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GREEN FINANCE ALLIANCE

I-PEPs: Proposal for a new KPI set to steer the decarbonisation of financial companies

Consultation draft (Version 1.1)

Vienna, 2024

Legal notice

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Version

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1.0	Initial published version of the I-PEPs consultation draft	8 July 2024
1.1	Updated figure 26 in chapter 5.4 “Alternative weighting approach: Integration of portfolio dynamics” to clarify the calculation of financial volumes for the Constant Asset Portfolio (CAP).	14 August 2024

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Abstract

The consultation document presents a new KPI set for financial companies under the term I-PEPs (Indicators for Portfolio-weighted Emission Performances). The main purpose is the portfolio-related measurement of greenhouse gas (GHG) emission performances of the assets financed and invested as well as the associated transition risks. I-PEPs use absolute GHG emissions (for corporate lending/investments) and physical emission intensities (for project finance) and measure their development over time. Asset-specific performances are weighted and aggregated according to their lending volume share in the portfolio. In that, I-PEPs require fewer input factors and are therefore less dependent on influences affecting emission performance (such as EVIC). The reduced need for data collection may also lower staff-related and financial costs. While I-PEPs are aimed at steering the portfolio decarbonisation, GHG accounting for financed emissions shall continue to be reported based on the PCAF Standard. However, financial companies must be aware of the different areas of application and informative value.

1 Background: The Green Finance Alliance at a glance

The Green Finance Alliance (GFA) is an initiative for the financial market by the Austrian Ministry for Climate Action (BMK). It seeks to accompany ambitious Austrian financial companies that voluntarily join the GFA on their way to climate neutrality by introducing binding guidelines and conducting an annual evaluation process. This unique initiative is a prime example of a cooperation between the government and the financial sector in order to take up the fight against the climate crisis.

A member-independent governance structure ensures that both the development of the requirements (criteria) and the evaluation of critera implementation take place exclusively at a technical and scientific-based level. These tasks are in the responsibility of the Coordinating Office located at the Environment Agency Austria, supported by the initiative's Advisory Council.

Banks, pension funds, insurance companies, corporate provision funds and investment fund management companies based in Austria can join the GFA. The most important field of action of the initiative is the core business and thus the lending, investment and insurance-related underwriting business of the financial companies. More than 70 mandatory criteria ensure that members take the necessary steps to achieve the long-term climate neutrality goal.

Detailed information can be found on the BMK website.

1.1 Overview of the list of criteria

The GFA´s list of criteria covers numerous topics that are relevant for the transformation of the core business. These are divided into the following categories:

- **Disclosure requirements:** GFA members are required to publish a climate strategy and engagement strategy as well as annual reports based on those. The thematic content is specified on the basis of criteria and recommendations.

- **Phase-out of fossil fuels:** GFA members are obliged to implement science-based criteria and report on the phase-out of coal, fossil oil and natural gas in accordance with the timetable provided.
- **Methodological requirements:** In order to promote harmonisation of the methodological approaches used, the GFA has specified methods for certain topics. These include specifications for the accounting of financed GHG emissions and the use of key figures and targets that serve to systematically align the portfolio with the Paris Agreement.

1.1.1 Application requirements for metrics and targets

Measure 2.1 of the GFA contains criteria that deal with methodological requirements for the application of metrics and targets. Initially, it was planned that GFA members could choose between the use of PACTA and SBTi. However, the use of PACTA was suspended in autumn 2023 for methodological reasons. Therefore, an alternative is currently being developed so GFA members can still choose between two approaches.

