the Board, the CEO, Investor Relations, the ESG leader of every GP that is invested in. The letter should share the LP's commitment to net zero, the expectation of GPs to adopt net zero practices in new funds, and how consideration of net zero could impact investment decisions going forward. Request that the GP make their own net zero commitment and have Limited Partnership Agreements stipulate a commitment to net zero. **Universal actions during fund selection** ▪ Engage with senior leaders of the GP, including Investor Relations, to make clear the LP's commitment to net zero, and how consideration of net zero will impact investment decisions going forward. Request that the GP make their own net zero commitment. ▪ LPs can choose to invest with GPs that refuse to align with net zero. But, over time, the proportion of capital that LPs can commit to GPs that don't manage in alignment will diminish rapidly. LPs should make sure this dynamic is clearly understood by GPs that refuse to align. **Conditional actions during ownership** If the LP has an LPAC seat: ▪ Request that climate-related performance is integrated into LPAC reporting for the fund. ▪ If the GP is not meeting its net zero targets, request net zero performance as an LPAC agenda item. If the LP does not have an LPAC seat: ▪ Engage with other LPs to discuss and encourage uptake of net zero commitments at the GP level AND/OR when attending a GP's annual investor day, raise net zero as a concern and share the expectation that the GP will commit future funds. ▪ If the GP is not meeting its net zero targets, hold a meeting with ESG lead and relevant senior leader(s) at the GP to raise concerns and seek assurances the situation will be rectified.	▪ Within six months of making the LP's net zero commitment ▪ Before making fund selection ▪ Within one year ▪ If targets are not on track to be met ▪ Within first three years ▪ If targets are not on track to be met

Section 11

Asset level targets: Alignment and Engagement Private debt



Contents

For further detail, references and citations, investors can revert to the Private Debt Component of the Net Zero Investment Framework.

Asset alignment target

For private debt, the asset alignment target is defined as:

- A percentage of invested capital (for GPs) or committed capital (for LPs) and/or financed emissions to be "managed in alignment with net zero" by 2030 and an increased % by 2040 and a target of 100% net zero by 2050.

To be considered "managed in alignment with net zero", portfolio companies (PCs) are asked to:

- Express an intent to progress one step further on the 'managed in alignment scale', from their current alignment status and achieving this by exit of the loan.
- Achieve "net zero" status by 2050.

Grace period

Given the challenges that private debt GPs face with collecting data and information from PCs around net zero targets, a 12 month 'grace period' after deal close has been introduced to give GPs more time to:

- Collect the relevant information for reporting against NZIF's recommendations and engage with PCs to improve transparency;
- Seek PC's expression of intent to progress along the alignment scale; and
- Potentially finalise deal terms such as ESG margin ratchets.

1 Setting the scope

For the purpose of this guidance, private debt is defined as 'loans which are privately negotiated by non-bank lenders and are not tradeable on public markets, thus are considered as an illiquid form of debt'.

If a sub-asset class does not perfectly fit within this definition, the guidance may still be applied, as flexibility is encouraged. However, it should be noted that subsequent stages outlined that are necessary for the guidance's implementation may not be applicable or suitable, in part or in their entirety.

Private debt strategies in scope[130]

In scope of the asset alignment target, investors are recommended to include the following private debt strategies:

- Sub-investment grade direct corporate lending (i.e. direct lending)
- Venture/growth debt (i.e. direct lending but at a much earlier stage in the borrower's maturity)
- Opportunistic credit (e.g. capital solutions, rescue financings)
- Structured credit (common private structured credit strategies include some Collateralised Loan Obligations (CLOs) – the non-listed CLO tranches, including CLO equity tranches qualify under this guidance – and some forms of asset backed lending or regulatory capital release.)
- Fund financing (includes LP capital call financing and early to late-stage NAV financing)

[130] Some syndicated loans with little or no secondary market liquidity may also qualify under this guidance; subject always to assessment and identification at the investors' discretion

- Private placements (typically corporate debt securities that are illiquid and can be to listed companies)

Influence Bands

To account for the varying levels of influence different investors will have, the alignment and engagement threshold targets use influence bands to establish objectives that are ambitious, yet reflective of the practical circumstances that each investment type faces. There are seven influence bands in total that can be broadly grouped into two categories, i) direct influence and ii) indirect influence, as the table below shows.

Table 36: Private debt influence bands

Asset classes	Band	Private debt criteria	Influence Level
DIRECT - GP direct corporate lending - GP venture and/or growth debt	**1a**	- Sole lender or lead arranger of the debt and/or - Holder of 50%+ of the debt tranche and/or - Board observer seat and/or - Any form of significant equity holding[131] in the deal	Strong with PCs[132]
	1b	Significant minority holder of the debt tranche (have blocking or veto rights). Between 25-50% of the debt tranche	Moderate with PCs
	1c	Small participant of tranche: less than 25%	Limited with PCs
- GP private structured credit - GP fund/NAV financing	**1d**	Any % tranche holding where limited scope to negotiate directly with underlying company/collateral	Highly limited with PCs
INDIRECT - GP continuation funds across these strategies - GP fund of funds - LP investments across private credit (direct & indirect) - LP co-investment - LP-led secondaries	**2a**	Big ticket investors[133] and/or first close	Strong with GPs
	2b	- Investment made during fund raising, not 2a - Co-investment	Moderate with GPs
	2c	Investment via secondaries	Limited with GPs

[131] Defined as 10% or more

[132] Note that influence level is relative within private debt

[133] Defined as committing over 5% of total fund raise

2 Assessing Alignment

General Partners

GPs are recommended to assess PCs against NZIF alignment criteria. Table 37 below shows the criteria that the PCs are asked to meet to move up the NZIF maturity scale, from committed to aligning to achieving net zero.

Table 37: Criteria underpinning alignment assessment

Criteria	Committed to aligning	Aligning to a net zero pathway	Aligned to a net zero pathway	Achieving net zero
Company with emissions intensity required by the sector and regional pathway for 2050 and who's ongoing investment plan or business model will maintain this performance.				✓
Emissions performance: Cumulative YoY reduction meets or exceeds the linear annual reduction established as the target for scope 1, 2, and material scope 3[134] emissions.			✓	✓
Climate strategy (HIGH IMPACT SECTORS ONLY): A proportionate plan is established that sets out the measures to deliver the target. The strategy should be quantified and include capex and opex required to achieve targets.			✓	✓
Disclosure: Annual disclosure to investors of scope 1, 2, and material scope 3 absolute GHG emissions. Public disclosure is best practice.		✓	✓	✓
Targets: 5– to 10-year Paris-aligned GHG emissions reduction target (scope 1, 2, and material scope 3)		✓	✓	✓
Governance (HIGH IMPACT SECTORS ONLY): Board oversight for climate risk and execution of climate strategy. Climate risk management and strategy are discussed by the Board at least once a year.	✓			
Ambition: Long term goal for the company to be net zero emissions by 2050 or sooner.	✓[135]			

[134] Where this document refers to material scope 3, the following considerations apply. Assessment of scope 3 materiality is at the ultimate discretion of the investor. The approach to materiality and any exclusions – for example, due to factors such as data gaps or limitations – should be explained and justified alongside the disclosure. Investors can refer to a number of additional resources on scope 3 produced by PAII network partners for additional implementation support.

[135] Board should acknowledge the importance for the company to take action toward a net zero future and encourage the company to begin exploring pursuit of Aligning and Aligned criteria

PCs can be deemed as “managed in alignment with net zero” when they meet the *committed to aligning/aligning/aligned/ net zero* criteria within the milestones described in Table 38 below. The capital invested in them (or financed emissions) will count towards alignment targets established by LPs. Efforts to make multiple steps along the alignment scale are strongly encouraged.

A PC that misses a milestone will be considered “not aligned” until it can achieve the required criteria. It is important to note that timelines and measurement of net zero action are focused on the fund cycle, as investors can only be influential while the company is within their portfolio.

Table 38: Private debt milestones

Fund vintage alignment milestones	Committed to aligning	Aligning to a net zero pathway	Aligned to a net zero pathway	Achieving net zero
Funds launched after guidance published but before 2030	▪ Expression of intent by PC to move to this category by end of grace period ▪ Achieve 'Committed to aligning' by exit	▪ PC is already 'Aligning' ▪ Expression of intent by end of grace period to move to 'Aligned' ▪ Achieve 'Aligned' by exit	Not required	Not required
Funds launched between 2030-2040	▪ Expression of intent by PC to move to this category by end of grace period ▪ Achieve 'Committed to aligning' by exit	▪ PC is already 'Committed to aligning' ▪ Expression of intent by end of grace period to move to 'Aligning' ▪ Achieve 'Aligning' by exit	▪ PC is already 'Aligning' ▪ Expression of intent by end of grace period to move to 'Aligned' ▪ Achieve 'Aligned' by exit	Not required
Funds launched between 2041-2045	▪ Expression of intent by PC to move to this category by end of grace period ▪ Achieve 'Committed to aligning' by exit	▪ PC is already 'Committed to aligning' ▪ Expression of intent by end of grace period to move to 'Aligning' ▪ Achieve 'Aligning' before deal close	▪ PC is already 'Aligning' ▪ Expression of intent by end of grace period to move to 'Aligned' ▪ Achieve 'Aligned' by exit	▪ PC commitment to achieve no later than 2050
Funds launched between 2046-2050	▪ Achieve 'Committed to aligning' before deal close	▪ Achieve 'Aligning' before deal close	▪ Achieve 'Aligned' by exit or 2050, whichever is sooner	▪ All PCs achieve net zero no later than 2050

Additional considerations

Paris-aligned targets and exceptions – Paris-aligned targets should, in most cases, conform with guidance from a credible-third party, such as SBTi, or well accepted sectoral decarbonisation pathways/carbon budget approaches.

