

Net Zero Investment Framework: IIGCC's Supplementary Guidance on Target Setting

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1 Introduction

This document provides detailed target setting guidance for asset owners and asset managers that are using the Net Zero Investment Framework to develop net zero investment strategies or to fulfil the requirements of net zero commitments. This guidance adds greater detail to the recommendations in section 5 of the [Net Zero Investment Framework Implementation Guide](#) on setting targets and objectives.

Paris Aligned Asset Owners that have made a commitment to net zero through the [Paris Aligned Investment Initiative](#) (PAII) can follow this guidance. Asset Managers that have made a net zero commitment through the [Net Zero Asset Managers](#) initiative can also use this guidance to inform their target setting approach to meet the expectations of the asset manager commitment.

2 Recommended targets

[The Net Zero Investment Framework 1.0](#) proposes key components of a net zero investment strategy. Such as strategy should focus on achieving two alignment objectives:

- Decarbonise investment portfolios in a way that is consistent with achieving global net zero greenhouse gas (GHG) emissions by 2050.
- Increase investment in the range of climate solutions needed to meet that goal.

In relation to the first alignment objective focused on decarbonisation, the Net Zero Investment Framework requires investors to set three targets on two 'levels': one at the portfolio level and two at the asset level.

The main driver of portfolio alignment is achieving the asset level targets. Since portfolio emissions reductions should primarily be achieved through the decarbonisation of assets, the two asset level targets aim to capture changes in climate performance of assets over time and ensure adequate engagement with assets that are not yet aligned. The asset level targets, therefore, are the key targets for asset owners and asset managers to determine and should be prioritised by investors when starting the target setting process. Guidance on setting these targets is set out in section 3.

The portfolio level reference target sets out an emissions reductions goal across the portfolio.

This target should primarily be achieved through asset level alignment and emissions reductions achieved by assets within the portfolio. The portfolio reference target acts as an accountability mechanism to ensure that the overall level of decarbonisation achieved is consistent with net zero pathway, and that actions at the asset level are yielding the necessary portfolio level emissions reductions to be consistent with a 1.5°C aligned carbon budget applicable to the portfolio. This guide sets out a number of ways investors can set a portfolio reference target. Much of the detailed guidance on the key design choices and steps involved as well as the advantages and disadvantages of each option is contained in the annex. Guidance on setting the portfolio reference target is set out in section 4.

All targets should be set in line with regional and sectoral science based pathways that are consistent with achieving net zero global emissions by 2050 or sooner. Where available, investors should use pathways that reflect the varying paces at which different regions and industries are required to decarbonise. More information about available and credible pathways can be found in section 4.4 and Appendix 2.

In relation to the second alignment objective relating to investment in climate solutions, the Net Zero Investment Framework also recommends that investors set a target for increasing allocation to climate solutions. IIGCC has commissioned analysis on the investment trajectories across regions and technologies that are required to meet the global net zero goal as well as useful metrics to measure investment in climate solutions and support target setting in line with 1.5°C scenarios. Guided by a dedicated working group, this analysis will support investors to identify key climate solutions in different regions and inform capital allocation decisions and target setting for scaling up investments critical to the net zero transition. **The portfolio reference targets set out below aim to ensure investors are not disincentivised to increasing allocation to climate solutions providers.** Section 4.8 provides a rationale for the recommended approach whilst recognising further work is underway.

3 Asset level ‘portfolio coverage’ target and ‘engagement threshold’

In order to drive the transition of assets within a portfolio towards net zero, the Net Zero Investment Framework ‘the Framework’ has two components to target setting. The two components are designed to capture:

- a. the extent to which assets are delivering against indicators and metrics that reflect current and forward looking alignment to net zero pathways.
- b. the effort by investors towards improving the performance of their investments against these indicators.

The two components are:

- A **5-year portfolio coverage target** for increasing the percentage of AUM in material sectors¹ that are i) achieving net zero, or, meeting the criteria to be considered ii) ‘aligned’ to net zero, or iii) ‘aligning’ to net zero.
 - This target should increase towards the goal of 100% of assets to be i) net zero or ii) aligned to net zero, by 2040².
- An **engagement threshold** which ensures that at least 70% of financed emissions in material sectors³ are either assessed as net zero, aligned with a net zero pathway, or the subject of direct or collective⁴ engagement and stewardship actions.
 - This threshold should increase to at least 90% by 2030 at the latest.
 - Investors should disclose the proportion that is considered net zero or aligned, disaggregated from the total.

1 The recommended definition of material sectors is NACE code categories A-H and J-L.

2 This target is comparable to the Science Based Targets initiative for financial institutions (SBTi FI) portfolio coverage metric, and in this regard the target should involve a linear increase year on year to the extent possible. The 2040 date to reach 100% recognises that, in order to be consistent with net zero by 2050, companies and assets will have to have set targets and made plans to achieve the transition well in advance of the 2050 date.

3 See footnote 3.

4 Investors should demonstrate how they actively participate in and support any collective engagement efforts in order to count such efforts towards the engagement threshold target.

The portfolio coverage target and engagement threshold can be set as an aggregate across asset classes or separately for each asset class covered by the Framework⁵. An aggregated 5-year portfolio coverage target and engagement threshold should cover at least listed equity, corporate fixed income, and real estate. Sovereign bonds may be considered separately. To set these targets, investors will need to undertake an assessment of the current alignment of assets according to guidance in the Framework and set alignment targets for each asset class in the Framework, as set out below.

3.1 How to set the portfolio coverage target

The Net Zero Investment Framework 1.0 sets out the approach investors should take when assessing the alignment of assets and setting targets to increase the proportion of assets that are aligned to net zero. These steps should be followed for all asset classes covered in the Framework.

- Set the scope according to the Framework recommendations to confirm which assets should be considered within scope for alignment action and target setting.
- Assess the alignment of existing and new assets using the current and forward-looking criteria and methodologies specified.
- Set alignment targets.
- Implement a strategy to increase alignment of assets to net zero, and achieve targets.

The asset class sections in the Framework (sections 7.1-7.3) provide much of the guidance and recommendations an investor needs to complete these steps which is summarised in Table 1 below. The subsequent sections provide further detail for each asset class.

Box 1: An iterative approach to target setting

IIGCC recognises that target setting will require an iterative approach. Current data coverage and quality present a challenge to setting comprehensive targets at the asset level.

Taking an iterative approach, investors are encouraged to start the target setting process by familiarising themselves with the data requirement, 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 should 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 availability improves.

⁵ The Net Zero Investment Framework 1.0 covers listed equity, corporate fixed income, and real estate. The Framework also includes sovereign bonds but this asset class should be considered separately for the purposes of target setting. The Paris Aligned Investment Initiative will add guidance for infrastructure and private equity to the Framework in 2022.

Table 1: Steps and actions to increase the alignment of assets

| | Scope of assets to include ⁶ | Portfolio coverage target | Criteria to assess level of alignment | Methodologies/ data sets to assess alignment criteria |
|--|---|---|---|--|
| Listed equity and corporate fixed income | All material sectors defined as those in NACE code categories A-H and J-L. High impact sectors (which require additional criteria to be achieved) are set out the Net Zero Investment Framework | Target: A 5-year portfolio coverage target for increasing the percentage of AUM in material sectors ⁷ classified as achieving i) net zero, ii) aligned or iii) aligning. | <ol style="list-style-type: none"> 1. Ambition: A long term 2050 goal consistent with achieving global net zero 2. Targets: Short- and medium-term emissions reduction target (scope 1, 2 and material scope 3) 3. Emissions performance: Current emissions intensity performance (scope 1, 2 and material scope 3) relative to targets 4. Disclosure: Disclosure of scope 1, 2 and material scope 3 emissions 5. Decarbonisation Strategy: A quantified plan setting out the measures that will be deployed to deliver GHG targets, proportions of revenues that are green and where relevant increases in green revenues 6. Capital Allocation Alignment: A clear demonstration that the capital expenditures of the company are consistent with achieve net zero emissions by 2050 <p>The Framework provides ten criteria in total that can be used to assess corporate alignment and should be included in a corporate transition plan. Criteria 7-10 relate to policy engagement and lobbying, climate governance, just transition, and climate risk disclosures and financial accounts.</p> | CA100+ Benchmark Transition Pathways Initiative Science Based Targets Initiative |
| Real Estate | All real estate assets | Target: 5-year target portfolio coverage target to increase the percentage of AUM in net zero, aligned or aligning assets | <ol style="list-style-type: none"> 1. Current carbon emissions and energy intensity in line with net zero pathways 2. Future projected carbon emissions and energy intensity in line with net zero pathways, including an assessment of: <ul style="list-style-type: none"> the energy mix and demand in different buildings and locations potential for, and plans relating to, retrofit and other investments to address emissions and energy use | Carbon Risk Real Estate Monitor |
| Sovereign Bonds | | Increase average climate performance/ AUM (to the maximum extent possible), exceeding the average benchmark score. | <ol style="list-style-type: none"> 1. Past and future expected territorial production emissions performance per capita, or per GDP, against a net zero pathway 2. Past and future expected performance in key sectors/ indicators (energy use, renewables, exposure of the economy to fossil fuels). 3. Other relevant national and international policy positions and strength in relation to achieving net zero (e.g. low carbon transport; fossil fuel subsidy phase out; carbon pricing; decarbonisation of state owned enterprises) | Germanwatch Climate Change Performance Index |

6 The scope of assets recommended here is aligned to the recommendations of the Net Zero Investment Framework. IIGCC's forthcoming Net Zero Stewardship Toolkit sets out how investors may want to adapt and prioritise assets for engagement depending on their exposure to different industries or regions, or the type of investment strategy.

7 Material sectors is defined as those in NACE code categories A-H and J-L. The EU TEG provides a mapping of NACE to GICS and BICS.

3.1.1 Listed equity and corporate fixed income

i) Setting the scope

For asset owners, the Framework expects that asset owners will consider all assets within listed equity and corporate fixed income portfolios and funds. Within this all sectors considered “material” to the net zero transition, which are defined as those in NACE code categories A-H and J-L, should be considered in scope for assessment and subject to the portfolio coverage target.

The same sector materiality test applies for asset managers. However, in the context of the Net Zero Asset Managers commitment, asset managers may only have committed to manage a proportion of assets in line with net zero. Therefore, the assessment and target would only be relevant to the listed equity and corporate fixed income investments within that proportion. Asset managers may also choose to assess the baseline and set the target per fund or mandate rather than an aggregate across all AUM across asset class for the proportion being managed in line with net zero.

ii) Assessing alignment

For listed equities and corporate fixed income in scope, the Framework provides a set of 10 current and forward looking criteria against which investors should assess the alignment of companies. Six of these are core criteria. These criteria are key to identifying that a company has a credible, science-based Net Zero Transition Plan. There are four complementary criteria which the Framework encourages investors to measure as part of a fully comprehensive approach to company assessment, and which may also be relevant indicators to determine companies making earlier stage progress towards alignment.

The PAII has determined that higher impact companies should be assessed against all six core criteria. High impact companies are defined as those companies on the Climate Action 100+ focus list, companies in high sectors consistent with Transition Pathway Initiative sectors, plus banks and real estate. All other companies are deemed ‘lower impact’ by PAII. Investors should assess the alignment of lower impact companies against criterion 2, 3, and 4.

Criteria 7-10 are the complementary indicators that should be assessed and companies encouraged to meet to the extent possible.

Figure 1: Criteria to assess the Paris-alignment of companies



Companies can be classified as i) achieving net zero, ii) aligned to a net zero pathway, iii) aligning towards a net zero pathway, iv) committed to aligning, or iv) not aligned.

The thresholds for achieving these classifications are as follows:

Net Zero: A company which is already achieving the emissions intensity required by the sector and regional pathway for 2050 and whose ongoing investment plan or business model will maintain this performance.

Aligned: For High impact sectors, achieving all 6 criteria. For other material sectors, achieving criteria 2, 3 and 4.

Aligning: Achieving 2, 4 and some evidence (partial fulfilment) of 5.

Committed to aligning: Increasingly companies are making a first step based on Criteria 1 – setting a long-term ambition to achieve net zero. These companies can be considered as ‘committed to aligning’.

Figure 2: Categorisation of corporate alignment along the alignment maturity scale

| | | | | |
|---|---|--|---|--|
| <p>Achieving net zero</p> <p>Current emissions at/ close to 2050 net zero level + investment plan/business model in line with net zero</p> | <p>Aligned to a net zero pathway</p> <p>Higher impact companies: criteria 1-6 Lower impact companies: criteria 2, 3, 4</p> | <p>Aligning towards a net zero pathway</p> <p>Criteria 2, 4, + partial fulfilment of criteria 5</p> | <p>Committed to aligning</p> <p>Criteria 1</p> | <p>Not aligned</p> <p>All other companies</p> |
|---|---|--|---|--|

Investors may choose to develop their own additional sub-categories of thresholds as a means to monitor and demonstrate progress of companies towards alignment. In the near term investors may also want to recognise the companies where there is insufficient disclosure or data to assess alignment. As a minimum, the Framework requires that the portfolio coverage target is set based on an increasing number of companies meeting the ‘aligning’ threshold with the ambition to achieve 100% portfolio coverage by 2040, and that engagement action continues until companies are aligned or net zero. An assessment of all companies’ performance against these criteria then allows an investor to determine their current portfolio’s “baseline” position on the alignment scale.