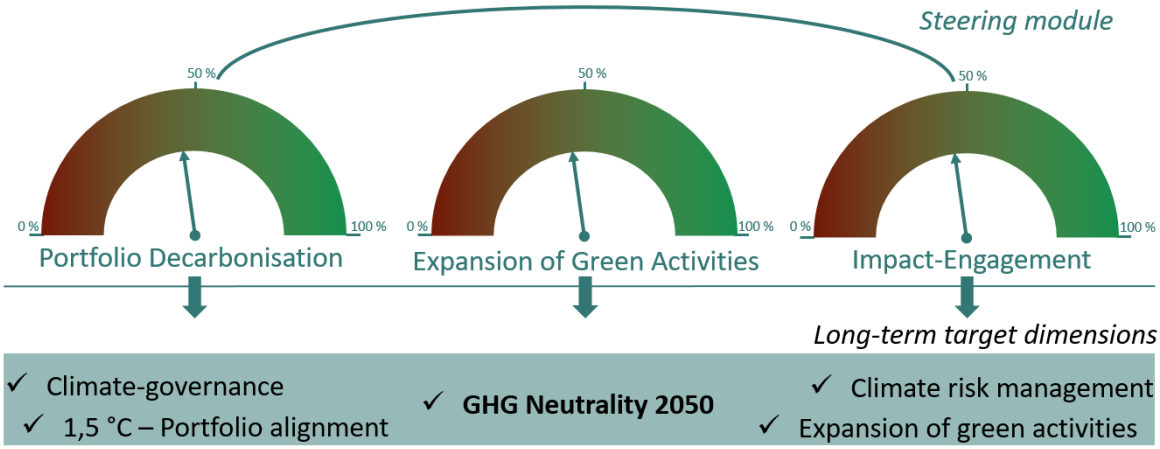
For this reason, the Coordinating Office started to develop a comprehensive Climate Navigation Cockpit. The aim is to provide a modular framework with which GFA members and financial companies can individually measure their climate target alignment.

2 Introduction: Climate Navigation Cockpit

The aim of the public consultation carried out with this document is to obtain feedback on a specific core element of the Climate Navigation Cockpit (CNC). In order to understand the embedding of this key figure in the CNC, the CNC is presented in its basic features below. A more detailed explanation can be found in the annex.

The purpose of the CNC is to provide GFA members with a modular key performance indicator system with which they can manage their path to achieving the long-term climate target dimensions. The scope of application is aimed at the investment/lending portfolio, although elements of the CNC can optionally be used for the insurance business, as well. The CNC is based on three higher-level steering modules, which in turn are divided into sub-modules and steering indicators.

Figure 1: CNC steering modules at a glance



The **Portfolio Decarbonisation** steering module is based on an innovative new KPI set that is the subject of this consultation.

The **Expansion of Green Activities** steering module provides members with the tools to expand their activities in the field of sustainable investment and lending. All metrics are designed in alignment with existing market standards and regulatory classifications.

The **Impact-Engagement** steering module enables GFA members to structure the dialog with their counterparties in order to persuade them to take certain actions. These actions should be measurable so that the effectiveness of the engagement activities can be evaluated and adjustments made if necessary. The GFA bases its key performance indicators on existing international initiatives and market standards.

Additional information

More information on the Expansion of Green Activities and Impact-Engagement steering modules is presented in the annex in chapter 5.3.

3 Portfolio Decarbonisation steering module: Proposal for a new KPI set

The aim of the Portfolio Decarbonisation steering module is to define key performance indicators (KPIs) that reflect the progress of decarbonisation on the one hand and certain transitory climate risks of a portfolio on the other. At the same time, the still limited data situation and the challenges of existing emission-based indicators are taken into account here.

3.1 Measuring portfolio decarbonisation

One aim of the proposed performance indicators is to show the GHG development of financed and invested companies for an investment/lending portfolio. The weighting of the companies or their GHG development within the steering indicator should correspond to the share of the company in the portfolio of the financial company. The underlying logic, namely that the portfolio and its components are at the centre of the assessment, is a common approach to calculating portfolio-specific financial indicators. This perspective should therefore also be used to measure the GHG development of investment and lending portfolios.

3.2 Measuring GHG-related transition risks

The steering indicators should also provide information on climate transition risks that are determined by the development of company-specific GHG emissions.

Portfolio decarbonisation and management of transition risks

The primary purpose of the steering indicator is portfolio decarbonisation and the management of GHG-related transition risks from the perspective of a financial company.

4 I-PEPs: Overview, method and discussion

The following chapter explains the Indicators for Portfolio-weighted Emission Performances (I-PEPs) in detail. It also presents the different application areas and KPIs based on them as well as discusses their significance and limitations.