Determination of appropriate corporate alignment milestones – The alignment milestones are determined by the year the fund was launched and not the year a particular PC was acquired. For example, if a fund launched in 2029 closes a deal with a PC in 2031, that PC would have until exit to reach the aligned status, in accordance with the pre-2030 requirements.

Cadence of assessment against criteria – At a minimum, GPs should assess each PC's performance against the criteria at each milestone. Disclosure and emissions performance should be assessed at the applicable milestone and then annually thereafter.

GPs only need to report to LPs annually following established reporting cycles and can report alignment status of PCs as of the time of reporting.

Limited Partners

For the milestone years of 2030, 2040 and 2050, LPs are advised to assess and increase the amount of committed capital that GPs plan to manage in alignment with net zero.

On an annual basis, LPs should also calculate and disclose the percentage of invested capital being managed in alignment with net zero, as this reflects the reality of how investments are actually being managed. These calculations should be based on actual performance reported by GPs.

3 Setting the target

General Partners

The asset alignment target for GPs is defined as:

- A percentage of invested capital and/or financed emissions to be "managed in alignment with net zero" by 2030 and an increased % by 2040 and a target of 100% net zero by 2050.

The influence bands inform the target thresholds that GPs should seek to achieve by 2030, 2040, and 2050. By 2050 all investments should achieve net zero.[136]

Table 39: Target recommendations for GPs

GP investments in band 1a	GPs are encouraged to approach or achieve 40% of invested capital managed in "alignment with net zero" by 2030, rising to 75% by 2040.
GPs Investments in bands 1b, 1c and 1d	Expected to achieve a lower threshold target, decreasing by influence level. However a notable material increase by 2040 is expected versus the 2030 level.

[136] Debt investments still within the grace period at which GPs provide annual reporting to LPs (i.e. those made within one year of the date) should be excluded from calculations of progress toward targets because they may not have had sufficient time to assess the PC's position against the alignment criteria. However, if a PC meets the required criteria ahead of the 1-year milestone, GPs can opt to include them in their progress calculations and reporting.

Glide paths

Glide paths of target thresholds can be developed by an investor who is considering their respective influence band. An example glide path is provided below, which can be used by GPs to develop appropriate alignment targets.

Most funds and portfolios will include investments that span across more than one influence band. In this case, the weighted average of invested capital based on the anticipated distribution across bands should inform the target.

An example glide path with 2030, 2040 and 2050 milestones for level 1 influence bands is outlined in Table 40 below.

For example, based on the glide path established below, a GP expecting to have 80% of invested capital in band 1a and 20% of invested capital in band 1b could set a target to manage 38% of the total invested capital in alignment with net zero by 2030.

Fund level targets

For all new funds raised after committing to net zero, the GP establishes a target percentage of the fund's invested capital that will be managed in alignment with net zero.

The fund level alignment target should be shared with LPs during fundraising in the fund marketing materials. This will enable LPs to make asset allocation decisions in furtherance of their own net zero commitments and calculate their net zero committed capital.

Table 40: Level 1 influence band example glide path

Asset classes	Band	% of invested capital managed in alignment with net zero by...		
		2030	2040	2050
Direct ▪ GP direct corporate lending ▪ GP venture and/or growth debt	1a	**40%** Invested cap.	**75%** Invested cap.	**100%** Invested cap.
	1b	**20%** Invested cap.	**50%** Invested cap.	**100%** Invested cap.
	1c	**10%** Invested cap.	**40%** Invested cap.	**100%** Invested cap.
Direct ▪ GP private structured credit ▪ GP fund/NAV financing	1d	**10%** Invested cap	**40%** Invested cap	**100%** Invested cap.

Illustrative glide path thresholds

NZIF targets

Because of legal commitments made to LPs as part of legacy funds, it may be difficult to add a net zero commitment after capital has been committed and deployed. As a result, funds raised prior to the GP making their net zero commitment do not need to be included, although GPs are encouraged to manage as many of their existing assets in alignment with net zero ambitions where possible.

Firm level targets

The second type of alignment target that GPs can commit to meet are firm-level portfolio milestone targets for 2030, 2040, and 2050 across their full private debt portfolio (excluding funds that launched prior to the GP committing to net zero).

A firm-level portfolio milestone target for 2030, 2040 and 2050 is recommended to be assessed as of December 31 of the target year. Progress toward the target should be assessed annually.

Limited Partners

The asset alignment target for LPs is defined as:

- A percentage of committed capital and/or financed emissions to be "managed in alignment with net zero" by 2030 and an increased % by 2040 and a target of 100% net zero by 2050.

In practice, it means that LPs should seek to increase the amount of committed capital that GPs plan to manage in alignment with net zero, to meet or exceed the recommended percentage at the milestone years of 2030, 2040 and 2050.

By 2050, 100% of committed capital across the indirect bands should be net zero. By this milestone, 100% of invested capital should also achieve net zero.

Most LP investments will fall into indirect investment bands 2a, 2b, and 2c. Co-investments made by LPs into specific portfolio companies are also categorised into indirect influence bands. If LPs have direct investment programs, those investments should be considered under bands 1a, 1b, and 1c.

Appropriate ambition is informed by the anticipated distribution of investments across the influence bands. An example glide path with 2030, 2040 and 2050 milestones for level 2 influence bands is outlined in Table 41 below. The glide path presented can be used by LPs as a starting point for establishing appropriate alignment targets for the milestone years.

Table 41: Level 2 influence band example glide path

Asset classes	Band	% of invested/ committed capital managed in alignment with net zero by...		
		2030	2040	2050
Indirect ▪ GP continuation funds across these strategies ▪ GP fund of funds ▪ LP investments across private credit (direct and indirect) ▪ LP co-investment ▪ LP-led secondaries	2a	**28%** Committed cap.	**75%** Committed cap.	**100%** Invested cap.
	2b	**18%** Committed cap.	**65%** Committed cap.	**100%** Invested cap.
	2c	**10%** Committed cap.	**55%** Committed cap.	**100%** Invested cap.

Illustrative glide path thresholds

NZIF targets

Accounting for GPs

The LP's milestone target and calculation of performance can consider the percent of invested capital that the GP plans to manage in alignment with net zero. Especially in early years, many GPs will set fund level targets to manage less than 100% of invested capital in alignment with net zero.

LPs should apply the GP's fund level commitment percentage (based on final invested capital) to the capital they are committing to the fund. For example, if an LP commits $100 million to a fund and the fund manager has committed to manage 70% of the funds invested capital in alignment with net zero, then the LP would count $70 million towards their committed capital target.

Fund of funds

Fund of funds are recommended to follow target-setting guidance for LPs while taking into account the following important exceptions for alignment targets:

1. Set fund level alignment targets in addition to firm level portfolio milestone alignment targets, as asked of GPs, although these targets should be based on committed capital.
2. Communicate to prospective LPs a target percentage of the fund's invested capital that will be managed in alignment with net zero for all new funds raised.

4 Delivering the target

GPs and LPs may utilise multiple levers at various stages in the investment cycle with the aim of transitioning assets towards meeting the alignment criteria and achieving the asset alignment target.

General Partners

Portfolio company engagement

Investors that have set asset alignment targets are recommended to implement a robust engagement strategy to help move PCs up the maturity scale, from committed to aligning to aligned. GPs can have significant influence in PC decisions and strategy, and can enhance effective engagement actions.

See the engagement threshold section below detailing the engagement actions GPs across all influence bands are encouraged to use to develop their engagement strategy.

Portfolio assessment and management

To support the delivery of an alignment target, investors are recommended to:

- Build skills and capacity to better understand the value of climate risk, opportunities and net zero, and commercialise net zero intellectual property.
- Implement TCFD recommendations, including scenario analysis, and disclosures in relation to climate-related financial risk as a firm across the portfolio.
- Develop capacity and resource to support PCs in the delivery of net zero through asset management.
- Enable 'climate-literacy' programs for investment teams.

Before and during acquisition

Investors are recommended to:

- Expand due diligence to include climate risk analysis to inform valuations, exit strategies and identify opportunities to increase investment in climate solutions.
- Include net zero and climate risk assessment in investment committee sign-off processes/memos.
- Ensure loan documentation includes appropriate terms in relation to climate risk governance, performance, management and reporting. Some examples of language that can be included in loan documentation are as follows:
  - Statement confirming i) commitment towards net zero alignment and ii) commitment to set targets to align to net zero
  - Disclosure of absolute scope 1, 2 and material scope 3 GHG emissions
  - 5- to 10-year Paris-aligned GHG emissions reduction targets, capturing scope 1, 2 and material scope 3, are set and disclosed by the PC
  - Cumulative YoY emissions reduction meets or exceeds the linear annual reduction established as the target for scope 1, 2 and material scope 3 emissions
- Consider inclusion of climate risk management in KPIs in loan documentation. Details can be agreed post-close in a competitive/time constrained deal situation.

During holding period

Investors are recommended to:

- Support PC management with educational/operational guidance on managing climate performance and implementing a net zero strategy.

ESG margin ratchets and sustainability-linked loans

Investors can consider ESG margin ratchets and sustainability-linked loans:

- **ESG Margin Ratchet –** Mechanism which links defined ESG KPIs to a reduction in the margin if achieved and/or an increase in the margin if not achieved. Climate-related KPIs can be set to support net zero progress.
- **Sustainability Linked Loan (SLL) –** A type of loan, which includes an ESG Margin Ratchet mechanism, that is aligned to the Loan Market Association (LMA)'s guidelines, e.g. includes third party audit of KPIs etc.

Limited Partners

GP engagement

LPs can have significant influence on the GP and thus indirectly on the PC. See the engagement threshold section below detailing the engagement actions LPs across all influence bands should use to develop their engagement strategy.

Manager and fund selection

When selecting funds and managers, LPs are recommended to consider:

- Selecting funds and managers that are committed to net zero in order to support PCs in meeting the alignment criteria.