PAIL analysed available methodologies and associated datasets that are available to investors to support the assessment of the alignment of companies, in line with the criteria set out above. Many of these methodologies are rapidly evolving as Paris alignment becomes an increasingly important goal for both companies and investors. IIGCC expects these methodologies to strengthen over time, particularly as enhanced corporate disclosures facilitate increased data coverage and data quality improvements over the years to come. It is therefore expected that investors may take an iterative approach to target setting, as mentioned in the introduction of section 3.

IIGCC also encourages investors to help accelerate improvements to data quality and coverage by engaging with companies to disclose the required information for assessing alignment, as set out in the Net Zero Investment Framework, as well as data providers to provide products and services that are aligned to the alignment criteria set out in the Framework.

The PAIL recommends that the methodologies set out below can be used, and treated as a hierarchy, as follows:

Climate Action 100+ Benchmark

The 10 criteria for assessing the alignment of companies to net zero is aligned to the Climate Action 100+ Company Benchmark⁸ indicators. Investors can use this benchmark to assess the alignment of the CA100+ focus companies, which fall within the Framework’s definition of high impact companies. CA100+ will produce company scorecards which investors will be able to download from the CA100+ website.

Transition Pathway Initiative (TPI) carbon performance and management quality indicators

TPI uses publicly disclosed data to assess the progress companies are making on the transition to a lower carbon economy. TPI provides the underlying data for CA100+. Data from TPI is open-access and can be downloaded from the TPI website⁹.

⁸ <https://www.climateaction100.org/progress/net-zero-company-benchmark/>

⁹ <https://www.transitionpathwayinitiative.org/>

Science Based Target Initiative (SBTi)

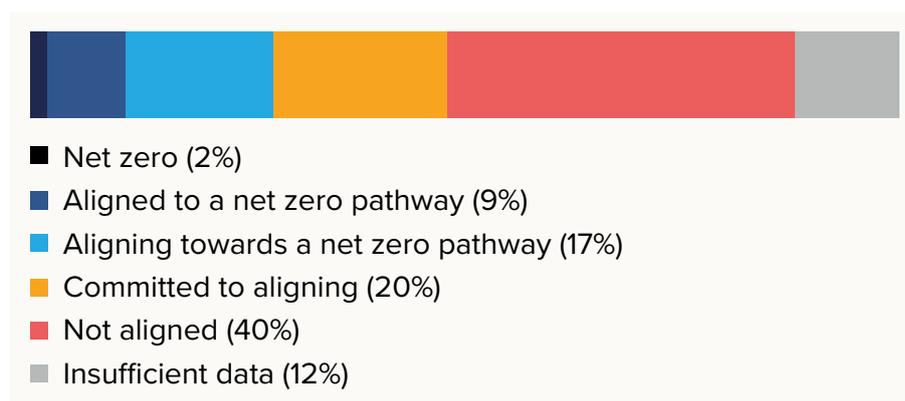
The PAll recommends that investors use SBTi for assessing companies against alignment criteria 2, 3 and 4 only. Whilst SBTi is a widely used Framework for assessing company performance, PAll notes that currently the SBTi methodology is not based on a 1.5°C pathway and there are some technical issues in relation to the methodology used to assess companies in some sectors, and approach to incorporating Scope 3 emissions. However, PAll notes that SBTi has started additional work relating to the net zero transition and IIGCC plans to engage with SBTi to increase alignment between the SBTi methodology and the Net Zero Investment Framework.

Private providers

Investors can also use providers to assess company alignment. However, the PAll recognises that there are a multitude of providers in the market, assessing companies against varying performance indicators and using different models and underlying emissions scenarios. The PAll therefore recommends that investors should be transparent about the methodologies used by private providers, and ensure data providers are supplying company assessments in line with the criteria and parameters set out in the Framework, or consistent with the publicly available methodologies listed above, to the extent possible. To represent best practice, data vendors providing assessments consistent with the alignment criteria should ensure alignment with the latest detailed guidance on indicators from Climate Action 100+.

Based on the assessment of companies' alignment, investors will be able to determine the baseline proportions of assets in scope against the alignment spectrum as follows:

Figure 3: Illustrative example of asset alignment at the portfolio baseline



As very few assets are demonstrably aligned to net zero, at baseline year, we may expect an investor's portfolio to contain a high proportion of assets that are not aligned, and a very low proportion of assets that can be considered net zero or aligned according to the parameters set out in the Framework. IIGCC also recognises that there are challenges with data availability and quality which may impact the ability to robustly assess the alignment of some assets within a portfolio.

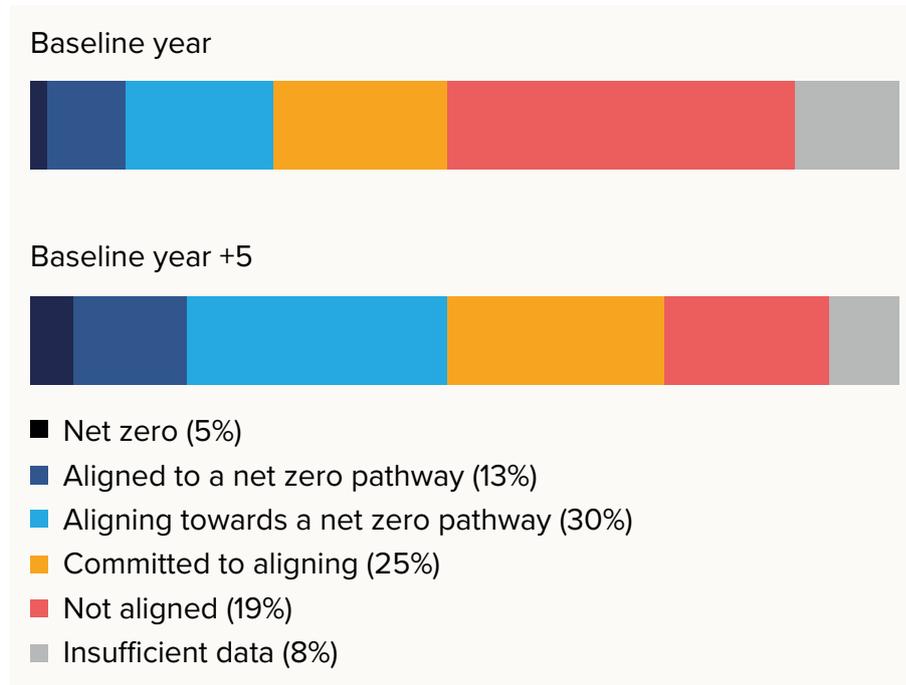
iii) Setting a target

Once the investor carries out the baseline year assessment, the investor should set a target to increase the proportion of assets which can be considered at least 'aligning' each year, to reach 100% by 2040 or sooner. This should be a five yearly target cycle.

As setting alignment targets is an iterative process, once an investor is able to progress through the first stages of data collection and assessing the alignment of assets to establish the baseline, investors should aim to set targets in line with the Net Zero Investment Framework as set out in this guide. When setting targets, investors will need to consider how the tools outlined below – mandate, escalation and engagement strategy, portfolio construction – can be used to support the alignment of assets over time.

Following engagement with assets and reweighting in portfolio construction, we would expect to see an increasing proportion of listed equity, corporate fixed income, and real assets meeting the criteria to be considered net zero, aligned, or aligning. We also expect data availability and quality to improve over time, creating fewer barriers to the assessment of alignment. Below is an example of how the portfolio coverage target might look 5 years after the baseline year.

Figure 4: Illustrative example of asset alignment at five years past the baseline



Depending on the asset owner or managers strategy, investment style, and flexibilities, the target may be informed by a number of factors and choices.

Mandate

An asset owner may simply 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 construction as relevant (see following sections).

Engagement and escalation strategy

An asset owner or manager determines a target to increase the proportion of assets that will meet certain criteria in line with their expectation of results to be achieved through engagement actions. This will include linking engagement actions including voting to a company achieving the alignment criteria over time. Investors can map out timebound milestones for companies at different levels of alignment to achieve progress and meet additional criteria. This aspect should also consider the role / timing of selective divestment if companies are not taking action in response to engagement and are no longer considered able to be aligned to net zero pathways¹⁰.

¹⁰ IIGCC is developing a net zero stewardship toolkit which investors will be able to use to inform engagement strategies, including prioritisation guidance, alignment milestones, and enhanced engagement actions to support setting and achieving portfolio coverage targets through engagement and stewardship.

Figure 5: Example alignment milestones and escalation actions

| | Baseline | 2025 goals | 2030 goals |
|--|---|--|--|
| Alignment hurdles for companies at different stages (across sectors / regions) | <ol style="list-style-type: none"> 1. Fully NZ / Aligned: 11% 2. NZ aligning: 17% 3. NZ Committed: 20% 4. Sector specific hurdles: coal phase out etc. <p>Companies tiered by progress</p> | <ol style="list-style-type: none"> 1. Fully NZ / Aligned: 18% 2. NZ aligning: 30% 3. NZ Committed: 25% 4. Sector specific hurdles: additional ff phase out etc. <p>Companies tiered by progress</p> | <ol style="list-style-type: none"> 1. Fully NZ / Aligned: 30% 2. NZ aligning: 60% 3. NZ Committed: 8% 4. Sector specific hurdles: ICE phase out etc. <p>Companies tiered by progress</p> |
| Corrective engagement actions for companies not complying with milestones / hurdles | <ul style="list-style-type: none"> • Clear comms to all companies • Actions taken by band / priority level for companies to encourage alignment • Engagement: vote against, file resolution at top 5 laggards etc. | <ul style="list-style-type: none"> • Clear comms to all companies • Continued progression of alignment action as alignment hurdles shift with stronger actions for laggards that still aren't meeting baseline (e.g. vote against chair) | <ul style="list-style-type: none"> • Clear comms to all companies • Continued progression of alignment action as alignment hurdles shift with ultimate sanctions laid out (e.g. active campaign to remove board) |

Portfolio construction

Benchmark characteristics

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

Active management (portfolio turnover and new investment decisions)

An asset owner or manager can assess the expected turnover, potential for screening of new investments based on achievement of alignment criteria, and modelling / forecasting consequent portfolios to inform expected pace of achieving an increasing portfolio coverage target over time. This progression of achievement may also be linked to emerging mechanisms for ensuring companies not currently meeting criteria will do so over time e.g. KPI linked corporate bonds. This aspect should also consider the role / timing of selective divestment if companies are no longer able to be aligned to net zero pathways.

iv) Achieving a target

To align listed equity and corporate fixed income portfolios, investors may utilise the engagement and stewardship and portfolio construction approaches referred to above and set out in the NZIF 1.0 to transition assets towards meeting the alignment criteria, to increase the proportion of assets defined as 'net zero' or 'aligned to net zero' in line with the target set.

Investors should assess the proportion of assets that are not meeting net zero or aligned threshold criteria, and then ensure that sufficient assets are the subject of direct or collective engagement action to ensure that the investors meets the threshold of at least 70% of financed emissions in material sectors are either assessed as net zero, aligned with a net zero pathway, or the subject of direct or collective engagement and stewardship actions.

3.1.2 Real Estate

i) Setting the scope

Investors should include individual direct investments, investments in assets pooled through a fund structure, and investments in listed real estate companies. This should include all types of real estate (e.g. commercial, residential, industrial etc).

Asset owners committed to net zero would be expected to include all real estate investments. In the context of the Net Zero Asset Managers commitment, asset managers may only have committed to manage a proportion of assets in line with net zero. Therefore, the assessment and target would only be relevant to the real estate investments within that proportion. Asset managers may also choose to assess assets' alignment and set the target per fund or mandate rather than an aggregate across all AUM that are in this asset class and being managed in line with net zero.

ii) Assessing alignment

For real estate assets being managed in line with net zero, investors should assess the current performance and forward-looking alignment based on carbon emissions and energy intensity in line with net zero pathways. For projections of future alignment, this should account for:

- assumptions about the energy mix and demand in different buildings and locations
- potential for, and plans relating to, retrofit and other investments to address emissions and energy use

The Framework recommends that investors use the Carbon Risk Real Estate Monitor (CRREM) tool to assess the alignment of real assets, as this has functionality to assess the current performance and 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 40 jurisdictions globally. CRREM utilises the MAGICC and MESSAGE models, with a >50% chance of limiting warming to 1.5°C.

Investors should collect relevant asset-level data for their real estate portfolio and enter this information into the tool to understand the performance of those assets on a 1.5°C climate pathway.

Assets can be classified as i) achieving net zero, ii) aligned to a net zero pathway, iii) aligning towards a net zero pathway or iv) not aligned.

The thresholds for achieving these classifications are as follows:

Net Zero: An asset which is already achieving the energy and emissions intensity required by the CRREM 1.5°C pathway at 2050

Aligned: An asset which is on track with the current energy use and emissions intensity levels that are consistent with achieving net zero and is expected to remain consistent the CRREM pathway based on projected performance including planned retrofits

Aligning: An asset with a target to achieve consistency with CRREM pathway, and evidence of a strategy to achieve this

The PAII proposes that, where corporate tenants have their own net zero targets, these can be taken into account to consider an asset as aligned or aligning, providing that these targets include appropriate goals for energy use in occupied buildings and meet the criteria, for example, on the use of offsets, set out in the Net Zero Investment Framework 1.0.