4.1 Introduction

I-PEPs are a new set of KPIs whose different steering indicators[1] have a common objective: to calculate the GHG performance for a portfolio that reflects the actual composition of the portfolio. Therefore, the weighting mechanism is the same for all I-PEPs. The outstanding volume in the underlying (e.g. the outstanding lending volume to a company) is set in relation to the analysed portfolio volume (e.g. total lending portfolio). Depending on the characteristics of the underlying asset class, I-PEPs use the absolute GHG emissions or the physical emission intensity[2] as the data point for the performance calculation. Regardless of which data point is used, performance is calculated by comparing the development of the data point between two reference dates (reporting year versus previous year).

4.2 Overview of steering indicators

In order to manage the decarbonisation of the investment/lending portfolio in a meaningful way, it is necessary to divide it into homogeneous sub-portfolios. At the first level, the subdivision is made according to asset classes into investments, corporate lending and project finance. These are in turn divided into sub-asset classes and corresponding sector splits. This results in the following disaggregated portfolios:

- Asset class: Investments

[1] Steering indicator and KPIs are used as synonyms in this document.
[2] See chapter 4.3.2 for a definition of physical emission intensity.

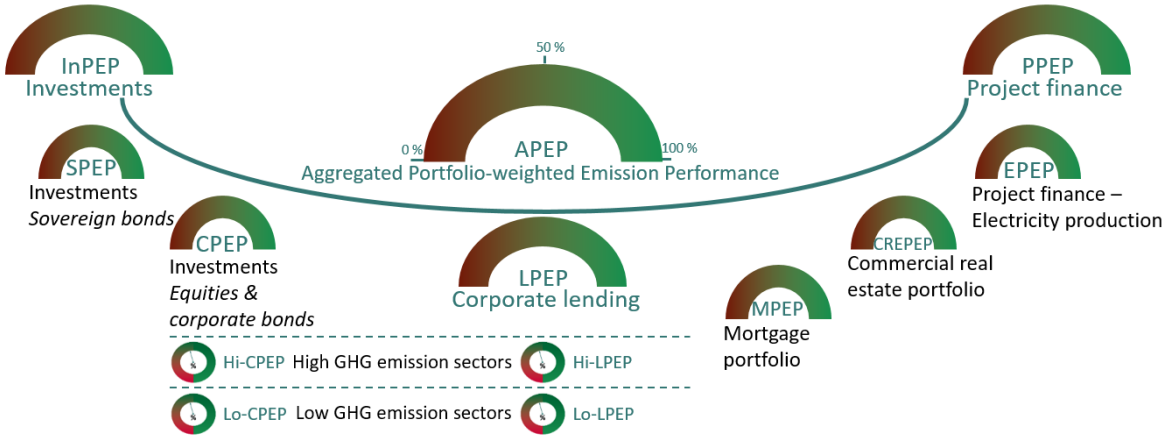
  - Sub-asset class: Equities and corporate bonds
    - Sectoral split: Investments in companies in high GHG emission versus low GHG emission sectors
  - Sub-asset class: Sovereign bonds
- Asset class: Corporate lending
  - Sectoral split: Financing of companies in high GHG emission versus low GHG emission sectors
- Asset class: Project finance
  - Sub-asset class: Mortgages
  - Sub-asset class: Commercial real estate
  - Sub-asset class: Electricity production

Depending on the asset class, different data points are employed to calculate performance. For investments and corporate lending, the absolute GHG emissions[3] of the assets on which the portfolio is based are used as the data point. In this case, the assets can be companies or countries. In the case of project finance, the physical emission intensity of the assets (e.g. a property) is taken into account.

Although it is expected that actual portfolio management will take place at a disaggregated level, KPIs should also be calculated and disclosed at an aggregated level in order to assess the progress across portfolios. KPIs are therefore also provided for the entire analysed portfolio and the three asset classes.

[3] For the delineation/calculation of the relevant GHG emissions (scope 1, 2 and 3), the requirements of the GHG Protocol in combination with those of the PCAF standard should be used.

Figure 2: Overview of I-PEPs



Which KPIs financial companies actually disclose and use for management purposes depends on their individual portfolio: If there are significant[4] portfolio volumes within a sub-portfolio, the corresponding KPIs shall be used for management purposes.

An overview of all KPIs is provided in the annex in chapter 5.1.