- Avoiding investments in industries whose primary activity is no longer considered permissible within a credible net zero pathway.
- Ramping up investment in funds managed in alignment with net zero as quickly as possible and in line with net zero pathways.
- Balancing the need for fast action with an understanding that increased adoption of net zero practices across the private debt industry will be necessary to provide adequate investment options to LPs.
- The LP's ability to influence existing GPs to take up net zero commitments.
- Assessing differences in GP net zero uptake across specific markets/ geographies in which the LP invests.
- The fund duration: If all investments need to be net zero by 2050, commitments made to a 10-year fund in 2040 should plan to be 100% managed in alignment with net zero.
- Selecting GPs based on compliance with TCFD recommendations and the Transition Plan Taskforce (TPT) in relation to climate-related financial risk and transition risk.

Portfolio assessment and management

Investors are recommended to:

- Include private debt assets in net zero commitments, climate-risk governance and TCFD reporting. This includes monitoring and reporting on aggregated carbon performance and achievement of milestones/actions of PCs and funds based on requested reporting from GPs.
- Prioritise GP engagement strategies through the climate risk mapping and carbon footprinting of existing private debt portfolios e.g. review high impact sector exposures (by invested capital) where sector data for underlying PCs is available; or establish priorities using estimated carbon footprint data and modelling (where available) to identify the most exposed funds.
- Include net zero and climate risk assessment in investment committee sign-off processes/memos to approve commitments to new funds and GP co-investments.
- Refer to standard frameworks developed by ILPA, the TCFD, BVCA, iCI etc. to increase allocation to GPs who are more mature in their response to climate risk management.
- Introduce an appropriate energy investment policy[137] e.g., avoid new investment in thermal coal and tar sands.
- Upskill in-house legal counsel, compliance team, and fund administration teams with training and guidance to represent net zero alignment within side letters and deal terms.
- Collaborate with industry bodies to advance best practice and standards to facilitate Paris alignment in the PE sector.

Co-investment

Investors are recommended to:

- Screen out co-investment opportunities in high-impact sectors if the GP does not intend to implement a net zero transition plan or there is no viable pathway to net zero.
- Consider "positive screening" to increase allocation to PCs which represent 'climate solutions'.

5 Monitoring the target

General Partners

Disclosure

GPs are asked to report net zero-related metrics to LPs no less than annually. The disclosure should be incorporated into existing annual fund reporting cycles. GPs should begin reporting on net zero related metrics in the reporting cycle that follows the one-year post deal close milestone. This allows GPs to begin to make progress against alignment criteria prior to any reporting requirements. LPs will use the data reported by GPs to calculate their own performance on key metrics.

Information recommended to be reported includes:

- For each PC owned by the fund:
  - Binary "Yes/No" assessment for each PC on their status of being "managed in alignment with net zero" (fund of funds and LPs should assume PCs are not managed in alignment if GPs do not report). GPs are encouraged to also report on the alignment status of each PC.
  - Scope 1 & 2 emissions (total PC emissions and financed emissions following PCAF guidelines where known—highlight data gaps).
  - Material Scope 3 emissions (total PC emissions and financed emissions following PCAF guidelines where known—highlight data gaps).
  - Total invested capital (i.e. the amount deployed) in the PC by the fund, mandate or account.
  - Net asset value of debt at PC level.

[137] IIGCC (2024), A five-step process to an energy investment policy: A building block for a robust transition plan

- For the fund in which the LP is invested, report progress against net zero commitments made for the fund (i.e., % of invested capital managed in alignment with net zero)
- Across all private debt funds established after the GP's net zero commitment:
  - Report on progress towards the next firm level alignment milestone (2030, 2040, 2050)
  - Report on the GP's total financed emissions and highlight data gaps

The tables below sets out three examples of PCs path to alignment and how a GP would report at each stage.

Table(s) 42: Three examples of a PCs path through the portfolio company alignment criteria

Position timeline	Status	Actions	Report in Alignment Y/N
Pre close	Not aligning	N/A	N/A
End of grace period	Not aligning	Expression of intent to 'Committed to aligning'	Y
Between end of grace period and exit	Move from 'Not aligning' to 'Committed to aligning'	Actions to move one step further	Y
Exit	Committed to aligning	N/A	Y

Position timeline	Status	Actions	Report in Alignment Y/N
Pre close	Not aligning	N/A	N/A
End of grace period	Not aligning	None	**N**
Between end of grace period and exit	Move from 'Not aligning' to 'Committed to aligning'	Expression of intent to 'Committed to aligning' & actions to move one step further	Y
Exit	Committed to aligning	N/A	Y

Position timeline	Status	Actions	Report in Alignment Y/N
Pre close	Not aligning	N/A	N/A
End of grace period	Not aligning	Expression of intent to 'Committed to aligning'	Y
Between end of grace period and exit	Not aligning	None	Y
Exit	Not aligning	N/A	**N**

Fund of funds

Fund of funds are asked to report following guidance for GPs, although reporting on progress toward alignment targets should be based on committed capital rather than invested capital. Fund of funds should also pass through PC-level information to their LPs to the extent this information is available.

Limited Partners

Disclosure

LPs are asked to monitor their progress toward their targets no less than annually. LPs are encouraged to report on their progress to their clients or publicly, as appropriate. The information that is recommended to be reported includes the following:

- Across all private debt investments, report on progress toward the next firm level alignment milestone (2030, 2040, 2050) by sharing the % of committed capital that will be managed in alignment with net zero (based on fund-level commitments).
- Across all private debt investments, report on the % of invested capital that has been managed in alignment with net zero for the reporting year (based on data reported from GPs):
  - Performance can additionally be calculated and communicated using net asset value.
- Across all private debt investments, share financed emissions attributable to the LP's stake (as known; identify gaps).

Engagement Threshold Target

Investors are recommended to undertake specific engagement actions for all (100%) applicable private equity investments.

LPs are recommended to engage all GPs they invest in. GP engagement targets are focused on investments where the GP doesn't have a majority of board votes. For these investments, GPs are askedto engage the peer investment managers and other owners of these PCs.

General Partners

GPs are recommended to set the following target:

- Complete the specified engagement actions in Table 43 and Table 44 for all (100%) applicable private debt investments.

The intention is that GPs build these practices into their standard operating procedures.

Engagement strategy

In situations where the GP does not have high levels of influence, engagement with the PC and shareholders alike (and at times other debt holders) becomes an important practice to advance net zero efforts. Engagement also helps to drive broader uptake of net zero commitments across the private debt ecosystem, making achievement of net zero more feasible for all actors.

Table 43 and Table 44 details the engagement actions investors are recommended to undertake.

A 'three-way' engagement model is introduced. Through this model, GPs are encouraged to fulfil their 100% engagement target by engaging with their PCs on net zero and climate-related concerns, as well as their PE sponsors where private debt deals are sponsor-backed. This enables GPs to broaden the remit of obtaining the relevant information necessary to support the achievement of their net zero targets.

Table 43 details engagement actions to be undertaken when engaging with PCs. Table 44 details actions for engaging with PE sponsors.

Disclosure

For the fund in which the LP is invested, qualitative and quantitative updates on engagement actions taken should be shared to demonstrate that engagement expectations are being met. Sharing outcomes should be considered.

Table 43: GP recommended engagement actions with PCs

Asset classes	Band	Private Debt Criteria	Recommended Engagement Actions	Timing
■ GP direct corporate lending ■ GP venture and/or growth debt	1a	Sole lender or lead arranger of the debt and/or Holder of 50%+ of the debt tranche and/or Board seat and/or Any form of significant equity holding in the deal (defined as >10%)	Engage with PC management with decarbonisation and climate risk as key engagement priorities. This could include correspondence, meetings, webinars and/or training. It is important to engage on the PC's ambition, disclosures, targets and emissions performance. Governance and climate strategy should also be engagement priorities for PCs in high impact sectors. Best practice: Climate-related ESG margin ratchet loans/ sustainability-linked loans and/or language in loan documentation requiring climate disclosure. The climate related KPIs included may vary across loans. For high impact sectors, in addition to meeting all the required alignment criteria, managers should (1) actively use selection as a tool to identify and/or avoid and/or select them; (2) use climate-related ESG margin ratchets and/ or covenants in related legal documentation; (3) ensure such investments have a clear path to net zero by exit from 2040.	Post deal close / grace period until exit
	1b	Significant minority holder of the debt tranche (have blocking or verb rights). Between 25-50% of the debt tranche		
	1c	Small participant of tranche – less than 25%		
■ GP private structured credit ■ GP fund/NAV financing	1d	Any % tranche holding where limited scope to negotiate directly with underlying company/ collateral	It may not be possible to access underlying PCs. As such, GPs are encouraged to engage with the issuer and consider, if possible, the issuer's firm level attributes instead of portfolio companies' characteristics.	Post deal close / grace period until exit

Table 44: GP recommended engagement actions with PE sponsors

Asset classes	Band	Private Debt Criteria	Recommended Engagement Actions	Timing
■ GP direct corporate lending ■ GP venture and/or growth debt	1a	Sole lender or lead arranger of the debt and/or Holder of 50%+ of the debt tranche and/or Board seat and/or Any form of significant equity holding in the deal	Identify PE sponsors across debt portfolio. Engage with investment leads and/or sponsor's ESG personnel on the PC's ambition, disclosures, targets and emissions performance. Governance and climate strategy should also be engagement priorities for PCs in high impact sectors. Notify all PE sponsors of net zero ambition and targets and introduce NZIF PE framework if they are not already committed to that. Provide them with standardised data request for all deals going forward.	Within first 12 months of deal close Within first 12 months of deal close Annually thereafter
	1b	Between 25-50% of the debt tranche		
	1c	Less than 25%		
■ GP private structured credit ■ GP fund/NAV financing	1d	Any holding	N/A	N/A

Limited Partners

LPs are recommended to set the following target:

- Complete the specified engagement actions in Table 45 for all (100%) applicable private debt investments.

The intention is that LPs build these practices into their standard operating procedures.