As for listed equity and corporate fixed income, an investor can then determine the proportion of assets meeting different thresholds on the alignment spectrum to define the baseline percentages of AUM that are net zero, aligned or aligning to net zero.

iii) Setting a target

As for listed equity and corporate fixed income, once the baseline year assessment has been made the investor should set a target to increase the proportion of AUM which can be considered at least 'aligning' each year, to reach 100% by 2040 or sooner. This should be a five yearly target cycle.

Depending on the 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 following sections)

Engagement and stewardship

For listed real estate companies, the approach would be similar to that for listed equity and corporate fixed income, involving an escalation strategy that allows forecasting the timeframes over which listed companies will meet alignment criteria responding to engagement actions.

For directly owned assets, elements of engagement e.g. with tenants and likely outcomes can be assessed to inform how and when alignment criteria might be met.

Portfolio management and construction

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 for new investments, and minimum alignment criteria that might be required to determine portions of a target that could be met through new investments meeting alignment criteria.

iv) Achieving a target

Investors should utilise the engagement and stewardship and portfolio management approaches referred to above and set out in the NZIF 1.0 to transition assets towards meeting the alignment criteria, to increase the proportion of assets defined as 'net zero' or 'aligned to net zero' in line with the target set.

Alongside listed equity and corporate fixed income assets, investors should assess the proportion of assets that are not meeting net zero or aligned threshold criteria, and then ensure that sufficient assets are the subject of direct or collective engagement action to ensure that the investors meets the threshold of at least 70% of financed emissions in material sectors are either assessed as net zero, aligned with a net zero pathway, or the subject of direct or collective engagement and stewardship actions.

3.1.3 Sovereign bonds

i) Setting the scope

The Net Zero Investment Framework expects all sovereign issuance from national governments to be considered in scope, except domestic issuance that is required to be held for liability matching purposes. Sub-national and municipal authorities that issue bonds may be included on a best effort basis given that assessment methodologies are not widely available. Where the issuer is a publicly (majority) owned company, investors should follow the guidance for corporate fixed income and include it in targets associated with this asset class.

In the context of the Net Zero Asset Managers commitment, asset managers may only have committed to manage a proportion of assets in line with net zero. Therefore, the assessment and target would only be relevant to the sovereign issuance within that proportion. Asset managers may also choose to assess assets' alignment and set the target per fund or mandate rather than an aggregate across all AUM that are in this asset class and being managed in line with net zero.

ii) Assessing alignment

Investors should score the relative alignment of sovereign assets against the following criteria and indicators.

1. Past and future expected territorial production emissions performance per capita, or per GDP, against a net zero pathway. The most relevant GHG performance indicators are:
 - Past trend of GHG emissions
 - Current level of GHG emissions compared to a 1.5°C pathway
 - GHG emissions reduction targets
2. Past and future expected performance in key sectors/indicators (energy use, renewables, fossil fuel exposure). The most relevant policy and sectoral decarbonisation indicators are:
 - Past trend of total primary energy supply (TPES)
 - Current level of TPES compared to a 1.5°C pathway
 - TPES target
 - Current share of renewable energy (RE) compared to a 1.5°C pathway
 - Renewable Energy Targets
 - Economic dependency on fossil fuels
3. Other national and international policy positions. Other policy indicators are:
 - National policy strength towards net zero global emissions (e.g. low carbon transport;
 - fossil fuel subsidy phase out; carbon pricing; decarbonisation of state-owned enterprises)
 - International policy positions.

Methodologies used to assess the alignment of assets should include the above features. The recommended methodology for the assessment of this asset class is the Germanwatch Climate Change Performance Index, although it should be noted that this methodology does not yet include an assessment of exposure to fossil fuels, and therefore investors may want to identify relevant data to add this element to the assessment.

PAll recognises that the Germanwatch Climate Change Performance Index (CCPI) does not yet cover all countries within an investor's portfolio¹¹. It is therefore recommended that investors supplement the CCPI with additional data sources, such as in-house ESG assessments of countries that may also cover other key topics such as biodiversity, governance, and social issues. PAll encourages investors to engage with data providers to encourage greater coverage of the dataset over time. The PAll networks are also engaging with CCPI and other methodology developers to encourage expansion of relevant datasets. This includes the ASCOR project, through which the LSE is developing an assessment framework for sovereigns climate performance.

iii) Setting a target

Investors should aim to increase average climate performance / AUM to the maximum extent possible, at a minimum exceeding the weighted average benchmark score for climate performance.

For some asset managers or owners with significant flexibility to adjust portfolios over time, it may be possible to set specific timebound targets in relation to proportion of assets scoring highly against all criteria and indicators, similar to the approach for listed equity and corporate fixed income. For asset owners and managers with less flexibility to adjust portfolio the overall aim to increase climate performance to the extent possible can be followed.

To set the target, investors should assess the alignment of their assets and the average benchmark performance. Depending on the 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 improving performance against alignment criteria and indicators, subject to relevant fiduciary and risk/return requirements. The manager would then meet this expectation through a combination of portfolio construction, and engagement as relevant (see following sections).

Portfolio construction

Benchmark characteristics

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

Active management (portfolio turnover and new investment decisions)

An asset owner or manager can assess the expected turnover, potential for screening of new investments based on achievement of alignment criteria, and modelling / forecasting consequent portfolios to inform expected pace of achieving an increasing portfolio coverage of more aligned assets target over time. This aspect should also consider the role / timing of selective divestment if sovereigns demonstrate very poor performance with no improvement over time. Although PAll recognises that, in comparison to corporate portfolios, there may be greater limitations to reweighting and excluding sovereigns, given the more concentrated nature of the investment universe.

Engagement

Although engagement with sovereign issuers on climate related issues is more nascent than engagement with corporate issuers, investors are increasingly recognising the importance of sovereign engagement to advance the climate agenda. An investor should consider timeframes and escalation of investment and factor this into target setting and plans for portfolio construction.

¹¹ At the time of publication, the CPPI covered 57 countries.

iv) Achieving the target

For the alignment of sovereign bonds, the Framework recommends increasing allocation or weighting towards sovereigns that score highly against a set of climate performance metrics that reflect current and future potential alignment

Using portfolio construction, investors can increase the weighting of bonds from better performing issuers, to achieve the maximum increase in climate performance that is possible while meeting other aspects of their mandate, such as requirements for liability matching, diversification; and risk-return profile. The Framework also recommends maintain an appropriate proportion of exposure between developed and emerging market, and avoid excluding emerging markets to improve performance.

The Framework also sets out a range of actions investors should take to engage with issuers to increase alignment of sovereign bonds, prioritising issuers to which an investor has the highest exposure or issuers with the highest impact on global emissions that do not score adequately against the CCPI.

4 Portfolio reference targets

Section 4 outlines the process for setting the portfolio decarbonisation targets. The portfolio level reference targets set the required ambition for an investor's portfolio across the short, medium, and longer-term and are defined based on an investor's 'fair share' contribution to global emissions reductions within the context of global, sector, and regional net zero pathways that are consistent with net zero global emissions by 2050, or sooner.

As emissions reductions are achieved by an increasing proportion of assets within a portfolio implementing transition plans and aligning towards net zero, as outlined in section 3, investors should see a correlated decline in portfolio emissions. The portfolio reference targets act as an accountability mechanism to ensure investors' engagement with investees and actions to support alignment at the asset level are yielding the necessary portfolio level emissions reductions required to remain in line with a science-based 1.5°C carbon budget. This should be the primary mechanism through which portfolio level emissions reductions are achieved.

The Net Zero Investment Framework sets out the requirements of a portfolio reference target.

- **A <10-year CO₂e emissions reduction target, with 5-year interim targets**, covering listed equity and corporate fixed income, and real estate. At portfolio level, this should include scope 1 and 2 emissions, with scope 3 emissions phased in from 2023. This target may be expressed in absolute or intensity terms (CO₂e/\$mn invested). However, when doing so investors should provide the following to the extent possible:
 - Evidence of how the target has been determined and a) reflects net zero pathways that will meet absolute emissions reductions required over time, and b) is adjusted to take account of factors that are not related to real economy emissions reductions as relevant.
 - When monitoring and reporting progress annually, measure a) absolute emissions reductions achieved in aggregate at the asset level, and b) progress towards an absolute or intensity target at the portfolio level.

Box 2: 5-year portfolio target milestones

The Net Zero Investment Framework currently recommends 5 year asset level portfolio coverage targets, and <10 year portfolio level emissions reduction and investment in climate solutions targets. At the same time early action and progress towards targets at the portfolio level is critical to ensure the achievement of the global transition to net zero.

It is therefore good practice for investors to establish a 5-year cycle for setting interim portfolio target milestones, reviewing progress against those milestones and updating portfolio reference targets accordingly. A 5-year cycle will ensure that targets can be updated to reflect changes in the portfolio as well as changes to climate science. A 5-year cycle also mirrors the ratchet mechanism of the Paris Agreement, whereby governments must review progress against targets and increase ambition, in line with the latest climate science (2025; 2030 etc).

Therefore, IIGCC encourages all investors set interim (<5 year) portfolio target milestones, syncing to the 2025, 2030 etc cycle to the extent possible, in addition to the medium-term <10 year portfolio reference targets.

4.1 How to set the portfolio reference target

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

The purpose of this guide is to set out the different approaches that can be taken in a way that supports the objective that the targets investors set incentivise decarbonisation of the real economy, rather than decarbonisation of an investment portfolio alone.

Section 4 sets out the following key steps for setting a portfolio reference targets:

- Set the scope of targets
- Set the baseline year
- Select portfolio level metrics
- Consider portfolio “starting point”
- Select science-based net zero scenarios
- Calculate decarbonisation pathway and portfolio reference targets
- Consider a re-calculation policy
- Ensure transparency in target setting approach

4.1.1 Setting the scope

Include listed equity, corporate fixed income, and real estate within scope of portfolio reference targets. Sovereign bonds should be considered separately as territorial emissions of issuers are not comparable to emissions from these other asset classes. Aggregating these emissions within a target could result in significantly over-rewarding small changes in sovereign alignment versus other assets where arguably investors have more direct influence.

Set portfolio targets based on the scope 1 and 2 emissions associated with investments. In line with emissions reporting requirements established by PCAF, absolute scope 1 and scope 2 emissions can be reported separately, as well as in aggregate, by investors.

Phase in scope 3 emissions over time in line with the emerging European timetable for the Sustainable Finance Disclosure Regulation (SFDR). The SFDR requires investors to disclose scope 3 emissions from 1 January 2023. As scope 3 emissions are often a significant proportion of the total carbon footprint of an investee company or asset, phasing in portfolio scope 3 emissions within the scope of target setting is expected to significantly increase the total footprint of a portfolio. Therefore, as noted above, the Framework currently recommends that scope 3 emissions are reported separately from scope 1 and 2.

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.

4.1.2 Setting the baseline

Investors should use the points in time outlined below to determine investment positions and allocate emissions from investments.

Baseline

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

10-year target

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

5-year interim target milestones¹²

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

Investors should 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 should use the most recent data available. This is consistent with the PCAF Standard.

Investors that make a net zero commitment in the coming years, should work backwards, using 2019 as the baseline year, even if data collection did not occur in full until later.

Investors should review and revise targets on a 5-year basis. The PAII recommends that investors set 5 year interim targets. It should be noted that the Net Zero Investment Framework 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 in accordance with the methodologies and actions set out in section 3 will take some time. For the period 2019-2024, progress in terms of emissions reductions may be slower as assets go through this process. However, following this initial planning stage, assets should increase their transition actions and the 5-year review and revision mechanism will act as an important checkpoint.

4.1.3 Selecting portfolio level metrics

Investors should report financed emissions using Enterprise Value Including Cash (EVIC), where possible. This recommendation is in line with the EU TEG, PCAF, and the recent TCFD recommendations. IIGCC also recognises that many investors use Weighted Average Carbon Intensity (WACI), and this metric can be used as an alternative to EVIC.

Enterprise Value Including Cash (EVIC)

Measuring financed emissions using EVIC allows measurement of an investor's share of emissions proportional to its exposure to the investee's total value. This allows responsibility of emissions to be assigned to investors and progress of investors towards the net zero goal to be tracked over time. It can also serve other goals such as managing climate-related risk and supporting the development of climate-aligned financial products.

¹² In line with best practice guidance set out in the Net Zero Investment Framework and in Box 2 above, IIGCC recommends that investors set targets on a 5 year basis, reviewing and updating targets every 5 years. This should aim to sync to the Paris Agreement cycle of 2025, 2030 etc, which would mean that the initial milestone would be <5 years.

EVIC is defined by the EU TEG as “the sum of the market capitalization of ordinary shares at fiscal year end, the market capitalization of preferred shares at fiscal year end, and the book values of total debt¹³ and minorities’ interests. No deductions of cash or cash equivalents are made to avoid the possibility of negative enterprise values.¹⁴”

Figure 6: Equations for calculating financed emissions of the asset classes currently covered in the Net Zero Investment Framework: listed equity, corporate fixed income, real estate

Listed companies:

$$\text{Financed emissions} = \sum_c \frac{\text{Outstanding amount}_c}{\text{Enterprise Value Including Cash}_c} \times \text{Company emissions}_c$$

Bonds to private companies:

$$\text{Financed emissions} = \sum_c \frac{\text{Outstanding amount}_c}{\text{Total equity} + \text{debt}_c} \times \text{Company emissions}_c$$

Commercial real estate:

$$\text{Financed emissions} = \sum_{b,e} \frac{\text{Outstanding amount}_b}{\text{Property value at origination}_b} \times \text{Energy consumption}_{b,e} \times \text{Emission factor}_e$$

PCAF has defined the equations and sources of financial data that should be used to attribute emissions across different asset classes using EVIC¹⁵.