4.2.1 Steering indicators for Investments and Corporate lending

The steering indicators for Corporate lending and corporate investments (equities and corporate bonds) are applied both on an aggregated basis and separately (divided into two sectoral sub-portfolios). Investments in sovereign bonds are considered with their own KPI. Even if the KPIs are used at a granular level, they are all based on the same calculation method, which is described below.

Calculation method: I-PEPs based on absolute GHG emissions

The calculation steps shown below apply to all I-PEPs. Absolute GHG emissions are used as a data point for all of them. The calculation for a corporate lending portfolio is shown as an example:

[4] The assessment of materiality is the responsibility of financial companies. Typically, the share of the asset class considered compared to the overall portfolio is used as a basis for decision-making and a threshold for materiality is defined.

In a first step, the company-specific emission performance is determined. For this purpose, the company´s GHG emissions in the reporting year (t+1) are compared to those of the previous year (t).

Figure 3: Calculation of the company-specific emission performance

$$\rho_A = \frac{E_{A,t+1}}{E_{A,t}} - 1$$

E_A ... Absolute GHG emissions from company A

ρ_A... Emission performance of company A

The company-specific emission performance is then included in the aggregated KPI for the financial portfolio according to the company's weighting in the portfolio. As a weighting, the outstanding company-specific lending volume is compared with the total analysed lending volume[5] to determine the relative share of the company in the portfolio.

Figure 4: Calculation of the company weighting in the analysed portfolio

$$\omega_A = \frac{V_A}{V_P}$$

V_A... Outstanding portfolio volume of company A

V_P... Total analysed portfolio volume

ω_A... Weighting of company A in the analysed portfolio volume

To determine the aggregated KPI, the company-specific emission performances are then aggregated according to their weighting.

Figure 5: Calculation of the Indicator for Portfolio-weighted Emission Performance

$$\rho_P = \sum_i (\omega_i * \rho_i)$$

[5] Definition: The analysed volume refers to that part of the portfolio for which the performance indicator is calculated. If the analysed volume does not correspond to the total volume of the respective asset class, the amount and the reasons for the partial analysis must be presented in the climate report.

The derivation of the I-PEP is based on the existing approach of financial market indicators for performance measurement and uses their logic in a simple and meaningful way for GHG emission performance.

Steering indicators: I-PEPs based on absolute GHG emissions

The scope of the I-PEPs, which are based on absolute GHG emissions, ranges from investments in equities, corporate bonds and sovereign bonds to corporate lending. The investment portfolio is sub-divided into sovereign bonds and company-related investment positions (equities and bonds).

Steering indicators: Corporate lending and corporate investments

The common factor beween portfolios consisting of investments in equities and corporate bonds and portfolios consisting of corporate lending is the fact that the emission performance of the underlying companies is decisive for the portfolio performance in both cases. The KPIs for corporate lending (LPEP[6]) and that for investments in equities and corporate bonds (CPEP)[7] reflect the portfolio-weighted emission performance.

One challenge is that the weighting of the portfolio positions is based solely on the portfolio share. The absolute GHG emissions and thus the company-specific influence on global GHG reduction are therefore not taken into account. In order to avoid this limitation, the portfolios are divided into two sub-portfolios based on the sectoral allocation of the companies: one for companies allocated to GHG-intensive sectors and a second sub-portfolio for companies in low GHG sectors. The Coordinating Office of the GFA intends to provide an exhaustive list of all sectors (NACE code-based) that are classified as GHG-intensive. Based on this classification, four sector-based sub-portfolio KPIs are being defined:[8]

- Hi-LPEP: Corporate lending in high GHG emission sectors
- Lo-LPEP: Corporate lending in low GHG emission sectors
- Hi-CPEP: Investments in equities and corporate bonds in high GHG emission sectors
- Lo-CPEP: Investments in equities and corporate bonds in low GHG emission sectors

[6] Lending Portfolio-weighted Emission Performance

[7] Corporate Investment Portfolio-weighted Emission Performance

[8] Hi-LPEP/Hi-CPEP: High GHG emission sectors LPEP/CPEP; Lo-LPEP/Lo-CPEP: Low GHG emission sectors LPEP/CPEP

By dividing it into sub-portfolios, the portfolio share of investments in high GHG emission sectors would be visible and their decarbonisation manageable through their own steering indicators.