Engagement strategy

For LPs to meet their alignment targets, they will need to be successful at engaging and influencing GPs to adopt net zero aligned practices.

Investors are recommended to integrate the actions outlined in Table 45 into their engagement strategies.

LPs may also perform further actions:

- Request information from the GP on climate risk management in pitch book materials. The ILPA Due Diligence Questionnaire (DDQ) 2.011, for example, includes questions that managers should address on climate in fund marketing materials.
- Work alongside other LPs, GPs and industry bodies to advance best practice and standards to facilitate Paris-alignment in the private debt sector, such as adoption of science-based targets.
- For co-investments, LPs are recommended to engage with the GP on the specific PC in which the co-investment was made to request it be managed in alignment with net zero.

Disclosure

Across all private debt investments, qualitative and quantitative updates on engagement actions taken should be shared to demonstrate the private debt engagement threshold target is being met. Sharing outcomes should be considered.

Table 45: LP recommended engagement actions

Asset classes	Band	Private Debt Criteria	Recommended Engagement Actions	Timing
Indirect ■ GP continuation funds across these strategies ■ GP fund of funds ■ LP investments across private credit (direct & indirect) ■ LP co-investment ■ LP-led secondaries	**2a**	Big ticket investors and/or first close	**Universal actions after committing to net zero:** ■ Send a letter to all the following: the Chairman of the Board, the CEO, Investor Relations, and the ESG leader of every GP in which you invest. The letter should share the LP's commitment to net zero, the expectation of GPs to adopt net zero practices in new funds, and how consideration of net zero could impact investment decisions going forward. Request that the GP make their own net zero commitment and have Limited Partnership Agreements stipulate a commitment to net zero[138]. **Universal actions during fund selection:** ■ Engage with senior leaders of the GP, including Investor Relations, to request the fund include a commitment to manage the portfolio in alignment with net zero within the Limited Partnership Agreement. If that is rejected, propose a side letter with the GP that stipulates a commitment by the GP to manage a portion of the invested capital in line with net zero. The specific percent of invested capital can be negotiated. ■ LPs can choose to invest with GPs that refuse to align with net zero. But, over time, the proportion of capital that LPs can commit to GPs that don't manage in alignment with net zero will diminish rapidly. LPs should make sure this dynamic is clearly understood by GPs that choose not to align. **Conditional actions:** If the LP has a LPAC seat: ■ Request climate-related performance integrated into LPAC reporting for the fund. ■ If the GP is not meeting its net zero targets, request net zero performance as an LPAC agenda item. If the LP does not have a LPAC seat: ■ Engage with other LPs to discuss and seek to push for net zero commitments at the GP level AND/OR when attending a GP's annual investor day, raise net zero as a concern and share the expectation that the GP will commit future funds. ■ If the GP is not meeting its net zero targets, hold a meeting with ESG lead and relevant senior leader(s) at the GP to raise concerns and seek assurances the situation will be rectified.	During fund selection Throughout life of fund
	2b	Investment made during fund raising, not 2a. Coinvestment		
	2c	Investment via secondaries		

[138] With the understanding that changes to fund documentation are not easily implemented after a fund's first close

Appendices

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Section 2 Portfolio Decarbonisation Reference Objective (PDRO)
Section 3 PDRO for sovereign bonds
Section 4 Climate solutions objective (listed equity)
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Contents

Appendix A: Portfolio emissions metrics' formulae[139]

Listed companies

$$Financed\ emissions = \sum_{c} \frac{Outstanding\ amount_c}{EVIC_c} \times Company\ emissions_c$$

Where c = company

Private companies

$$Financed\ emissions = \sum_{c} \frac{Outstanding\ amount_c}{Total\ equity + debt_c} \times Company\ emissions_c$$

Where c = company

Commercial real estate

$$Financed\ emissions = \sum_{b,e} \frac{Outstanding\ amount_b}{Property\ value\ at\ origination_b} \times Energy\ consumption_{b,e} \times Emission\ factor_e$$

Where b = building, e = energy source

Project finance

$$Financed\ emissions = \sum_{p} \frac{Outstanding\ amount_p}{Total\ equity + debt_p} \times Project\ emissions_p$$

Where p = project

Economic emissions intensity

$$Economic\ emissions\ intensity_p = \frac{Financed\ emissions_p}{AUM_p}$$

Where p = portfolio

Sovereign bonds

$$Financed\ emissions = \sum_{s} \frac{Outstanding\ amount_s}{PPP - adjusted\ GDP_s} \times Sovereign\ Emissions_s$$

Where s = sovereign borrower

Weighted Average Carbon Intensity

$$WACI_p = \sum_{i}^{n} Weight\ of\ company\ in\ portfolio_c \times \left(\frac{Company\ emissions_c}{Company\ revenue_c}\right)$$

Where p = portfolio, c = company

[139] Partnership for Carbon Accounting Financials (2024), The Global GHG Accounting and Reporting Standard for the Financial Industry

Appendix B: Inflation Adjustment Factor

Investors can normalise for **WACI** using the EU TEG's approach,[140] which suggests that "considering that the Paris Agreement emissions reductions should apply to absolute GHG emissions, and that we can only work on GHG intensity, the level of decarbonisation should be increased if inflation occurs. Otherwise, a price effect could lead to a reduction of the tCO_2e/€rev ratio without any efficiency. If the respective yearly inflation is equal to Inf%, then [for a 7%] decarbonisation rate the calculation should be:"

$$1-\left(\frac{1-7\%}{1+Inf\%}\right)$$

Investors can normalise **economic emissions intensity** using either the European Commission's or PCAF's approach, both outlined below.

As per Article 7 of the EU's Low Carbon Benchmarks Regulation,[141] "where the average EVIC of the constituent securities of the benchmark has increased or decreased during the last calendar year, the EVIC of each constituent shall be adjusted by dividing it by an enterprise value inflation adjustment factor."

The inflation adjustment factor shall be calculated by dividing the average EVIC of the portfolio constituents at the end of a calendar year by the average EVIC of the constituents at the end of the previous calendar year.

The PCAF Standard has also stated an inflation adjustment factor investors can use to normalise economic emissions intensity:[142]

$$ADJ_{b,T} = \sum_i W_T \times \frac{EVIC_b}{EVIC_T}$$

Whereby b = base year, T = current year, WT = benchmarks weights at time T

PCAF outlines two ways to adjust for economic emissions intensity, "backward" or "current":

1. Backward: The economic emission intensity can be adjusted in the base year. Benefits of adjusting the base year are that current reported carbon figures remain unadjusted. Moreover, EVIC inflation correction applied to the baseline can be combined with other adjustments that may be required, for example for data improvements or a changing universe composition.

To calculate adjusted economic emission intensity in the base year (b):

$$Economic\ emission\ intensity^{adjusted}\ (b) = Economic\ emission\ intensity\ (b) \times ADJ_{b,T}$$

2. Current: The economic emission intensity can also be adjusted for the current reporting year. Benefits of adjusting the current year are intuitiveness for annual reporting, where the focus is usually on the metrics associated with the current year. Similarly, when assessing progress against an objective to reduce the economic emission intensity by a certain percentage, it is intuitive to keep the base emission intensity consistent.

To calculate adjusted economic emission intensity in current reporting year (T):

$$Economic\ emissions\ intensity^{adjusted}\ (T) = Economic\ emission\ intensity\ (T) \times \frac{1}{ADJ_{b,T}}$$

[140] EU Technical Expert Group on Sustainable Finance (2019), TEG interim report on EU climate benchmarks and benchmark ESG disclosures
[141] European Commission (2020), Delegated regulation - 2020/1818
[142] PCAF (2022), The PCAF Standard

Appendix C: Selecting global 1.5°C scenarios

The IPCC Special Report on Global Warming of 1.5°C (SR1.5) classifies mitigation pathways by four factors: consistency with a temperature increase limit, whether they temporarily overshoot that limit (OS), the extent of this potential overshoot, and the likelihood of falling within these bounds.

Table 46 shows that there are only 9 scenarios that limit warming to below 1.5°C relative to pre-industrial levels (50-66% likelihood) with no overshoot, and 44 scenarios that limit warming to 1.5°C relative to pre-industrial levels with low overshoot. These 1.5°C-consistent pathways were generally found in a sustainability orientated world or "middle-of-the-road" developments, characterised by low-medium population increase, low-medium and uneven energy and food demand per capita, high-medium and uneven technological progress.[143]

Table 46: IPCC classification of 1.5C pathways and number of available scenarios

Pathway group	Pathway Class	Pathway Selection Criteria and Description	Number of Scenarios	Number of Scenarios
1.5°C or 1.5°C-consistent**	Below-1.5°C	Pathways limiting peak warming to below 1.5°C during the entire 21st century with 50–66% likelihood*	9	90
	1.5°C-low-OS	Pathways limiting median warming to below 1.5°C in 2100 and with a 50–67% probability of temporarily overshooting that level earlier, generally implying less than 0.1°C higher peak warming than Below-1.5°C pathways	44	
	1.5°C-high-OS	Pathways limiting median warming to below 1.5°C in 2100 and with a greater than 67% probability of temporarily overshooting that level earlier, generally implying 0.1–0.4°C higher peak warming than Below-1.5°C pathways	37	
2°C or 2°C-consistent	Lower-2°C	Pathways limiting peak warming to below 2°C during the entire 21st century with greater than 66% likelihood	74	132
	Higher-2°C	Pathways assessed to keep peak warming to below 2°C during the entire 21st century with 50–66% likelihood	58	

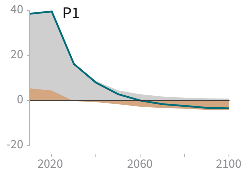
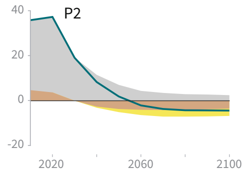
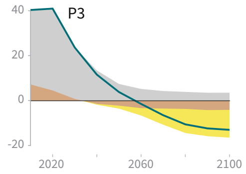
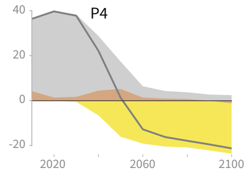
The IPCC sets out four illustrative 1.5°C pathways to show the variety of underlying assumptions and characteristics, and the range of potential mitigation strategies, that can lead to global net zero emissions by 2050 with no or limited overshoot.