Weighted Average Carbon Intensity (WACI)

WACI is a commonly used metric in the investor community to analyse portfolio exposure to carbon-intensive companies and is expressed as tCO₂e/\$mn company revenue. WACI belongs as part of suite of metrics to support investor action on climate change. For example, WACI is well suited to supporting portfolio managers to manage 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 or “starting point” of a fund or portfolio compared to a benchmark (see section 4.1.5 below). It provides insight into the pace at which owned emissions need to rise or fall to remain within a specified carbon budget.

Accounting for market fluctuations and applying normalisation

Market volatility presents a challenge for measuring financed emissions using EVIC, as well as for revenue-based metrics such as weighted average carbon intensity¹⁶. There are a number of variables that can lead to instability in these metrics, such as inflation, exchange rates, and interest rates.

The EU TEG notes that “the GHG intensity [expressed in EVIC terms] shall be calculated with restated enterprise value to reflect the potential effects of inflation in the average enterprise value in the investable universe on the financial denominator of carbon intensity.” Using normalised assets under management can ensure prices are held constant over the target period. The objective is to ensure that, in absolute terms, emissions of underlying holdings are going down in line with decarbonisation pathways. One fund growing at the expense of another may increase that fund’s emissions but it does not change the underlying emissions of the holdings.

13 The EU TEG refers to “the book values of total debt,” including all debt as listed on the company balance sheet. PCAF notes that this is different from some accounting definitions of book value of debt, which exclude some elements like non-interest bearing debt.

14 PCAF notes that some elements of EVIC might not yet be readily available to investors as data providers are working to align their data with this definition. Where data is missing, the EU TEG recommends that investors follow the precautionary principle when calculating EVIC and can exclude elements of the EVIC that would lead to a lower EVIC and higher attribution of financed emissions to the investor (PCAF Standard, p.50).

15 [The PCAF Standard](#), (p.49-50)

16 See [‘Misleading Footprints: Inflation and exchange rate effects in relative carbon disclosure metrics’](#) (De Nederlandsche Bank, 2021)

The EU TEG suggests the “level of decarbonisation should be increased if inflation in enterprise values occurs. Otherwise, an inflation effect could lead to a reduction of the tCO₂e/€rev ratio without any efficiency. If the respective yearly inflation is equal to Inf%, then [for a 7%] decarbonisation rate the calculation should be:

$$1 - \left(\frac{1 - 7\%}{1 + \text{Inf}\%} \right)$$

Noting that normalisation can be applied to multiple variables, including exchange rates and inflation, and thus reduce the comparability of data, PCAF requires investors to report both uncorrected absolute emissions, in addition to any corrected emissions data.

Box 3: Accounting for the impact of market movements

IIGCC is currently working with investors to understand the impact of market movements, such as inflation and exchange rates, on financed emissions metrics and exploring possible correction factors to minimise the impact of these movements so that investors can more confidently measure decarbonisation using EVIC.

Exploring attribution analysis may help investors understand how financed emissions can be impacted by a number of factors such as market movements, portfolio reallocation, and decarbonisation of holdings.

PAII aims to establish a best possible solution to reduce the impact of market volatility on these metrics and work towards a level of standardisation for EVIC normalisation across the industry, with the aim to provide additional guidance to investors in the near future. PAII will engage with PCAF to promote an industry-wide approach.

Investors are encouraged to be transparent when applying correction factors and PAII is supportive of disclosures relating to normalisation and attribution analysis (see section 4.1.7 below).

Report absolute emissions and emissions intensity

Investors should set the emissions reduction portfolio reference target based on the absolute emissions reductions needed to achieve global net zero emissions by 2050. Measuring absolute emissions provides a necessary baseline for Paris Alignment.

However, measuring financed emissions on an intensity basis provides a good instrument for comparing the performance of funds or assets as it accounts for differences in portfolio size and composition. Many investors will opt to use an intensity metric, reflecting the expectation that funds will grow over time. However, this presents some challenges to ensure that intensity metrics do reflect organic asset level emissions reductions and are sufficient to be in line with the absolute reduction levels required in net zero pathways. This can be achieved through normalisation, as outlined below.

The Framework states that the portfolio level decarbonisation target can be expressed as either:

- An absolute emissions reduction metric i.e. CO₂e, or
- An emissions intensity metric, i.e. CO₂e/\$mn invested.

However, when doing so investors should provide the following to the extent possible:

- Evidence of how the target has been determined and
 - a. reflects net zero pathways that will meet absolute emissions reductions required over time, and
 - b. is adjusted to take account of factors that are not related to real economy emissions reductions as relevant.
- When monitoring and reporting progress annually, measure
 - a. absolute emissions reductions achieved in aggregate at the asset level, and
 - b. progress towards an absolute or intensity target at the portfolio level.

4.1.4 Selecting science-based net zero pathways

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

Investors must set portfolio emissions reduction targets in line with global, regional, and sector science-based pathways that are consistent a ‘fair share’ contribution to achieving global net zero emissions by 2050, or sooner. Investors should disclose the science-based scenario(s) or pathway(s) and critical assumptions used to guide target setting.

In the short-term, emission reductions targets are likely to be heavily guided by indicative pathways rather than detailed bottom-up pathways for different sub-sectors with regional differentiation. This is because there are few credible net zero pathways at sector and regional level. FAQ 3 in Appendix 2 provides more detail of the key available or forthcoming 1.5°C pathways that PAll recommends, and many investors have started using to inform target setting.

Box 4: Defining ‘fair share’ emission reductions

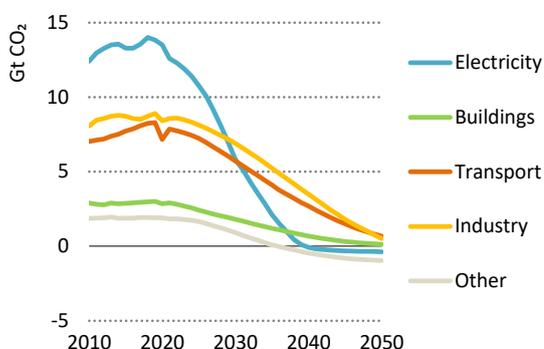
For the purpose of this guide, ‘fair share’ emission reductions refers to the recognition that within the ultimate goal to reduce global GHG emissions to net zero by 2050, or earlier, different sectors, industries, and regions will decarbonise at different rates. Therefore, for some sectors or regions a ‘fair share’ contribution may be more or less than 50% by 2050. For example, the power sector is expected to decarbonise faster than the steel and cement sectors. Europe and North America are expected to decarbonise faster than Asia.

Regional and sectoral net zero pathways

Where possible, investors should derive portfolio targets from regional and sectoral pathways in the context of global pathways. Such pathways account for the different rates at which geographical regions and specific sectors and sub-sectors in the economy need to decarbonise to contribute to global net zero emissions by 2050.

Using regional and sectoral pathways will allow investors to take into account the sectoral and regional exposures of a portfolio and develop a decarbonisation strategy that accounts for the fair share emissions reduction of individual regions or industries. This may imply that particular industries or regions may need to achieve a higher or lower rate of reduction, as part of the economy’s overall transition to the net zero economy. As an example of the different net zero pathways for different industries, Figure 7 demonstrates the different rates at which carbon emissions are expected to fall across the sectors covered by the IEA Net Zero by 2050 scenario released in May 2021.

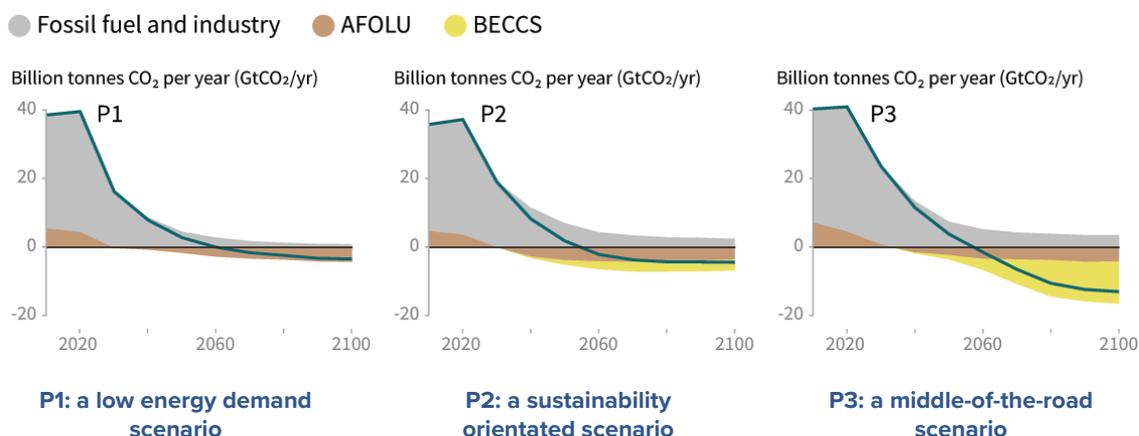
Figure 7: Global net CO₂ emissions by sector covered by IEA NZE2050



Global net zero pathways

Alternatively, investors can be guided by global 1.5°C pathways such as the IPCC P1, P2, P3 scenarios with no or limited overshoot. FAQ 3 in Appendix 2 provides further detail around the key features of a credible global pathway and the guidance on which pathways investors should use.

Figure 8: The IPCC's illustrative 1.5°C pathways outlined in IPCC SR1.5



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 decline by between 41% and 58% from 2010 levels by 2030, reaching net zero around 2050. The IPCC SR1.5 uses a baseline year of 2010 to calculate a decarbonisation pathway to 2050. However, emissions have continued to rise since 2010 (by around 1.5% per year¹⁷). The UNEP Gap Report (2020) states that global GHG emissions need to fall by 7.6% annually between 2020-2030 to remain in line with a 1.5°C scenario¹⁸.

Therefore, investors using this scenario as a basis for setting their portfolio reference target will need to establish the emissions reduction that is required from the investor's chosen baseline year to reach global net zero emissions by 2050.

When using IPCC (and other scenario) data, investors must consider the following:

- Accounting for rising emissions since the scenario baseline year (for example, IPCC SR1.5 uses a baseline year of 2010 but global emissions have continued to rise since).
- All GHG emissions, rather than carbon emissions only. Different rates of global warming potential (GWP) that have been used by different scenario sources and ensuring use of a consistent rate in own calculations e.g. IPCC AR2 uses a rate of 49Gt, AR6, due in 2022, will use a different rate.
- Data lags between real world emissions and reported data e.g. a 31 Dec 2019 baseline is likely to be equivalent to real world emissions of 2018.

Investors should consider these factors when baselining and calculating a portfolio reference target to ensure that targets reflect the required decarbonisation rates implied by 1.5°C scenarios and any changes in real world emissions. A good example of these considerations applied in practice and transparently disclosed can be found in Robeco's white paper on Paris alignment¹⁹.

¹⁷ According to the UNEP Emission Gap Report (2020): <https://www.unep.org/emissions-gap-report-2020>

¹⁸ <https://www.unep.org/emissions-gap-report-2020>

¹⁹ 'The why, the how and the what: Showing the way to Paris-aligned investing' (Robeco, 2021)

4.1.5 Setting a target

This section outlines the key design choices and steps investors will take when setting this target. The main purpose is to highlight the options available to investors, key considerations investors may need to make, and some advantages and disadvantages of each approach. FAQ 4 in Appendix 2 sets out in more detail the key design choices required when calculating a portfolio's baseline emissions and determining the decarbonisation trajectory applicable to the portfolio.

There are a number of choices an investor can make when setting a portfolio reference target, including:

- Whether to account for the portfolio's baseline emissions or "starting point".
- If accounting for the portfolio "starting point", selecting or constructing a benchmark to represent the average carbon intensity of a portfolio with a similar regional and sectoral exposure.
- Selecting net zero pathways to inform the calculation of a decarbonisation pathway that represents an investor's 'fair share' contribution to global emissions reductions.
- Calculating a target based on a point-in-time emissions reduction target or using cumulative emissions to determine a carbon budget for the portfolio.

The first choice an investor must make is whether to account for the portfolio's baseline emissions or "starting point" relative to a benchmark. Table 2 below sets out the advantages and disadvantages of each option, with further detail provided in FAQ 4 of Appendix 2.

If choosing a benchmark-relative approach, IIGCC proposes the following benchmarks. Further detail, including advantages and disadvantages of each is provided in FAQ 4 of Appendix 2.

- A 'universal' benchmark – that is representative of the global economy, such as MSCI ACWI.
- A fund's own benchmark or universe-relative approach – that reflects an investor's investable universe and provides a reasonable level of comparability in terms of sector, industry, and regional exposure.
- A custom benchmark – constructed based on an aggregation of the average carbon intensities of specific holdings within a sector.