Steering indicator: Sovereign bonds

Sovereign bonds are an important asset class, especially for asset owners (such as pension funds and insurance companies), but are less researched from a technical and science-based climate viewpoint in the financial sector. However, approaches were already developed that make it possible to evaluate the climate risks of sovereign bonds[9] and to attribute GHG emissions to financial portfolios. The latter was published as part of PCAF's updated GHG accounting standard in December 2022[10], which defines sovereign emissions, their calculation and limitations (the PCAF Standard provides further detail).[11]

The method used to calculate the emission performance of a sovereign bond portfolio is similar to the one used for corporate portfolios (see above). This means that the relative change in GHG emissions of a country is calculated based on the reporting year in relation to the previous year and is then considered in the steering indicator in accordance with the portfolio weighting. For the determination of a country´s GHG emissions, the PCAF Standard definition shall be applied.

Mathematically, it is possible to calculate the I-PEPs for the entire investment portfolio (equities, corporate bonds and sovereign bonds) and this is also provided for in the InPEP module. If the aggregated key figure is to be used for management purposes, the still partially open discussion on the calculation and quality of country emissions data must be taken into account. In addition, sovereign bonds often play a dominant role in the investment portfolio, which means that a separate consideration for strategic management makes sense. Sovereign bonds are also usually analysed and addressed as a separate asset class as part of the climate strategy from other perspectives (e.g. exposure). This justifies the use of the I-PEPs for sovereign bonds "SPEP" for management purposes.[12]

[9] For example,see ASCOR

[10] PCAF. *"The Global GHG Accounting & Reporting Standard for the Financial Industry/Part A"*. December 2022, carbonaccountingfinancials.com/en/standard

[11] See PCAF standard p. 109 ff.

[12] SPEP: Sovereign bond-related PEP

4.2.2 Steering indicators: Project finance

The emission performance of project portfolios is determined less by the (often very static) individual project emission performance and more by the changing portfolio composition. In contrast, I-PEPs for investments and corporate lending are based on the GHG emission dynamics of the portfolio positions. A separate consideration of project finance based on a customised calculation method is therefore necessary. This is explained in more detail in the following section and is used for real estate portfolios and project finance in the electricity production sector. Another difference is that the use of an alternative data point to the absolute GHG emissions used for investments and corporate lending makes sense for the emission performance calculation. Sector-specific, physical emission intensity indicators can be used here as a data point and basis for calculating emission performance. For the property sector, for example, "$kgCO_2e/m^2$"[13] is used as a data point, a standard market approach that also makes sense for other reasons such as data availability.

Finally, it should be noted that the methodology can be scaled up further by using it for other sector-specific project portfolios (e.g. steel or cement). This would allow corporate lending and investments with known use of proceeds in these sectors to be navigated individually.

Calculation method: I-PEPs based on physical emission intensities

The following calculation steps apply to all I-PEPs that use physical emission intensities as a data point. As an example, the steps are shown below for a mortgage portfolio.

For the calculation of the steering indicator, the entire mortgage portfolio is considered in its entirety (similar to an enterprise), and the portfolio-weighted emission intensity for the portfolio is calculated for a reference date. The weighting of the properties results from the outstanding lending volume for the property in relation to the analysed mortgage portfolio.

[13] Note: Often, the energy intensity (MWh/m^2) is used as a supplementary or alternative indicator for the emission intensity. In principle, the KPIs presented here can also be calculated based on energy intensity.

Figure 6: Calculation of the property weighting in the analysed mortgage portfolio

$$\omega_A = \frac{V_A}{V_{P_M}}$$

V_A... Outstanding mortgage volume in real estate A
V_{P_M}... Total analysed mortgage lending volume
ω_A... Weighting of real estate A in the analysed mortgage portfolio

The weighting is multiplied by the property-specific emission intensity and the same process is replicated for all other individual properties to obtain an aggregated weighted emission intensity for the reporting date.

Figure 7: Calculation of the portfolio-weighted emission intensity at t

$$EI_{P_M}(t) = \sum_i (\omega_i(t) * EI_i(t))$$

$EI_{P_M}(t)$... Weighted emission intensity of real estate portfolio
$EI_i(t)$... Emission intensity of real estate i

The emission intensity performance of the mortgage portfolio is calculated by comparing the aggregated, weighted emission intensity between the reporting year and the previous year. It reflects the exact lending volume share of each property within the portfolio.