Below is a summary of each net zero pathway and a selection of key indicators (expressed as % change relative to 2010 levels unless otherwise stated). It shows that a range of scenarios leading to global net zero carbon emissions by 2050 are driven by different rates of decarbonisation, varying levels of reductions in total energy demand and fossil fuel use, increases in renewable capacity, and varying levels of carbon dioxide removal (CDR), bioenergy capture and storage (BECCS) and removals in the agriculture, forestry and other land use (AFOLU) sector. Together, these are referred to as negative emissions technologies (NETs).

Investors can use these scenarios, taking into consideration their own assumptions about some of these key indicators, particularly around the future development and deployment of CDR and BECCS. However, IIGCC does not recommend that investors use the P4 pathway given its reliance on a high volume of NETs.

[143] IPCC (2018), Special Report on Global Warming of 1.5 °C

Table 47: Four illustrative pathways outlined in IPCC SR 1.5

IPCC 1.5°C / net zero pathway **Grey = fossil fuel & industry** **Brown = AFOLU** **Yellow = BECCS**	**P1: a low energy demand scenario** 	**P2: a sustainability orientated scenario** 	**P3: a middle-of-the-road scenario** 	**P4: a fossil-fuel intensive & high energy demand scenario** 	**Interquartile range**
% change relative to 2010 levels	No or limited overshoot	No or limited overshoot	No or limited overshoot	No or limited overshoot	No or limited overshoot
CO_2 emissions 2030	-58%	-47%	-41%	+4%	-14%, -58%
CO_2 emissions 2050	-93%	-95%	-91%	-97%	-94%, -107%
CO_2e emissions 2030	-50%	-49%	-35%	-2%	-39%, -51%
CO_2e emissions 2050	-82%	-89%	-78%	-80%	-81%, - 93%
Energy demand 2030	-15%	-5%	+17%	+39%	-12%, +7%
Energy demand 2050	-32%	-2%	+21%	+44%	-11%, +22%
Renewable share in elec. 2030 (%)	60%	58%	48%	25%	47%, 65%
Renewable share in elec. 2050 (%)	77%	81%	63%	70%	69%, 86%
Primary energy from coal 2030	-78%	-61%	-75%	-59%	-59%, -78%
Primary energy from coal 2050	-79%	-77%	-73%	-97%	-74%, -95%
Cumulative CCS until 2100 ($GtCO_2$)	0	348	687	1,218	550, 1,017

Appendix D: Selecting sectoral, regional and custom 1.5°C pathways

Sectoral pathways

Table 48 below provides information about key available 1.5°C pathways, including sectors and regions covered. This list should not be treated as exhaustive, as it is expected that the number of credible sectoral scenarios will increase over time.

Table 48: Available net zero pathways

Pathway	Description	Sectors/ sub-sectors	Regional breakdown	Publication date
IPCC “P1”, “P2”, “P3”	Assessed pathways describe integrated, quantitative evolutions of all emissions over the 21st century associated with global energy and land use and the world economy consistent with limiting warming to 1.5°C above pre-industrial levels.	AFOLU, industry, transport, buildings, energy supply	OECD (1990) + EU, Asia, Middle East and Africa, Latin America, and Reforming Economies (i.e. ex-USSR)	2018
IEA Net Zero Emissions Scenario	Describes a pathway for the global energy sector to reach net zero emissions of CO_2 by 2050 by deploying a wide range of clean energy technologies and without offsets from land-use measures.	Electricity generation from oil, gas, coal, road transport, shipping and aviation, steel and aluminium, cement, primary chemicals, low emissions sources of electricity (solar, wind, other renewables, nuclear, fossil fuels with CCUS)	“Advanced economies” and “emerging market and developing economies”	September 2023
One Earth Climate Model: Sectoral Pathways to Net-Zero Emissions (OECM)	The OECM uses the IPCC global carbon budget to develop energy scenarios and emissions pathways across all major industry sectors, buildings, and transport, and sub-divides those large sectors further for specific industries.	Aluminium, chemicals, cement, steel, textiles & leather, power utilities, gas utilities, agriculture, forestry, aviation and shipping , road transport, and the real estate & building industry	OECD Europe, OECD North America, global	May 2022
TPI sectoral decarbonisation pathways	Allocates an absolute, economy-wide emissions budget into sectoral budgets. Derived from IEA modelling. Where necessary, IEA data is supplemented with data from other models and databases, such as IPCC.	Electricity utilities, oil and gas, automobiles, aviation, shipping, aluminium, cement, diversified mining, pulp and paper, steel	Sectoral budgets are available at the global level	February 2022

Pathway	Description	Sectors/ sub-sectors	Regional breakdown	Publication date
SBTi sector pathways	SBTi reviews estimates of the remaining emissions budget, top-down mitigation scenarios, and sectoral studies to determine 1.5°C-aligned pathways at the global and sectoral levels. These pathways stay within the remaining carbon budget for at least a 50% likelihood of limiting warming to 1.5°C.	Cross-sector, aviation, buildings, cement, electric utilities and power generation, FLAG (forestry, land and agriculture), maritime transport, steel	Sectoral budgets are available at the global level	Varies across sectors
IRENA World Energy Transitions Outlook 2023: 1.5C scenario	Presents transition pathways to 2030 and 2050, examining the required technological choices and emission mitigation measures to achieve the 1.5°C Paris climate goal in alignment with IPCC's special report. Provides sector- and technology-specific details of the transition to 2030 and 2050.	Power, emerging fuels (clean hydrogen and its derivatives), industry, buildings, transport	Sectoral budgets are available at the global level	June 2023
NGFS Net Zero Scenario	Scenario that limits global warming to 1.5°C, through stringent climate policies and innovation. Net CO_2 emissions reach zero around 2050, giving at least a 50% chance of limiting global warming to below 1.5C by the end of the century, with no or little overshoot in earlier years.	AFOLU, energy supply, industry, residential and commercial buildings, transportation	Key economic, energy and emissions variables downscaled to about 100 major countries.	November 2023
Carbon Risk Real Estate Monitor (CRREM)	Global and regional pathways based on global operational real estate-related emission budgets (derived from IPCC and IEA NZE pathways). Model applies SBTi Sectoral Decarbonisation Approach to derive sector pathways for the buildings sector at national level, broken down between residential and commercial property stock.	Real estate (including residential and commercial)	Available at the global level. Country-specific decarbonisation pathways: 44 countries	March 2023
IIGCC Climate Investment Roadmap	Sets out net zero trajectories, broken down by sector and geography respectively, derived from IEA NZE (2021), supplemented by IEA Sustainable Development Scenario (SDS). Paper translates emissions reduction trajectories into real-world investment needs ($bn), for key sectors, technologies and regions.	Electricity, industry, transport (including sub-categories), buildings, other.	North America, Central and South America, Europe, Asia Pacific, Eurasia, Africa, Middle East	April 2022

Regional and country pathways

Table 49 shows some of the country and regional decarbonisation net zero pathways investors may use to support setting portfolio decarbonisation reference objectives, particularly for sovereign bond portfolios.

Table 49: Available regional and country net zero pathways

Provider	Coverage	Key takeaway
ASCOR Fair share pathways	Initially 25 pilot countries (will expand to 70 in 2024)	Carbon budget split - Based on fair share considerations (capability, responsibility, and equity)
Climate Action Tracker	40 countries, including EU	IAMs & carbon budget split - Evaluates government targets and actions against IPCC pathways and against a "fair share range" of emissions allowances based on available literature. The IAM-derived pathways feed into 1.5 National Pathway Explorer.
1.5°C national pathway explorer	64 countries	IAMs – Least cost modelling; good coverage and can be viewed as the gold standard due to their scientific robustness and country-specific focus
CCPI Climate Change Performance Index	63 countries, plus the EU	Carbon budget split - Based on common but differentiated contraction and convergence approach
Climate Equity Reference Calculator	Universal coverage	Carbon budget split - Calculator that allows the user to input their 'fair share' preferences. Combines estimates of emissions intensity reduction with estimates of GDP growth
iea	Global, split by developed and developing countries	IAMs - Bottom-up energy modelling but limited at downscaling and non-energy emissions. Emissions reduction rate only at advanced and emerging countries grouping
NGFS	IAM dependent, downscaling to ~100 countries	IAMs - Wide variety of scenarios and IAMs generated from a policy perspective. Detailed explanation of downscaling, yet technological assumptions may not be as robust
SN Applied Sciences	G20 countries	IAMs - High technical resolution bottom-up pathways. Carbon budget for 2050 is calculated for each country. Information on sectors not available per country in paper
European Green Deal	EU27 countries	Legislation - Basic pathway based on a 55% reduction of GHG in the EU by 2030. Can be used as a benchmark by investors for EU sovereign debt