The second choice when setting a portfolio reference target is whether to:

- Apply a point-in-time GHG emissions reduction goal, such as 30% reduction by 2025 or 55% reduction by 2030, relative to the baseline year, or
- Calculate a portfolio carbon budget based on the cumulative GHG emissions applicable to a portfolio over a specific timeframe, such as between 2019 to 2025, 2030, or 2050.

Table 3 outlines the advantages and disadvantages of the each approach, with a further detail provided in FAQ 4 of Appendix 2 and illustrative examples below.

Table 2: Advantages and disadvantages of self-decarbonisation and benchmark-relative approaches to portfolio target setting

| | Advantages | Disadvantages | Suitable for |
|--|---|--|--|
| <p>Do not account for portfolio “starting point” (self-decarbonisation approach²⁰)</p> | <ul style="list-style-type: none"> • The least complex of the approaches where an investor only needs to determine the portfolio’s own baseline emissions. • Relatively easy to apply and communicate to stakeholders. | <ul style="list-style-type: none"> • Does not take into account the differences in the baseline carbon intensities of portfolios, or the assets within a portfolio. • Every asset within a portfolio must achieve the same rate of emissions reductions regardless of whether they are an industry laggard and should be required to achieve more rapid decarbonisation, or if they are an industry best performer and have already achieved significant emissions reductions. • This approach may incentivise investments in assets that are not yet aligned over assets that are already net zero or aligned as they have already contributed to global decarbonisation. This is because, under this approach, all assets must decarbonise at the same rate regardless of historical decarbonisation. • May incentivise investors to achieve emissions reductions through re-allocating capital to lower carbon sectors. | <ul style="list-style-type: none"> • Asset owners that may wish to set an overall portfolio target, and allow managers to determine the fair share contribution of emissions reductions per mandate. • Portfolios where there is no reasonably reflective benchmark, or where the investor has limited resources and analytical capacity to create a custom benchmark. |
| <p>Account for portfolio “starting point” (benchmark-relative approach²¹)</p> | <ul style="list-style-type: none"> • Creates a fairer playing field by accounting for emissions reductions already achieved by assets within a portfolio and by ensuring laggards contribute their fair of emissions reductions by pursuing a more rapid decarbonisation trajectory. | <ul style="list-style-type: none"> • Baseline portfolio emissions and reference target may require re-calculating if there is a material change to the portfolio composition (see FAQ 5 of Appendix 2). • Communicating progress against targets may require more nuanced and detailed explanation. | <ul style="list-style-type: none"> • Portfolios or funds with significant sector or regional biases. • Portfolios that have already achieved significant decarbonisation. |

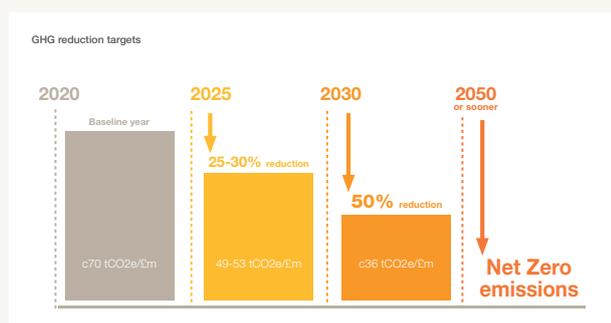
20 Also referred to as ‘rate-of reduction benchmark’ by other industry actors.

21 Also referred to as ‘convergence benchmark’ by other industry actors.

Case study: Railpen’s science-based sectoral pathways and a self-decarbonisation approach to portfolio reference targets

Source: Railpen, [Net Zero Plan](#) (2021)

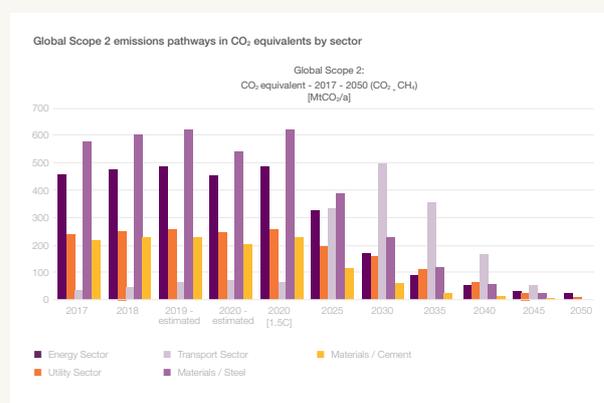
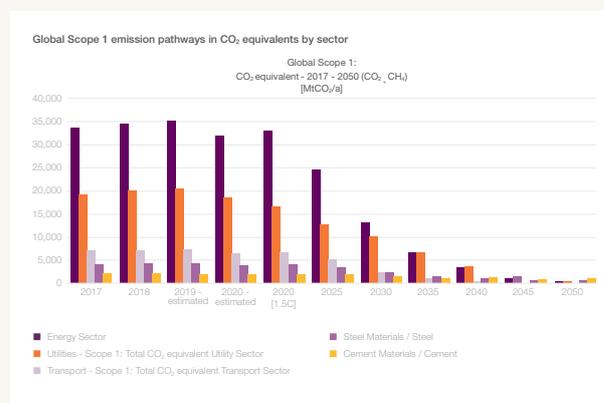
RPMI Railpen’s (“Railpen”) approach is one of self-decarbonisation, using its portfolio emissions as a baseline and applying interim reduction targets for 2025 and 2030, based on its sector and geographic exposure and their associated respective pathways. Railpen uses a science-based sectoral pathway approach, the One Earth Climate Model (OECM), from the Institute for Sustainable Futures (ISF), to derive the fund-level GHG reduction targets.



The OECM, with its assumptions and resulting pathways, is one of many such science-based sectoral models that identify and present an option that sectors can take to transition to net zero by 2050 or sooner. These pathways are then applied to the fund based on the extent of investment in these key sectors, and the overall emissions reduction targets are derived.

Annual global CO₂ emissions from energy-related sectors are a large percentage of the cumulative carbon budget. Without rapid reduction measures, the energy sector can use up this budget rapidly. Therefore, the OECM derived 1.5°C pathway targets a reduction in energy sector Scope 1 and 2 emissions by 26%–37% until 2025, and similarly front-loaded through 2030. This is targeted by increasing renewable power generation, decarbonised electricity in transport through the uptake of electric mobility and electricity based heating systems. Decarbonising electricity by increasing renewable generation is vital to emissions reductions also for Transport, Steel and Cement. Longer term, the lower carbon intensity of electricity is expected to have a reducing effect on Scope 2 emissions across sectors, even with higher electricity demand.

The charts below indicate scope 1 and 2 emissions pathways in CO₂ equivalents by sector as per OECM:



Railpen’s approach is absolute emissions based, with potential periodic use of benchmarks to also review and evaluate intensity and emissions based improvements of holdings versus sector and jurisdiction average. The reduction targets currently apply to Railpen’s listed equity and corporate fixed-income holdings, and cover scope 1 and 2 emissions (other asset classes and scope 3 emissions to be included over time).

The second choice when setting a portfolio reference target is whether to:

- Apply a point-in-time GHG emissions reduction goal, such as 30% reduction by 2025 or a 55% reduction by 2030, relative to the baseline year, or
- Calculate a portfolio carbon budget based on the cumulative GHG emissions applicable to a portfolio over a specific timeframe, such as between 2019 to 2025, 2030, or 2050.

Table 3 outlines the advantages and disadvantages of the each approach, with further detail provided in FAQ 4 of Appendix 2 and an illustrative example provided below.

Table 3: Advantages and disadvantages of point-in-time and cumulative emissions reduction goal

| | Advantages | Disadvantages |
|--|--|--|
| Point-in-time emissions reduction goal compared to a baseline | <ul style="list-style-type: none"> • Clear expectation and simple to apply, in line with global emission reduction requirements. • Easy to communicate to clients and beneficiaries. • To mediate potential drawbacks around the risk of overshooting a carbon budget, targets can be reviewed and updated on a 5-year basis to ensure sufficient progress. | <ul style="list-style-type: none"> • Must pursue a linear reduction, such a 7.6% per annum, to ensure portfolio emissions remain consistent with the carbon budget available to the portfolio. • Pursuing a linear decarbonisation rate risks incentivising investors to achieve emissions reductions by reallocating capital to already lower carbon sectors which will have limited impact on real world emissions reductions. |
| Cumulative emissions reduction over a specified timeframe | <ul style="list-style-type: none"> • More analytically robust and in line with climate science. • Can support investors who want to shift capital into higher emitting companies that have strong transition plans. This will increase portfolio emissions in the near-term and therefore, not appeal to investors pursuing a linear trajectory. | <ul style="list-style-type: none"> • 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. |

Case study: Setting a portfolio target using a carbon budget approach

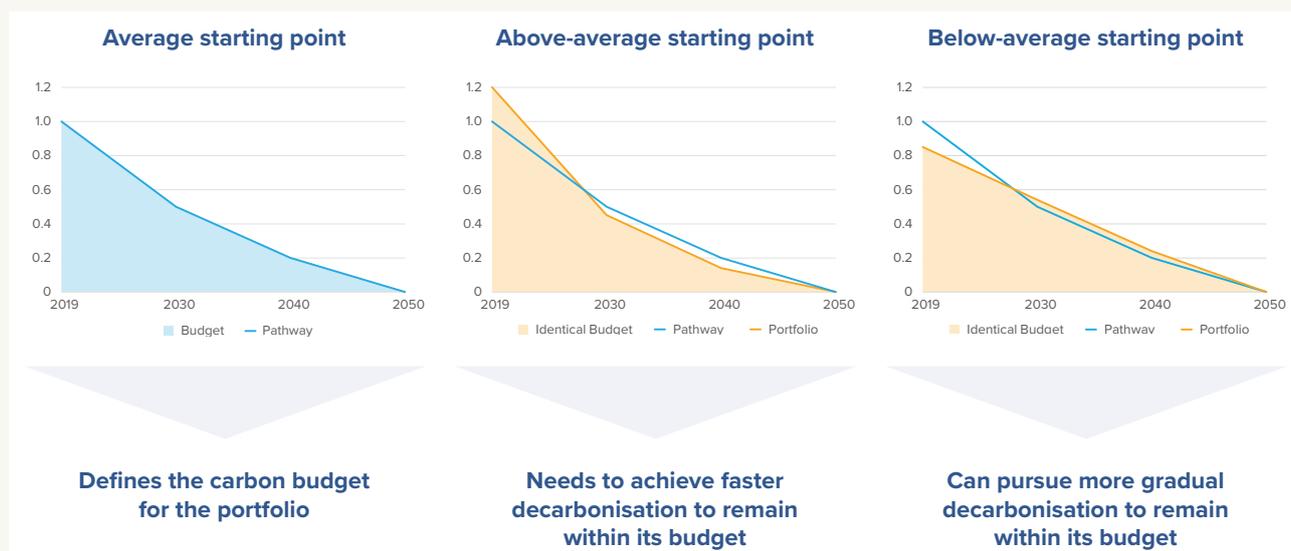
An investor can establish the cumulative emissions, or carbon budget, of a portfolio based on an assessment and aggregation of the average cumulative emissions of industries within a portfolio and reflect the relative baseline position or “starting point” of a portfolio compared to industry averages in the carbon budget. An illustrative and simplified example of this approach provided by Lombard Odier can be found [here](#).

Under this approach, investors can also adjust the carbon budget to account for the portfolio “starting point”, that is, adjusting the cumulative emissions 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 9 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”. 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)²².

A portfolio with an “above average starting point” produces more emissions when compared to a benchmark and will need to achieve a faster rate of reduction to ensure that its cumulative emissions fit within the carbon budget. A portfolio with a “below average starting point” already produces fewer emissions than average and ensuring cumulative emissions remain within the implied carbon budget can theoretically be achieved with a marginally lower rate of reduction.

Figure 9: Illustrative example of incorporating portfolio “starting points” into the calculation of portfolio carbon budgets



22 Click [here](#) to access the data behind this example, in excel.

4.1.6 Considering a re-calculation policy

The PCAF Standard notes that investors are required to “establish a recalculation policy to define under which circumstances a recalculation 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”²³.

As a key principle, the baseline should always be reflective of the portfolio’s composition. Whether using a benchmark, self-decarbonisation baseline, or sectoral average, the baseline chosen should be fair and like-for-like comparison. When the portfolio’s composition changes, the investor should ensure that the baseline still reflects that changed composition.

To enhance transparency, investors should consider disclosing when a baseline is restated during a relevant reporting period. The disclosure could outline the rationale and methods used, and how this is consistent with the principle above.

Investors can re-baseline portfolio emissions for a number of valid reasons:

- Re-baselining due to substantial changes to data coverage, availability, or quality
- Re-baselining due to a significant shift in the fund’s sectoral or industry exposure
- Re-baselining due to new money or portfolio growth (for absolute targets), requiring attribution for targets

Strengths of allowing a restatement of the baseline include allowing investors to move from lower carbon investments today to higher carbon but transitioning companies at a later date. This approach allows investors to pursue emissions reductions in the real economy, rather than pursuing reductions through sector re-allocations.

Investors should establish the timeframes for re-baselining. PAII outlines three options below, with further detail and description of the advantages and disadvantages of each provided in FAQ 6 of Appendix 2.

- Dynamically e.g. during each reporting period
- Periodically e.g. every 2 or 5 years
- Ad-hoc e.g. based on pre-defined triggers

4.1.7 Key disclosures to ensure rigour, impact, and accountability

The Net Zero Investment Framework expects that investors disclose progress against targets annually. Investors can choose whether to disclose absolute emissions or emissions intensity (CO₂e/\$mn invested).

If disclosing on an intensity basis, investor should also disclose the following to the extent possible:

- Evidence of how the target has been determined and:
 - a. Reflects net zero pathways that will meet absolute emissions reductions required over time,
 - b. Is adjusted to take account of factors that are not related to real economy emissions reductions as relevant²⁴.
- When monitoring and reporting progress annually, measure:
 - a. Absolute emissions reductions achieved in aggregate at the asset level,
 - b. Progress towards an absolute or intensity target at the portfolio level.

²³ [The PCAF Standard](#) (p.99)

²⁴ Non-relevant variables such as exchange rate, inflation and interest rate.

4.2 Considerations for asset owners

Asset owners with multi-asset, multi-manager portfolios may not be able to apply such a granular approach to setting portfolio reference targets as described above due to a range of reasons such as limited analytical capability and data availability and comparability made available by asset managers. In such cases, targets can either be guided by a global scenario such as IPCC's 50% CO₂ reduction by 2050 or from the identification of the most relevant net zero scenario(s) based on the overall exposure of the portfolio to different sectors and regions. This should be followed by a consideration of how to distribute the carbon budget implied by the scenario(s) through the portfolio, or to what extent each mandate should contribute to the overall portfolio emissions reduction requirement.

Investors may want to set separate targets for different parts of their portfolios or for different asset classes, based on opportunities to reduce emissions and challenges to increasing alignment. Investors choosing this approach will need to consider:

- How to establish component targets so that, in aggregation, they are in line with a net zero pathway.
- How to ensure adequacy of carbon reductions from all parts of the portfolio in line with net zero pathways if aggregating to a single target.

The PAII recommends that asset owners in particular engage with asset managers based on the key steps and recommendations of this guide.

4.3 Considerations for climate solutions providers

The PAII recognises that a significant increase in investments in technologies and solutions to mitigate climate change is required in order to meet the net zero goal. Much of the required investment is in emerging markets and developing economies. As there are few trajectories today that provide net zero pathways for these solutions providers, there is a risk of disincentivising investment in these solutions if comparing against global pathways or pathways for other sectors, since absolute emissions from these providers will likely increase in a net zero scenario.

To address this, IIGCC offers two guiding principles. First, it recognises that each company must make a fair share contribution to decarbonisation and the goal of reducing CO₂ emissions by 50% by 2030, and to net zero by 2050, and therefore recognises that the specific rate of reduction may vary across industries, and can vary more significantly for solution providers where a significant increase in volume is still required. Second, IIGCC recognises that despite this, every sector must still decarbonise, and that while solution providers' absolute emissions may fall more slowly, the same improvements in efficiency and carbon intensity must still be achieved. Where an investor or fund has a significant allocation to solution providers, the onus is on the investor to demonstrate that these principles are still achieved. FAQ 5 in Appendix 2 provides greater discussion of considerations for climate solutions providers in the context of setting portfolio reference targets.

Case study: Nest's engagement with asset managers

In 2020/21 UK pension scheme, Nest, developed its first Scheme-wide climate change policy setting out an ambition to align its investment strategy with limiting global warming to 1.5C by reaching net zero emissions across its investment portfolio by 2050 at the latest. The policy was designed to guide all areas of Nest's investment process including asset allocation, manager selection and monitoring, stewardship and public policy.

Nest's portfolio is made up of different asset classes and individual portfolios managed by external investment managers. In December 2020 Nest wrote to all existing external investment managers to set out the expectation that they will work towards aligning the portfolio they manage for the Scheme with a 1.5C global warming limit. Specifically, Nest formulated three key expectations for all investment managers over the next three years:

Reporting: Nest expects its investment managers to report on the climate-related risks and opportunities in the portfolio they manage for the Scheme using the TCFD framework. This includes reporting on the carbon intensity of the portfolio and conducting climate change scenario analyses.

Reducing emissions: Nest expects its investment managers to develop a strategy to align the portfolio with the 1.5C global warming limit. This includes analysis of how to halve financed emissions by 2030.

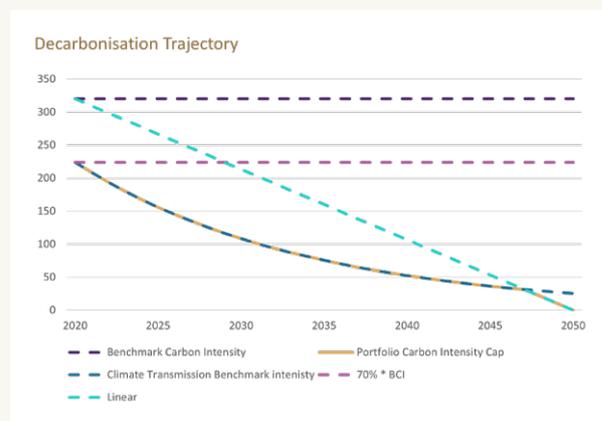
Voting: Nest expects its investment managers to exercise their voting rights and engagement resource to positively influence the companies in their portfolio to transition to a low-carbon economy.

In addition to these three topline expectations, Nest set time-bound, mandate-specific climate-related objectives for existing managers and expects all objectives to be met by 2023 at the latest. They cover topics such as improving data coverage and quality and developing an escalation process for engagement on climate change. Nest meets with its investment managers at least bi-annually to discuss progress. Where a manager is not progressing on their climate change objectives, they will be placed on a watch list as part of Nest's manager monitoring process. Continued lack of progress could lead to termination of a mandate.

In total, Nest set 66 objectives across 23 portfolios and 13 fund managers. As at 31 March 2021:

- 51.5% objectives had been met
- 13.6% of objectives were on track
- 18.2% of objectives were in progress
- 16.7% of objectives had not progressed.

Nest is now working with its fund managers to translate its long-term net zero target into short-term emissions reductions targets for each mandate. For example, in March 2021 Nest set a decarbonisation target for its global investment-grade credit allocation managed by Wells Fargo Asset Management. The portfolio uses the self-decarbonisation approach with a cap in line with the EU Climate Transition Benchmark. The portfolio is managed so that the Scope 1 and 2 weighted average carbon intensity of the portfolio remains at least below a cap of 30% below the portfolio's benchmark with the cap decarbonising by 7% per year from its 2020 level.



Source: Wells Fargo Asset Management, Trucost, Bloomberg Company Materials, Bloomberg Barclays Indices

Nest keeps these targets and performance towards them under review and reviews its climate change policy in full at least annually. Investors can achieve emissions reductions in multiple ways. See Box 4 below for an illustrative example of this. Investors should primarily achieve portfolio decarbonisation through the transition and alignment of underlying assets in a portfolio over time. This requires investors to take a number of actions relating to engagement and stewardship, as well as escalation and divestment policies as a result of failed engagement.

To avoid incentivising investors to meet targets simply through re-allocation to assets that are already lower carbon, and to ensure and test the real world impact of investors' actions, investors can provide a level of disaggregation and attribution of emissions reductions by disclosing:

- Emissions reductions from decarbonisation of assets
- Emissions reductions from sector and/or company re-allocation
- Emissions reductions from divestment
- Allocation to climate solutions and associated emissions

Box 4: Varying impact of strategies to reduce scope 1 and 2 emissions

There are many different ways to reduce the scope 1 and 2 carbon intensity of portfolios but many do not have a demonstrable link to emissions in the real world. The clearest example of this is to look at the impact on the weighted average carbon intensity of global equities (MSCI ACWI) as we apply a series of carefully considered changes.

1. Double weight allocation to large-cap tech (Apple, Amazon, Facebook) results in a 7% reduction in scope 1 and 2 emissions intensity.
2. Double weight allocation to three utilities who are among the world's largest investors in renewable energy (Enel, Nextera, Iberdrola) increases scope 1 and scope 2 emissions intensity by 5%.
3. Double weight allocation to selected Coal Miners and Oilfield Services (Glencore, Schlumberger, Halliburton) has little impact on scope 1 and 2.

Providing a disaggregation and attribution of emissions reductions by geography, sector and individual holding will also support transparency in approach. Within the individual holdings, it will also be instructive to understand whether a company-level reduction was achieved by asset sales, a change in business strategy or improved operating efficiency. This attribution will be a vital part of understanding how investment portfolios are meeting these targets, and whether the actions taken are actually encouraging real world behavioural change.

Linking targets to an engagement strategy

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 portfolio emissions in the earlier years of the strategy and experience a steeper curve to net zero in later years. There will be greater requirements on such an investor to communicate and provide evidence for:

- How such a strategy remains in line with a net zero pathway over time.
- How the investors' net zero stewardship and engagement policy is having impact.
- How the underlying assets are transitioning towards Paris-alignment.

Appendix 1: FAQ for asset level target setting

1. What is the rationale behind these targets?

The Net Zero Investment Framework identified the proposed combination of targets as the most effective means to drive real economy emissions reductions while also enabling a practical and rigorous approach which provides accountability for action (consistent with the five guiding principles of PAII).

The asset level portfolio coverage target is designed to ensure that assets that investors hold in their portfolios are transitioning in line with net zero goals, and thereby achieving real economy emissions reductions and contributing to portfolio level overall targets.

By combining with an ambitious and increasing minimum engagement threshold it ensures that investors continue to have to take robust action to influence companies to achieve alignment and deliver emissions reductions on a continuous basis.

2. Should investors use different net zero pathways to assess the targets and performance of companies or assets in different sectors or in emerging markets compared to developed markets?

Yes, the PAII emphasises the importance of using regional and sectoral pathways to determine the speed at which assets in varying regions can be expected to transition. This differentiation is built into some of the assessment methodologies available such as the CRREM tool but is not necessarily reflected in all assessments of companies' targets. Where a particular sector does not have an established net zero pathway, investors may need to use the regional or global average as a proxy in the short term.

3. How does the Framework recommend treating scope 3 emissions of assets within portfolio coverage targets?

The PAII recognises that scope 3 emissions can make up a large proportion of an asset's carbon footprint, and material scope 3 emissions should therefore be part of company targets and performance assessed as part of setting and achieving the portfolio coverage target.

For real estate, the CRREM tool does not yet incorporate embodied carbon to assess this as part of the portfolio coverage metric.

Recognising that the measurement of material scope 3 emissions across a number of sectors is highly inconsistent, IIGCC is undertaking further work to develop expectations and guidance on measurement of Scope 3 emissions within the work of the Paris Aligned Investment Initiative

4. How does the asset level portfolio coverage target relate to the SBTi FI portfolio coverage methodology? Can I use other SBTi methodologies to set targets?

IIGCC notes that the SBTi FI portfolio coverage approach aligns to the Net Zero Investment Framework recommendation to set targets for increasing the percentage of aligning assets in a portfolio to reach 100% by 2040. However, SBTi FI only requires companies to set decarbonisation targets to be considered aligned, whereas the Net Zero Investment Framework uses additional criteria to ensure fully credible alignment of companies in high impact sectors going forward, which may make the expectation of a linear increase in 'aligned' companies more challenging. However, IIGCC notes that a similar 'linear increase' principle would be relevant for target setting for the Net Zero Investment Framework.

SBTi FI also offers investors a Sectoral Decarbonisation Methodology and the Implied Temperature Metric at portfolio level. IIGCC sees sectoral decarbonisation pathways as the building blocks for the top down portfolio emissions reduction targets recommended by the Net Zero Investment Framework. Therefore, the Sectoral Decarbonisation Approach (SDA) approach provided by SBTi can be a basis on which to develop this overall portfolio reference target and monitor progress and impact. However, solely using the scope of SDA for portfolios would not necessarily full cover the full portfolio. IIGCC does not currently recommend using an implied temperature metric given the ongoing challenges of robustly assessing forward looking alignment using such methodologies.

For assessment at the company/asset level, company targets that are set in line with the SDA approach are also accepted to meet the relevant alignment criteria for listed equity and corporate fixed income. At the same time it remains the case that SDA pathways currently utilised by SBTi and others are not fully consistent with global 2050 net zero pathways and there are some technical issues for example with the incorporation of scope 3 emissions. IIGCC therefore welcomes the work initiated by SBTi to move towards providing net zero consistent SDA approaches in the future, and to address these technical improvements to the methodology.

5. How do I address data gaps for assessing asset alignment?

The PAII recognises that there are gaps in available and good quality data which may hinder an investor's ability to assess the alignment of assets and support the transition of assets over time. At the same time, recommended assessment methodologies will generally provide significant coverage of material sectors and companies. IIGCC expects data to improve rapidly in some areas, such as that relating to real estate. In the meantime, the PAII recommends that investors estimate data or use proxies, where possible, rather than exclude data from assessment. In addition, disclosure of data by companies or assets can be used as an initial criterion towards alignment, and a first ask for engagement would be for companies to disclose GHG emissions, and other relevant data and information.