Sectoral

Science Based Targets

Transition Pathway Initiative

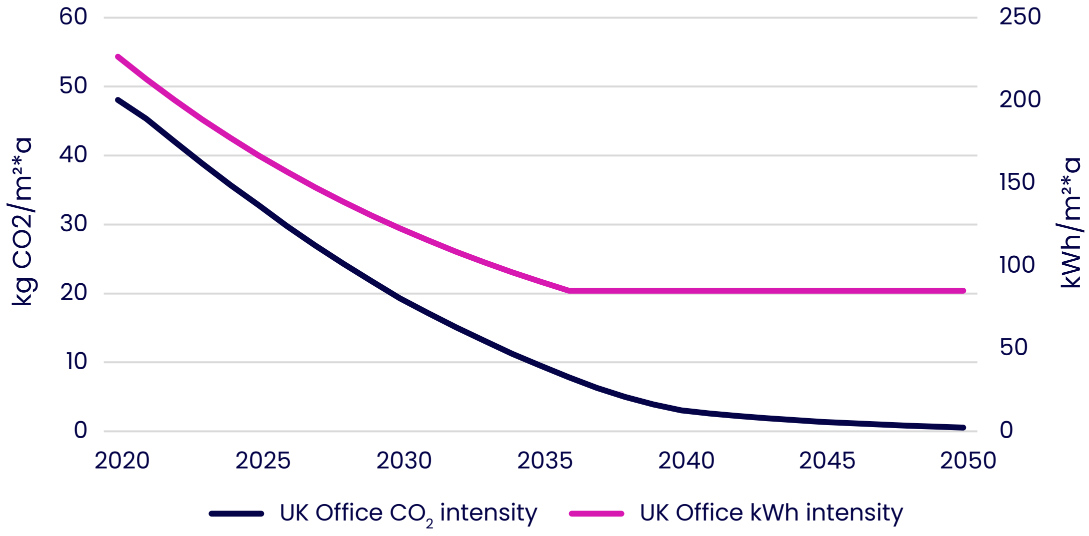
Custom pathways

Investors can also "build" an expected emissions reduction pathway for a portfolio based on its current sectoral and regional composition. For example, the Carbon Risk Real Estate Monitor (CRREM) provides granular emissions and energy intensity pathways for different types of real estate in different regions.[144] Figure 20 shows an emissions intensity and energy intensity pathway for UK office buildings.

Specific pathways at the sectoral, industry and sub-industry level may be developed through an analysis of the specific technological and demand-side (behavioural) changes or "levers" applicable to each industry. A number of academic, industry, government and non-governmental initiatives have sought to identify and map out the relevant levers, their potential contribution to decarbonisation, and the timeline for their applicability. Some of these efforts are specific to a particular region, economy, or sector, but may provide broader insights into the possible routes to a net zero economy.[145]

Investors may rely on any number of such sources, or a combination, as assumptions on technologies and demand-side changes will in part reflect investors' in-house convictions as to the viability of such technologies. To ensure consistency, however, it is essential that any more granular pathways, whether at a regional or (sub-)industry level, are consistent with global and sectoral pathways from recognised sources, such as the ones highlighted above.

Figure 20: Decarbonisation and energy-reduction pathway for UK office buildings (1.5°C scenario)



Decarbonisation and energy-reduction pathway for UK office buildings (1.5°C scenario) (CRREM)

[144] CRREM (2024), CRREM Decarbonisation Pathways

[145] ClimateWorks Foundation, European Climate Foundation (2018), CTI Roadmap Tool project

Appendix E: Attribution analysis methodologies

Three potential methodologies to implement when performing attribution analysis are described in Table 50, including an explanation of the advantages and disadvantages of each approach.

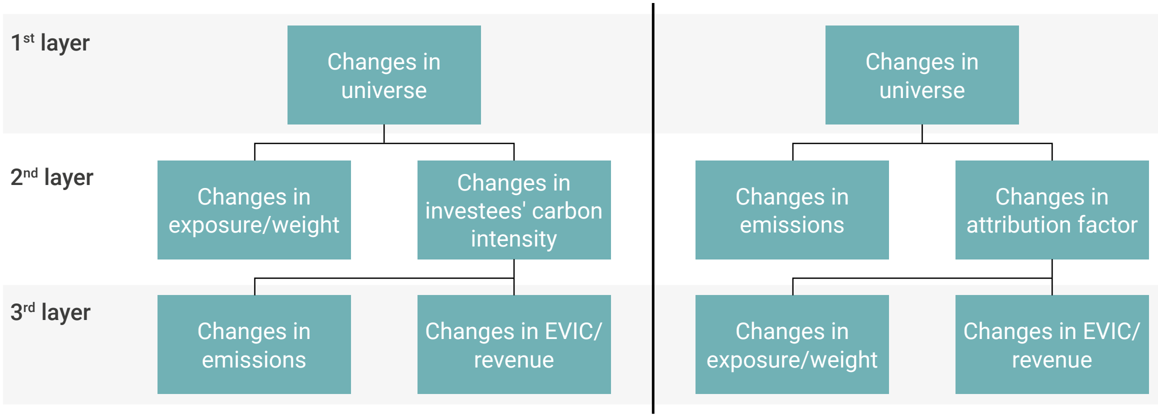
Table 50: Attribution analysis methodologies

Approach	Description	Advantages	Disadvantages
Partial equilibrium approach	Considers the impact of a single variable (potential driver) whilst holding other variables constant.	▪ Simple to implement and intuitive	▪ Does not account for interaction terms[146] ▪ Cannot be used to inform internal or external engagements as it does not report investees' intensity nor attribution factor
Three-layer approach	Splits analysis into layers, determining effects of multiple variables. The approach can vary dependent on the investor's desired focus.	▪ Provides accurate depiction of the impact of multiple variables ▪ Accounts for interaction terms ▪ Can robustly inform stakeholder engagements	▪ More complex analysis required
Logarithmic mean Divisia index	Method used in environmental economics with origins in index number theory, decomposing the difference of an aggregated value over a period into multiple drivers.	▪ Does not account for interaction terms ▪ Symmetrical results (whether the reference is the initial or target year)	▪ More complex to implement

[146] Effects arising from simultaneous change of several input variables

Figure 21 outlines two approaches investors may take when implementing the three-layer approach, as described in a paper from the Net Zero Asset Owner Alliance on *Understanding the Drivers of Investment Portfolio Decarbonisation.*[147]

Figure 21: How two possible three-layer approaches consider allocation effects and emissions changes/ real world impact



[147] NZAOA (2023), Understanding the Drivers of Investment Portfolio Decarbonisation

Appendix F: Selecting sectoral, regional and custom 1.5°C pathways

Sectoral pathways

Table 51 below provides information about key available 1.5°C pathways, including sectors and regions covered. This list should not be treated as exhaustive, as it is expected that the number of credible sectoral scenarios will increase over time.

Table 51: Available net zero pathways

Pathway	Description	Sectors/ sub-sectors	Regional breakdown	Publication date
IPCC "P1", "P2", "P3"	Assessed pathways describe integrated, quantitative evolutions of all emissions over the 21st century associated with global energy and land use and the world economy consistent with limiting warming to 1.5°C above pre-industrial levels.	AFOLU, industry, transport, buildings, energy supply	OECD (1990) + EU, Asia, Middle East and Africa, Latin America, and Reforming Economies (i.e. ex-USSR)	2018
IEA Net Zero Emissions Scenario	Describes a pathway for the global energy sector to reach net zero emissions of CO_2 by 2050 by deploying a wide range of clean energy technologies and without offsets from land-use measures.	Electricity generation from oil, gas, coal, road transport, shipping and aviation, steel and aluminium, cement, primary chemicals, low emissions sources of electricity (solar, wind, other renewables, nuclear, fossil fuels with CCUS)	"Advanced economies" and "emerging market and developing economies"	September 2023
One Earth Climate Model: Sectoral Pathways to Net-Zero Emissions (OECM)	The OECM uses the IPCC global carbon budget to develop energy scenarios and emissions pathways across all major industry sectors, buildings, and transport, and sub-divides those large sectors further for specific industries.	Aluminium, chemicals, cement, steel, textiles & leather, power utilities, gas utilities, agriculture, forestry, aviation and shipping , road transport, and the real estate & building industry	OECD Europe, OECD North America, global	May 2022
TPI sectoral decarbonisation pathways	Allocates an absolute, economy-wide emissions budget into sectoral budgets. Derived from IEA modelling. Where necessary, IEA data is supplemented with data from other models and databases, such as IPCC.	Electricity utilities, oil and gas, automobiles, aviation, shipping, aluminium, cement, diversified mining, pulp and paper, steel	Sectoral budgets are available at the global level	February 2022

Pathway	Description	Sectors/ sub-sectors	Regional breakdown	Publication date
SBTi sector pathways	SBTi reviews estimates of the remaining emissions budget, top-down mitigation scenarios, and sectoral studies to determine 1.5°C-aligned pathways at the global and sectoral levels. These pathways stay within the remaining carbon budget for at least a 50% likelihood of limiting warming to 1.5°C.	Cross-sector, aviation, buildings, cement, electric utilities and power generation, FLAG (forestry, land and agriculture), maritime transport, steel	Sectoral budgets are available at the global level	Varies across sectors
IRENA World Energy Transitions Outlook 2023: 1.5C scenario	Presents transition pathways to 2030 and 2050, examining the required technological choices and emission mitigation measures to achieve the 1.5°C Paris climate goal in alignment with IPCC's special report. Provides sector- and technology-specific details of the transition to 2030 and 2050.	Power, emerging fuels (clean hydrogen and its derivatives), industry, buildings, transport	Sectoral budgets are available at the global level	June 2023
NGFS Net Zero Scenario	Scenario that limits global warming to 1.5°C, through stringent climate policies and innovation. Net CO_2 emissions reach zero around 2050, giving at least a 50% chance of limiting global warming to below 1.5C by the end of the century, with no or little overshoot in earlier years.	AFOLU, energy supply, industry, residential and commercial buildings, transportation	Key economic, energy and emissions variables downscaled to about 100 major countries.	November 2023
Carbon Risk Real Estate Monitor (CRREM)	Global and regional pathways based on global operational real estate-related emission budgets (derived from IPCC and IEA NZE pathways). Model applies SBTi Sectoral Decarbonisation Approach to derive sector pathways for the buildings sector at national level, broken down between residential and commercial property stock.	Real estate (including residential and commercial)	Available at the global level. Country-specific decarbonisation pathways: 44 countries	March 2023
IIGCC Climate Investment Roadmap	Sets out net zero trajectories, broken down by sector and geography respectively, derived from IEA NZE (2021), supplemented by IEA Sustainable Development Scenario (SDS). Paper translates emissions reduction trajectories into real-world investment needs ($bn), for key sectors, technologies and regions.	Electricity, industry, transport (including sub-categories), buildings, other.	North America, Central and South America, Europe, Asia Pacific, Eurasia, Africa, Middle East	April 2022

Regional and country pathways

Table 52 shows some of the country and regional decarbonisation net zero pathways investors may use to support setting portfolio decarbonisation reference objectives, particularly for sovereign bond portfolios.