Appendix 2: FAQ for portfolio level target setting

1. Why are portfolio level targets required in addition to asset level targets?

The Net Zero Investment Framework 1.0 requires investors to set ‘top down’, portfolio level reference targets, as well as ‘bottom up’, asset level targets. Investors are expected to achieve portfolio decarbonisation by increasing the alignment of underlying assets in the portfolio. The asset level targets, and corresponding alignment targets, set out above, therefore, aim to ensure that investors achieve portfolio decarbonisation in a way that has the greatest impact on real world emissions reductions.

PAll also requires investors to set a ‘top-down’, portfolio level decarbonisation target. This is important to set the level of ambition required against a science-based 1.5°C pathway. It is also important for guiding action, for example, guiding portfolio optimisation in Strategic Asset Allocation (SAA). Overall, portfolio targets allow investors to monitor the effectiveness of an investment strategy and provide accountability for impact. Meanwhile, if an investor’s strategy has been effective at the asset level, it can be expected that portfolio emissions decline as a result of emissions reductions achieved by the assets in the portfolio.

2. Which global 1.5°C scenarios should investors use to inform portfolio reference targets?

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 4 below 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 progress²⁵.

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.

Table 4: IPCC classification of 1.5C pathways and number of available scenarios (IPCC SR1.5, p.100)

| 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 less than 0.1–0.4°C higher peak warming than Below-1.5°C pathways | 37 | |

²⁵ IPCC SR1.5 (p.110)

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)²⁶. It shows that a range of scenarios that lead 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 referred to as 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 P4 given the scenario's reliance on a high volume of negative emissions technologies (NETs).

Figure 10: The four illustrative 1.5°C pathways outline in IPCC SR1.5

| IPCC 1.5°C / net zero pathway | 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 | |
|--|----------------------------------|--|-----------------------------------|---|-------------------------|
| Grey = fossil fuel & industry Brown = AFOLU Yellow = BECCS | | | | | 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 ₂ e emissions 2030 | -50% | -49% | -35% | -2% | -39%, -51% |
| CO ₂ e 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 |

²⁶ IPCC SR1.5 (p.14)

3. Which sectoral and regional net zero pathways can investors use to set portfolio reference targets?

Table 5 below provides information about key available or forthcoming 1.5°C pathways that PAll recommends, and many investors have started using to inform target setting. This list should not be treated as exhaustive, as it is expected that the number of credible scenarios will grow over time.

Table 5: Overview of available 1.5C scenarios recommended by PAll

| Scenario | Sectors/ sub-sectors | Regional breakdown | Publication date |
|--|---|---|------------------|
| IIASA /IPCC “P1”, “P2”, “P3” | 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 NZE2050 | Buildings, transport, industry, electricity, and heat, other. | “Advanced economies” and “emerging market and developing economies” | May 2021 |
| One Earth Climate Model (OECM) | Oil and gas, utilities, transport (including sub-categories), steel, cement | OECD Europe, OECD North America | December 2020 |
| Energy Transitions Commission (ETC) ‘Mission Possible’ | Cement, steel, plastics, trucking, shipping, and aviation. | Global pathway, with some elements of regional breakdown | November 2018 |
| Carbon Risk Real Estate Model (CRREM) | Real estate (including residential and commercial) | 40 jurisdictions globally | Updated 2020 |
| Other forthcoming scenarios IIGCC/Vivid Economics based on IEA NZE2050 (Dec 2021) | | | |

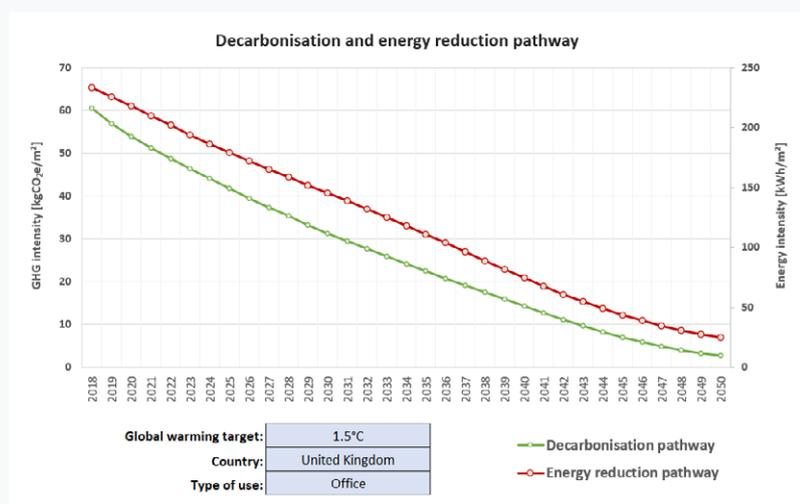
Custom pathways

Using some sectoral pathways, investors can also “build” an expected emission reduction pathway for a portfolio based on its current 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 regions²⁷. Figure 11 shows an emissions intensity and energy intensity pathway for UK office buildings²⁸.

²⁷ <https://www.crrem.org/pathways/>

²⁸ ‘Climate Risk is Investment Risk’, CRREM 2020

Figure 11: A 1.5C pathway for UK offices provided by CRREM



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 economy²⁹.

Investors may rely on any of a number of such sources, or a combination thereof, 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 such 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.

Efforts are also underway to develop detailed, “bottom-up” pathways through the efforts of individual asset managers, sectoral initiatives, country-led research, and contributions from academia and policy think-tanks. IIGCC, too, is procuring technical analysis on investment trajectories required to meet net zero which will inform goal setting in relation to investment in climate solutions.

4. What are the key design steps when setting a portfolio reference target?

i) Should I account for the “starting point” of my portfolio?

Before determining an appropriate emissions reduction trajectory, investors may wish to understand how the baseline carbon intensity of their portfolio compares against a benchmark which is reflective of the portfolio’s composition. Understanding the “starting point” of a portfolio can help an investor establish the current portfolio contribution to global emissions and what, therefore, constitutes a ‘fair share’ decarbonisation pathway for the portfolio.

This approach will help investors establish how a portfolio is performing relative to a benchmark with similar composition at the baseline year and allow investors to adjust a decarbonisation trajectory accordingly. For example, a portfolio with a carbon intensity higher than a benchmark would be required to pursue more aggressive emission reductions in order to contribute its ‘fair share’ to the global decarbonisation goal.

Conversely, if a portfolio is outperforming its benchmark in terms of carbon intensity at the baseline year, this may warrant investors to pursue a less steep emissions reduction pathway towards the target year. Noting that the Net Zero Investment Framework encourages investors to contribute the maximum emissions reductions possible and therefore, setting as ambitious targets as possible.

²⁹ One illustrative example here includes the work undertaken by the European Climate Foundation, as part of its “[Net Zero by 2050: From Whether to How](#)” report and the [CTI 2050 Roadmap Tool](#) linked to this effort.

If not choosing to establish a portfolio’s baseline position relative to a benchmark, the next step involves choosing the relevant portfolio reference target by either applying a point-in-time emissions reduction goal, such as 30% by 2025, or 55% by 2030, relative to the portfolio’s baseline or calculate a carbon budget and establishing cumulative emissions applicable to the portfolio.

The first design choice when calculating a portfolio reference target is to take either:

- A ‘self-decarbonisation’ approach: An investor does not account for the portfolio “starting point” relative to a benchmark.
- A benchmark-relative approach: An investor accounts for the portfolio “starting point” relative to other industry actors.

Table 6 below sets out the advantages and disadvantages of each option.

Table 6: Advantages and disadvantages of a self-decarbonisation and benchmark-relative approaches to portfolio target setting

| | Advantages | Disadvantages | Suitable for: |
|-----------------------------|---|--|--|
| Self-decarbonisation | <ul style="list-style-type: none"> • The least complex of the approaches where an investor only needs to determine the portfolio’s own baseline emissions. • Relatively easy to apply and communicate to stakeholders. | <ul style="list-style-type: none"> • Does not take into account the differences in the baseline carbon intensities of portfolios, or the assets within a portfolio. • Every asset within a portfolio must achieve the same rate of emissions reductions regardless of whether they are an industry laggard and should be required to achieve more rapid decarbonisation, or if they are an industry best performer and have already achieved significant emissions reductions. • This approach may incentivise investments in assets that are not yet aligned over assets that are already net zero or aligned as they have already contributed to global decarbonisation. This is because, under this approach, all assets must decarbonise at the same rate regardless of historical decarbonisation. • May incentivise investors to achieve emissions reductions through re-allocating capital to lower carbon sectors. | <ul style="list-style-type: none"> • Asset owners that may wish to set an overall portfolio target, and allow managers to determine the fair share contribution of emissions reductions per mandate. • Portfolios where there is no reasonably reflective benchmark, or where the investor has limited resources and analytical capacity to create a custom benchmark. |
| Benchmark- relative | <ul style="list-style-type: none"> • Creates a fairer playing field by accounting for emissions reductions already achieved by assets within a portfolio and by ensuring laggards contribute their fair of emissions reductions by pursuing a more rapid decarbonisation trajectory. | <ul style="list-style-type: none"> • Baseline portfolio emissions and reference target may require re-calculating if there is a material change to the portfolio composition (see FAQ 6 below). • Communicating progress against targets may require more nuanced and detailed explanation. | <ul style="list-style-type: none"> • Portfolios or funds with significant sector or regional biases. • Portfolios that have already achieved significant decarbonisation. |

ii) I wish to account for my portfolio’s baseline emissions. Which benchmark should I use?

If choosing to measure baseline emissions against a benchmark, investors will need to choose the emissions metric and choose or calculate the most relevant benchmark. Table 7 below outlines the advantages and disadvantages of using an emissions intensity and absolute emissions metric to construct a benchmark. In line with the TCFD Portfolio Alignment team, IIGCC recommends that investors use an emissions intensity metric as it allows for comparisons of assets’ emissions performance across industries.

Table 7: Advantages and disadvantages of emissions intensity and absolute emissions metrics for constructing benchmarks

| | Advantages | Disadvantages |
|----------------------------|---|--|
| Absolute emissions | <ul style="list-style-type: none"> • Can be more directly linked to a carbon budget and therefore real world emissions reductions. | <ul style="list-style-type: none"> • Disadvantages assets with higher absolute emissions due to size of asset/company, and assets that grow market value whilst maintaining absolute emissions. |
| Emissions intensity | <ul style="list-style-type: none"> • Rewards assets that maintain absolute emissions whilst increasing output or market value. An absolute emissions metric would disadvantage such assets. • Allows investors to identify and increase allocation to industry best performers. | <ul style="list-style-type: none"> • Risks failure to achieve decarbonisation in the real economy by rewarding assets that reduce emissions intensity by increasing market value rather than through decarbonisation. • Risks creating an unfair playing field for assets that have varying absolute emissions due to size (unless assessing assets against a rate of change in absolute emissions). |

Three options for choosing or calculating a benchmark are provided below. It is recommended that the chosen benchmark should always be reflective of the portfolio’s composition. In other words, a benchmark heavily exposed to heavy-emitting industries would not represent an appropriate benchmark to compare against a fund primarily invested in low-carbon industries.

Unlike the self-decarbonisation approach outlined above which simply uses the portfolio’s own emissions at the baseline year, investors can adjust the portfolio reference target to account for the portfolio “starting point” relative to the chosen benchmark. If Portfolio A has a lower carbon intensity compared to the benchmark at baseline year, an investor can apply a more gradual emissions reduction pathway than the benchmark would have to pursue to reach the net zero by 2050 goal. Conversely, if Portfolio B has a higher emissions intensity than the benchmark, an investor will necessarily calculate a more rapid emissions trajectory than the benchmark to contribute a fair share to global decarbonisation.

Three benchmark options are:

- A ‘universal’ benchmark
- A fund’s own benchmark or relative to the investment universe
- A custom benchmark

Table 8 sets out the advantages and disadvantages of using the three benchmark options.

Table 8: Advantages and disadvantages of different benchmarks for establishing a portfolio baseline

| Benchmark | Description | Advantages | Disadvantages |
|--|--|--|--|
| A 'universal' benchmark | Benchmarks that act as a representative of the global economy such as MSCI World or MSCI ACWI. | Such benchmarks could reasonably be used as a default to reflect global emissions. May be reasonably well suited to global, diversified portfolios. Although a custom benchmark, and fund's own benchmark or universe-relative approach, will provide greater industry and regional granularity and therefore, a more accurate reference point. | Few portfolios are reflective of the global economy and so portfolio composition and portfolio emissions intensity is generally not highly comparable to such benchmarks. As the benchmark is less reflective of the sector, industry, and geographic exposures of the portfolio than either a fund's own benchmark or a custom benchmark, emissions reductions could be achieved through sector re-allocation, rather than allocating capital to industry best performers. |
| A fund's own benchmark or universe-relative approach | Reflects an investor's investable universe and provides a reasonable level of comparability in terms of sector, industry, and regional exposure. | Comparing emissions to a fund's own benchmark reflects how investors report ESG and other financial information and therefore, may be easier to communicate to clients, beneficiaries and other stakeholders than comparing emissions to a custom benchmark. | As the benchmark is less reflective of the sector, industry, and geographic exposures of the portfolio a custom benchmark, emissions reductions could be achieved through sector re-allocation, rather than allocating capital to industry best performers. Figure 12 below shows how emissions reductions can be achieved when using a fund's benchmark versus using a custom benchmark. |
| A custom benchmark | Can be constructed based on an aggregation of the average carbon intensities of specific holdings within a sector. | Allows the calculation of decarbonisation performance against a benchmark with similar regional, sectoral, and industry exposure, depending on the granularity of the data available. Should provide a more accurate reference point than other benchmarks due to greater alignment of sector, sub-sector, and regional exposures with the portfolio. Measures real world emissions rather than re-allocation to lower carbon industries compared to the benchmark. Investors must allocate capital to the best performing/ more carbon efficient issuers within an industry in order to achieve decarbonisation against the benchmark. Figure 12 below shows how the custom benchmark has this desired effect. | A more resource intensive process than using established benchmarks. Communicating progress against targets relative to a custom benchmark to clients, beneficiaries or other stakeholders may require more careful explanation but could be expressed as follows "the fund's emissions as of year X are Y% lower than the average level of emissions in 2019 within the specific regions, industries and activities that the fund is active in". Suited to investors with strong analytical capabilities. When constructing a custom benchmark, investors 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. This issue is demonstrated visually in Figure 12. |

iii) How can a custom benchmark effect the way an investor achieves emissions reductions?

Creating a 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 the Net Zero Investment Framework promotes real 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 world 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 must still contribute to the further decarbonisation required in those sectors.

Figure 12: Illustrative example: 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

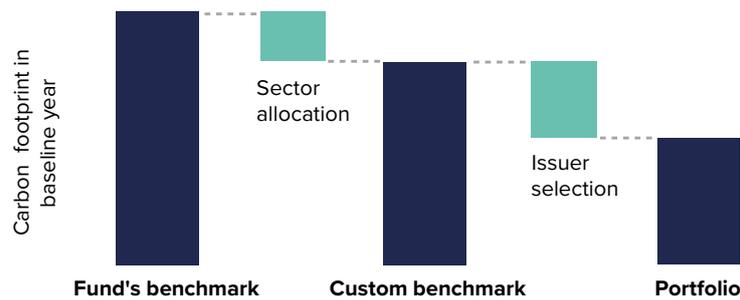
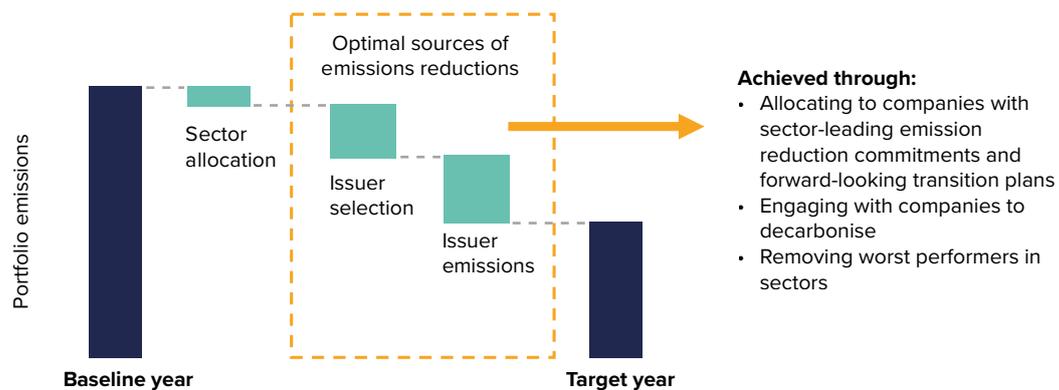


Figure 13: Illustrative example: optimal levers for reducing portfolio emissions



Source: Nordea Asset Management

iv) What role do climate benchmarks play?

A climate benchmark, such as an EU Climate Transition Benchmark (CTB) or EU Paris-Aligned Benchmark (PAB), will have a “starting point” of -30% and -50% emissions intensity compared to the investable universe, respectively. Both benchmarks also follow a -7% annual emissions trajectory.

Although climate benchmarks represent a very ambitious level of decarbonisation, PAIL does not recommend that investors use them to guide portfolio target setting. As these benchmarks require a significant initial emissions reduction, followed by a linear year-on-year reduction trajectory, following such a pathway is likely to incentivise actions that result in rapid portfolio decarbonisation but potentially limited real economy reductions. The Net Zero Investment Framework aims to incentivise investors to achieve portfolio decarbonisation primarily by emissions reductions in underlying assets and a strong engagement and net stewardship approach to support the transition of assets over time. PAIL recognises that it will take some time for assets to develop and implement credible and robust net zero transition plans, which would make it difficult for many investors to meet the initial -30% or -50% initial decarbonisation required by these benchmarks.

v) Should I determine my target based on cumulative emissions or using a point-in-time goal?

Investors can choose to either:

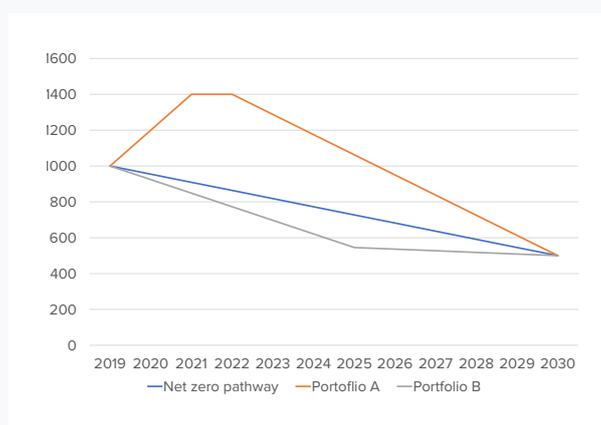
- Apply a point-in-time GHG emissions reduction goal, such as 30% reduction by 2025 or a 55% reduction by 2030, relative to the baseline year, or
- Calculate a portfolio carbon budget based on the cumulative GHG emissions applicable to a portfolio over a specific timeframe, such as between 2019 to 2025, 2030, or 2050.

Point-in-time emissions reduction

Using data from the net zero scenarios and pathways detailed above, investors can apply an emissions reduction goal for a point in time such as 25% by 2025 and 50% by 2030. If taking this approach, a linear reduction is important to ensure that portfolio emissions remain consistent with the required carbon budget available to that portfolio. This reduces the risk that investors and their holdings backload emissions reductions and overshoot the carbon budget available to them.

Figure 14 illustrates how two portfolios can meet a 2030 emissions reduction goal of 50% reduction relative to the baseline year in the specified target year. Both portfolios converge around 2030, however, portfolio A clearly has greater overall cumulative emissions between 2019 – 2030 whilst portfolio B remains below the net zero reference pathway.

Figure 14: Difference in cumulative emissions produced by two portfolios that meet the same point-in-time decarbonisation target



If portfolio emissions continue to grow or fail to decarbonise at the rate required, investors may have to recalculate targets to ensure that the portfolio continues to contribute its fair share to global emissions reductions. See FAQ 6 below for guidance regarding re-baselining and re-calculating targets.

PAIL recommends that investors review and update targets as necessary at 5-year intervals, in order to adjust targets based on progress achieved, as well as to consider changes to portfolio composition and to ensure consistency with the latest climate science.

Carbon budget approach

Alternatively, investors can establish a portfolio reference target based on a portfolio carbon budget implied by the chosen net zero scenario(s). This requires an investor to calculate the *cumulative emissions* applicable to a portfolio over a specific timeframes, for example from 2019 to 2025, 2030, or 2050. This approach follows that of international climate scientists and national governments who set global and national carbon budgets, respectively.

Accounting for cumulative emissions is more analytically robust approach than the point-in-time reference target as it tracks total emissions over a period of time. The case study below provides a more detailed overview of how an investor can calculate a portfolio carbon budget relative to a custom benchmark that reflects the sector, sub-sector, and regional exposures of a portfolio. Table 3 sets out the advantages and disadvantages of each approach.

5. How should investment in climate solutions be accounted for within the target setting process?

IIGCC aims to accelerate the transition towards the net zero economy. In practice, this requires credible strategies for rapid decarbonisation, as well as a significant ramp-up in investments in climate-related solutions. For instance, the IEA's Roadmap to Net Zero suggests that in the 2020s, investment in clean energy would need to triple from current levels. Similar scale-ups in investment will be required in end-use sectors, and in solutions for reductions in emissions not related to energy systems.

Most sources for pathways today focus on the pathways for the highest emitting sectors where the need to transition is presently greatest. These pathways, where they offer sectoral granularity, recognise that while the economy as a whole will need to reduce its emissions by approximately 50% from a 2019 baseline and reach net zero by 2050, the specific objectives for individual sectors will vary depending on their exposure to demand-side pressures (for instance, increased demand for food) and access to, cost, availability and potential of relevant decarbonisation technologies.

These pathways, as of today, remain poorly adapted to the assessment of many solution providers, specifically. Solution providers including manufacturers of wind turbines, solar panels, electric vehicle components as well as utilities that are rapidly expanding their renewable energy base will have very high current scope 1 and 2 emissions. As part of the transition to net zero, demand for these solutions must necessarily increase, and capex in these areas encouraged. In practice, this means that solution providers – even where they achieve comparable gains in efficiency and carbon intensity – are likely to face net zero-aligned pathways for their overall emissions that will be more flat and in the near term may even increase, compared to the pathways of most other sectors.

The biggest funding gap for these solutions is in emerging markets. Annual clean energy investment in emerging and developing economies needs to increase by more than seven times – from less than USD 150 billion last year to over \$1 trillion by 2030 – to put the world on track to reach net-zero emissions by 2050, according to the IEA. Unless much stronger action is taken, energy-related carbon emissions from these economies – which are mostly in Asia, Africa and Latin America – are set to grow by 5 billion tonnes over the next two decades. These emerging markets solution providers are likely to have particularly high starting carbon footprints, but to reach net zero there needs to be a particular focus on addressing this funding gap.

For funds significantly exposed to solution providers, this can potentially be problematic. Comparing solution providers to more general sectoral pathways that reflect the necessary reduction in emissions across a sector or industry (such as “machinery”) as a whole, rather than the specific pathway for a climate-positive solution, would potentially lead to an unfair comparison and discourage investment in these solution providers. This could create a perverse incentive for investment in such solutions, which would go against the spirit of the PAIL. To address this, IIGCC offers a number of guiding principles. First, IIGCC recognises that each company must make a fair share contribution to decarbonisation and the goal of reducing CO₂ emissions by 50% by 2030, and to net zero by 2050, and therefore recognises that the specific rate of reduction may vary across industries, and can vary more significantly for solution providers where a significant increase in volume is still required. Second, it recognises that despite this, every sector must still decarbonise, and that while solution providers' absolute emissions may fall more slowly, the same improvements in efficiency and carbon intensity must still be achieved.

Where an investor or fund has a significant allocation to solution providers, the onus is on the investor to demonstrate that these principles are achieved. To support such disclosures, a number of additional avenues might be considered. This includes, for instance, the possibility of the use of more granular pathways providing more specific guidance on the pathways for specific solution providers. In addition, an investor might assess solution providers' improvements in carbon intensity to demonstrate that these improvements are adequate to ensure alignment with the necessary economy-wide reduction in emissions by 2030.

Separately, an IIGCC working group is advising on the use of specific metrics related to investments in climate solutions (that might include assessment of green revenue shares, capex expenditures, green patents, and/or avoided emissions, among others). While these metrics do not provide insights as to whether a solution provider's own emissions are falling quickly enough to be net zero aligned, they may provide a clearer basis for the categorisation of companies as representing such solution providers.

6. When can a portfolio's baseline emissions and portfolio reference target be re-calculated?

Depending on the type of portfolio an investor has and the type of target setting methodology applied, an investor can consider the following options for re-calculating a portfolio's baseline emissions and the portfolio reference target. As a key principle, the baseline should always be reflective of the portfolio's composition and this should be the main factor in determining the most appropriate timeframes for an investor's re-calculation policy.

Dynamic: During each reporting period, the original baseline might be re-determined to (a) take into account any improvements in data available; (b) reflect changes in sectoral allocations (when using a sector, industry or sub-industry average to define the baseline). By re-stating the baseline dynamically, always reflecting a sector-specific average in the baseline year, investors can ensure the baseline always reflects the portfolio composition and allows an investor to assess whether the portfolio's holdings have contributed to meaningful decarbonisation compared to industry-specific baselines.

Dynamic re-assessments may be most valuable for actively managed portfolios as opposed to buy and maintain strategies where there are fewer changes to the composition of the portfolio. 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 (i.e. an investment in a company might be made because the newest data shows the company is clearly more Paris-aligned. To explain this in reporting, there is a need to ensure that the baseline is also using the updated, revised data).

Periodic: As data quality (including historical data) will continue to improve, it is likely that baselines will have to be re-calculated to take this into account. Establishing periodic reassessments, either annually, every 2 years, or every 5 years for buy and maintain portfolio would allow data improvements to be accounted for. More regular re-assessments will also suit more dynamic portfolios that see greater turnover of holdings.

Ad-hoc: An alternative approach is to define specific conditions that would "trigger" a re-assessment. This could include setting a threshold for the percentage of new data points received, a change in scientific data underpinning scenarios/pathways used by an investor, or a threshold defining a minimum sectoral shift that must have occurred within the allocation before a re-assessment is triggered.



The Institutional Investors
Group on Climate Change

Pennine Place
2a Charing Cross Road
Charing Cross
London WC2H 0HF

info@iigcc.org

[twitter @iigccnews](https://twitter.com/iigccnews)

www.iigcc.org