Table 52: Available regional and country net zero pathways

Provider	Coverage	Key takeaway
ASCOR Fair share pathways	Initially 25 pilot countries (will expand to 70 in 2024)	Carbon budget split - Based on fair share considerations (capability, responsibility, and equity)
Climate Action Tracker	40 countries, including EU	IAMs & carbon budget split - Evaluates government targets and actions against IPCC pathways and against a "fair share range" of emissions allowances based on available literature. The IAM-derived pathways feed into 1.5 National Pathway Explorer.
1.5°C national pathway explorer	64 countries	IAMs – Least cost modelling; good coverage and can be viewed as the gold standard due to their scientific robustness and country-specific focus
CCPI Climate Change Performance Index	63 countries, plus the EU	Carbon budget split - Based on common but differentiated contraction and convergence approach
Climate Equity Reference Calculator	Universal coverage	Carbon budget split - Calculator that allows the user to input their 'fair share' preferences. Combines estimates of emissions intensity reduction with estimates of GDP growth
iea	Global, split by developed and developing countries	IAMs - Bottom-up energy modelling but limited at downscaling and non-energy emissions. Emissions reduction rate only at advanced and emerging countries grouping Sectoral: Science Based Targets; Transition Pathway Initiative
NGFS	IAM dependent, downscaling to ~100 countries	IAMs - Wide variety of scenarios and IAMs generated from a policy perspective. Detailed explanation of downscaling, yet technological assumptions may not be as robust
SN Applied Sciences	G20 countries	IAMs - High technical resolution bottom-up pathways. Carbon budget for 2050 is calculated for each country. Information on sectors not available per country in paper
European Green Deal	EU27 countries	Legislation - Basic pathway based on a 55% reduction of GHG in the EU by 2030. Can be used as a benchmark by investors for EU sovereign debt

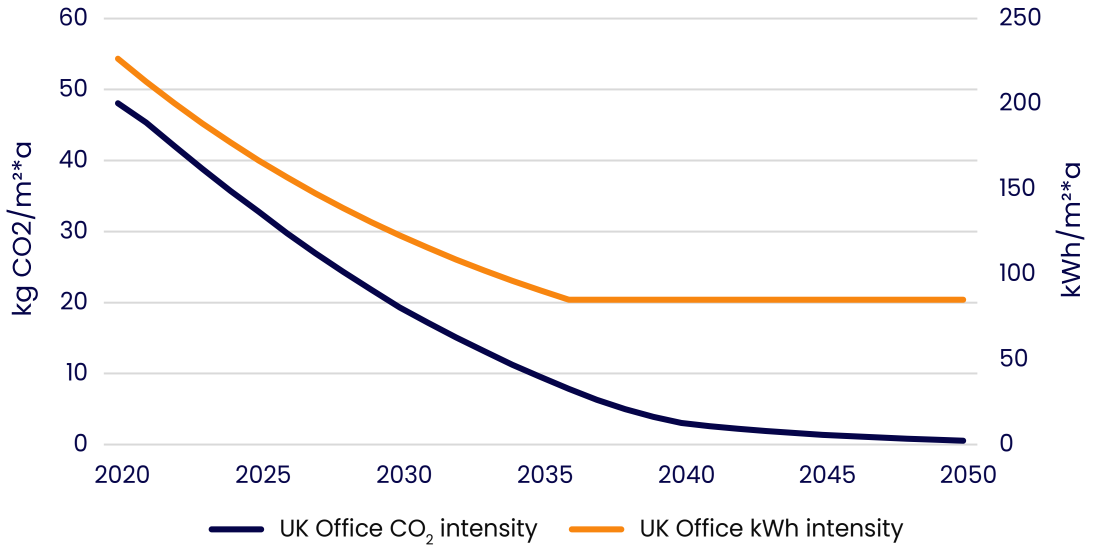
Custom pathways

Investors can also "build" an expected emissions reduction pathway for a portfolio based on its current sectoral and regional composition. For example, the Carbon Risk Real Estate Monitor (CRREM) provides granular emissions and energy intensity pathways for different types of real estate in different regions[148]. The figure below shows an emissions intensity and energy intensity pathway for UK office buildings.

Specific pathways at the sectoral, industry and sub-industry level may be developed through an analysis of the specific technological and demand-side (behavioural) changes or "levers" applicable to each industry. A number of academic, industry, government and non-governmental initiatives have sought to identify and map out the relevant levers, their potential contribution to decarbonisation, and the timeline for their applicability. Some of these efforts are specific to a particular region, economy, or sector, but may provide broader insights into the possible routes to a net zero economy.[149]

Investors may rely on any number of such sources, or a combination, as assumptions on technologies and demand-side changes will in part reflect investors' in-house convictions as to the viability of such technologies. To ensure consistency, however, it is essential that any more granular pathways, whether at a regional or (sub-)industry level, are consistent with global and sectoral pathways from recognised sources, such as the ones highlighted above.

Figure 22: Decarbonisation and energy-reduction pathway for UK office buildings (1.5°C scenario)



Decarbonisation and energy-reduction pathway for UK office buildings (1.5°C scenario) (CRREM)

[148] CRREM (2024), CRREM Decarbonisation Pathways

[149] ClimateWorks Foundation, European Climate Foundation (2018), CTI Roadmap Tool project

Appendix G: Green revenues and green capex disclosure template

Table 53 offers an approach investors can use to disclose and report various climate solutions-related metrics against IIGCC's climate solutions guidance for listed equities and corporate fixed income.[150]

Table 53: Green revenues and green capex disclosure template

Metric	Classification	Activity type[151]	Recommendation
Green revenue ratio ($m and/or %)	TSC-aligned	Transition of own performance	Recommended minimum disclosure if setting climate solutions targets under NZIF, in line with EU Taxonomy Regulation. Disaggregation of metrics by activity type is optional.
	Taxonomy-aligned		
	Taxonomy-equivalent	Enabling	
	Extra-taxonomy		
Financed green revenues ($m/ $m invested)	Taxonomy-eligible	Transition of own performance	Recommended minimum disclosure if setting climate solutions targets under NZIF. Disaggregation of metrics by activity type Is optional.
	Taxonomy-aligned		
	Taxonomy-equivalent	Enabling	
	Extra-taxonomy		
Data coverage % of AUM where revenue data is unavailable % of AUM with no revenues from climate solutions	N/A	N/A	Minimum asked if setting climate solutions targets under NZIF.
Green capex ratio ($m and/or %)	Taxonomy-eligible	Transition of own performance	Recommended disclosure, as data availability improves, in line with EU Taxonomy Regulation. Disaggregation of metrics by activity type Is optional.
	Taxonomy-aligned		
	Taxonomy-equivalent	Enabling	
	Extra-taxonomy		
Financed green capex ($m/$ invested)	Taxonomy-eligible	Transition of own performance	Recommended disclosure, as data availability improves. Disaggregation of metrics by activity type Is optional.
	Taxonomy-aligned		
	Taxonomy-equivalent	Enabling	
	Extra-taxonomy		

[150] IIGCC (2023), Investing in Climate Solutions: listed equity and corporate fixed income

[151] The 'activity type' column is not intended as a mapping to the 'classification' column. It is not intended to imply that only TSC-aligned and taxonomy-aligned classified assets map to transitioning activities.

Appendix H: Calculations for green ratio for revenues or capex and financed green revenue or capex[152]

Green ratios

$$Green\ revenue\ ratio = \sum \left(\frac{Green\ revenues_C}{Total\ revenues_C} * Portfolio\ weight \right)$$

$$Green\ capex\ ratio = \sum \left(\frac{Green\ capex_C}{Total\ capex_C} * Portfolio\ weight \right)$$

Financed green revenue/capex

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

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

Where:

- Outstanding amount is the market value of the investor's holding in the company
- Green revenues$_C$ is the company's green revenues/capex
- Enterprise Value Including Cash$_C$ 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.

As per section 2.2 of the climate solutions guidance, 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 of a company

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

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

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.

[152] IIGCC (2023), Investing in Climate Solutions: listed equity and corporate fixed income

Appendix I: High impact material sectors

Material sectors

NZIF considers sectors covered by NACE codes A-H and J-L as material and is recommended to be covered at a minimum by net zero objectives and targets:

A. Agriculture, forestry and fishing
B. Mining and quarrying
C. Manufacturing
D. Electricity, gas, steam and air conditioning supply
E. Water supply; sewerage; waste management and remediation activities,
F. Construction
G. Wholesale and retail trade; repair of motor vehicles and motorcycles,
H. Transporting and storage
J. Information and communication
K. Financial and insurance activities
L. Real estate activities

High impact material sectors

Transition of high impact material sectors are critical to achieving net zero and are those linked to the company focus lists of Climate Action 100+ and TPI, plus banks, real estate, agriculture, forestry, and fishing. Corporates in high impact material sectors are recommended to meet all six alignment criteria to be classified as 'aligned to a net zero pathway', as exposure to transition risk will be especially prevalent in these sectors.

Currently these sectors equate to:

- Agriculture, forestry, and fishing
- Airlines
- Aluminium
- Automobiles
- Banking
- Cement
- Chemicals
- Coal mining
- Consumer goods & services
- Diversified mining
- Electric utilities
- Food producers
- Industrials
- Oil and gas (plus distribution)
- Paper
- Real estate
- Shipping
- Steel
- Transportation

Appendix J: Dataset questions mapping to NZIF's alignment criteria

TPI Management Quality questions

Ambition

Q3 – Does the company have a policy (or equivalent) commitment to action on climate change?

Targets

Q4 – Has the company set greenhouse gas emission reduction targets?

Q7 – Has the company set quantitative targets for reducing its greenhouse gas emissions?

Q13 – Has the company set long-term quantitative targets for reducing its greenhouse gas emissions?

Emissions Performance

N/A

Disclosure

Q5 – Has the company published information on its operational (Scope 1 and 2) greenhouse gas emissions?

Q8 – Does the company report on Scope 3 emissions?

Q9 – Has the company had its operational (Scope 1 and/or 2) greenhouse gas emissions data verified?

Q12 – Does the company disclose materially important Scope 3 emissions?

Decarbonisation plan

Q18 – Does the company disclose the actions planned to meet its emissions reduction targets?

Q19 – Does the company quantify the key elements of its emissions reduction strategy and the proportional impact of each action in achieving its targets?

Q20 – Does the company's transition plan clarify the role that will be played by offsets and/or negative emissions technologies?

Capital allocation alignment

Q21 – Does the company commit to phasing out capital expenditure in carbon intensive assets or products?

Q22 – Does the company align future capital expenditures with its long-term decarbonisation goals and disclose how the alignment is determined?

Climate policy engagement

Q10 – Does the company support domestic and international efforts to mitigate climate change?

Q23 – Does the company ensure consistency between its climate change policy and the positions taken by trade associations of which it is a member?

Climate governance

Q1 – Does the company acknowledge climate change as a significant issue for the business?

Q6 – Has the company nominated a board member or board committee with explicit responsibility for oversight of the climate change policy?

Q11 – Does the company have a process to manage climate-related risks?

Q14 – Does the company's remuneration for senior executives incorporate climate change performance?

Just transition

N/A

Climate risks and account

Q2 – Does the company recognise climate change as a relevant risk and/or opportunity for the business?

Q11 – Does the company have a process to manage climate-related risks?

Q15 – Does the company incorporate climate change risks and opportunities in their strategy?

Q16 – Does the company undertake climate scenario planning?

CDP climate change questionnaire questions

Ambition

C4.2 – Did you have any other climate-related targets that were active in the reporting year?

C4.2c – Provide details of your net-zero target(s).

Targets

C4.1 – Did you have an emissions target that was active in the reporting year?

C4.1a – Provide details of your absolute emissions target(s) and progress made against those targets.

C4.1b – Provide details of your emissions intensity target(s) and progress made against those target(s).

Emissions performance

C4.1a – Provide details of your absolute emissions target(s) and progress made against those targets.

C4.1b – Provide details of your emissions intensity target(s) and progress made against those target(s).

C6.10 – Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO_2e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.

Disclosure

C6.1 – What were your organization's gross global Scope 1 emissions in metric tons CO_2e?

C6.3 – What were your organization's gross global Scope 2 emissions in metric tons CO_2e?

C6.5 – Account for your organization's gross global Scope 3 emissions, disclosing and explaining any exclusions.

Decarbonisation plan

C3.1 – Does your organisation's strategy include a climate transition plan that aligns with a 1.5°C world?

C3.5 – In your organisation's financial accounting, do you identify spending/revenue that is aligned with your organisation's climate transition?

C3.5a – Quantify the percentage share of your spending/revenue that is aligned with your organisation's climate transition.

C4.5a – Provide details of your products and/or services that you classify as low-carbon products.

C3.5b – Quantify the percentage share of your spending/revenue that was associated with eligible and aligned activities under the sustainable finance taxonomy in the reporting year.

C3.5c – Provide any additional contextual and/or verification/assurance information relevant to your organisation's taxonomy alignment.

Capital allocation alignment

C3.5 – In your organisation's financial accounting, do you identify spending/revenue that is aligned with your organisation's climate transition?

C3.5a – Quantify the percentage share of your spending/revenue that is aligned with your organisation's climate transition.

C3.5b – Quantify the percentage share of your spending/revenue that was associated with eligible and aligned activities under the sustainable finance taxonomy in the reporting year.

C3.5c – Provide any additional contextual and/or verification/assurance information relevant to your organisation's taxonomy alignment.

Climate Policy Engagement

C12.3 – Does your organization engage in activities that could either directly or indirectly influence policy, law, or regulation that may impact the climate?

C12.3a – On what policy, law, or regulation that may impact the climate has your organisation been engaging directly with policy makers in the reporting year?

C12.3b – Provide details of the trade associations your organisation is a member of, or engages with, which are likely to take a position on any policy, law or regulation that may impact the climate.

C12.3c – Provide details of the funding you provided to other organisations or individuals in the reporting year whose activities could influence policy, law, or regulation that may impact the climate.

Climate Governance

C1.1 - Is there board-level oversight of climate-related issues within your organization?

C1.1a – Identify the position(s) (do not include any names) of the individual(s) on the board with responsibility for climate-related issues.

C1.1b – Provide further details on the board's oversight of climate-related issues.

C1.3 – Do you provide incentives for the management of climate-related issues, including the attainment of targets?

C1.3a – Provide further details on the incentives provided for the management of climate-related issues (do not include the names of individuals).

Just Transition

N/A

Climate risk and accounts

C2.1 – Does your organisation have a process for identifying, assessing, and responding to climate-related risks and opportunities?

C2.3 – Have you identified any inherent climate-related risks with the potential to have a substantive financial or strategic impact on your business?

C2.3a – Provide details of risks identified with the potential to have a substantive financial or strategic impact on your business.

C3.3 – Describe where and how climate-related risks and opportunities have influenced your strategy.

C3.4 – Describe where and how climate-related risks and opportunities have influenced your financial planning.

Appendix K: Adjusted alignment criteria for EMDEs for sovereign bonds

This table shows how NZIF's alignment criteria could be adjusted for sovereign bonds to acknowledge the principle of 'fair share' when assessing sovereign alignment to a net zero pathway.[153]

Table 54: Adjusted alignment criteria for EMDEs for sovereign bonds

NZIF Criteria	Definition	Criteria adjusted for EMDEs -> 'Fair share' considerations
1. Ambition	**A long term 2050 goal consistent with achieving global net zero.** (NDCs with absolute emissions target)	Medium term goals may be acceptable. Alignment with a 2°C scenarios or reaching Net Zero post 2050 may be acceptable.
2. Targets	**Science-based short- and medium-term emissions reduction targets aligned with global net zero goals.** These are typically set at the production emissions level (scope 1) and should be consistent with the Paris Agreement (NDCs).	Consider ambition in context
3. Emissions performance	**Current absolute GHG emissions trend is at least equal to a relevant net zero pathway,** or converging in a manner that is satisfactory.	Fair share pathways are acceptable as benchmark. Increase in absolute emissions may be acceptable in the near-term.
4. Disclosure of emissions	**Comprehensive and timely disclosure of emissions** (e.g., data quality, historical data, consumption emissions, LULUCF, etc)	Consider data quality and ambition in context
5. Decarbonisation strategy	**A robust quantified plan setting out the measures that will be deployed to deliver GHG targets** (LT-LEDS), and how the sovereign is enacting the policies necessary to deliver against its NDCs.	Consider data quality and ambition in context
6. Capital/ budget allocation alignment	A clear demonstration that the **budgeting actions of the country are consistent with achieving global net zero goals.** (e.g., adequate climate budget tagging, an ambitious share of the public budget is green).	Consider data quality and ambition in context
7. Climate Policy Engagement / Climate finance	A Paris-aligned climate position and alignment of its direct and indirect international lobbying and finance activities	Consider in context
8. Climate governance	Clear oversight of net zero transition planning linked to delivering targets and transition	Consider in context
9. Just Transition	Considers the impacts from transitioning to a lower carbon economy on its workers and communities	Consider in context
10. Climate risk and accounts	Provides disclosures on risks associated with the transition, in issuance legal documentation, other type of sovereign reporting, and incorporates such risks into its financial accounts	Consider in context

[153] IIGCC (2024), Sovereign bonds and country pathways – target setting guidance

Appendix L: Case studies

View all case studies in one document here.

Using targets for a net zero strategy

- Using NZIF to set robust net zero targets: Aegon UK
- NZIF in action: Axa Investment Managers
- Developing a target hierarchy for real world decarbonisation: Brunel Pension Partnership
- Embedding net zero targets into a net zero strategy: Eurizon Capital
- NZIF in action: Evenlode Investments
- IIGCC Investor Transition Planning Series

Attribution analysis and rebaselining

- Implementation of an attribution analysis for decarbonisation: Allianz Investment Management
- Building an approach to attribution and rebaselining: National Grid UK Pension Scheme
- Developing internal guidelines for rebaselining: Phoenix Group
- Identifying emissions reductions in the real economy: PIMCO
- Robeco: Rebaselining for a net zero commitment
- IIGCC Net Zero Surgery: What's driving portfolio decarbonisation?

Asset level targets and strategies

- Implementing alignment and engagement strategies across multiple asset classes: Local Pensions Partnership Investments (LPPI)
- Setting asset level targets using the Net Zero investment Framework: Comgest
- An alignment methodology using publicly available data: AP7
- Using the Net Zero Investment Framework to develop an effective engagement programme: KBI Global Investors
- Implementing a robust engagement strategy: Nest Pensions
- Implementing the Net Zero Investment Framework for infrastructure: Macquarie Asset Management
- IIGCC net zero surgery: Across the asset classes

Developing sovereign alignment strategies

- A fair assessment of governments' transition to net zero: Ninety One's Net Zero Sovereign Index
- IIGCC net zero surgery: Across the asset classes

Developing private equity alignment strategies

- Net Zero Investment Framework for Private Equity in action: Investindustrial
- IIGCC net zero surgery: Across the asset classes