Figure 8: Calculation of the Mortgage Portfolio-weighted Emission Intensity Performance (MPEP)

$$\rho\,(EI_{P_M}) = \frac{EI_{P_M}(t+1)}{EI_{P_M}(t)} - 1$$

Steering indicators: Real estate financing

Real estate portfolios are usually[14] divided into mortgages and commercial real estate. Among other things, this division makes sense due to the different counterparties and characteristics of the financed real estate properties. This distinction will also be made here, according to the segregation definitions of the PCAF Standard. The two sub-portfolios will be managed by the following steering indicators:[15]

- CREPEP: Steering indicator for the commercial real estate portfolio
- MPEP: Steering indicator for the mortgage portfolio

The dynamics of both KPIs are primarily due to the change in the portfolio composition between the reporting year and the previous year. This change is triggered by repayments of existing property loans and new property lending. Refurbishments that lead to an improvement in the property-specific emission intensity ratio also result in an improvement in the MPEP/CREPEP. Financial companies that use these I-PEPs to manage their real estate portfolios therefore have an incentive to pay attention to the emission intensity of new lending and to offer additional financing for refurbishments.

Steering indicator: Project finance – Electricity production

Project finance relates to lending activities where the use of proceeds is known and serves a certain project purpose. The construction and operation for electricity production can be such a project purpose. As the decarbonisation of electricity production is one of the cornerstones for achieving the climate targets, it should also be navigated in the CNC with its own KPI, the EPEP[16]. The physical emission intensity (gCO_2e/kWh) of electricity production, which is an established indicator for this sector and is already used as a useful indicator for the decarbonisation of the electricity mix, serves as a data point.

4.2.3 Steering indicators: At asset class level

In order to obtain visibility on asset class-specific progress, KPIs are provided at an aggregated level for investments, corporate lending and project finance. While the calculation

[14] For example, see the PCAF standard or the SBTi standard.

[15] MPEP: Mortgage-related Portfolio-weighted Emission Intensity Performance; CREPEP: Commercial Real Estate-related Portfolio-weighted Emission Intensity Performance

[16] EPEP: Electricity Production-related Portfolio-weighted Emission Intensity Performance

method for corporate lending has already been described in the chapter “Steering indicators: Corporate lending and corporate investments”, a bottom-up approach is required for the asset classes of investments and project finance. The calculation divergence is due to the difference in granularity levels: While I-PEPs are calculated at sub-asset class level for investments and project finance (e.g. for mortgages, commercial real estate and electricity production) and can therefore only be aggregated afterwards, this is not the case for corporate lending. The calculation method for aggregated I-PEPs for investments and project finance is therefore presented below.

Calculation method: I-PEPs at aggregated asset class level

The calculation method is based on that used by I-PEPs at a disaggregated level and is illustrated below using the project finance portfolio as an example.

In a first step, the relative weights of the three sub-asset classes (Mortgages, Commercial real estate and Project finance - Electricity production) are calculated based on the outstanding lending volumes in relation to the outstanding, analysed project finance volume.

Figure 9: Calculation of the weights of the sub-asset classes (Mortgages, Commercial real estate and Project finance - Electricity production)

$$\omega_A = \frac{V_A}{V_{P_P}}$$

V_A... Outstanding project finance volume in sub-asset class A
V_{P_P}... Total analysed project finance volume
ω_A... Weighting of sub-asset class A in the project finance portfolio

Subsequently, the I-PEPs already calculated on sub-asset class level for Mortgages (MPEP), Commercial real estate (CREPEP) and Project finance - Electricity production (EPEP) are aggregated according to their weightings.

Figure 10: Calculation of Project finance-related Portfolio-weighted Emission Intensity Performance (PPEP)

$$\rho\ (EI_{P_P}) = \sum_i (\omega_i * \rho\ (EI_{P_i}))$$

$\rho\ (EI_{P_i})$... Emission intensity performance of sub-asset class i

This calculation method can be used to determine the following KPIs:[17]

- InPEP: Steering indicator for the investment portfolio
- PPEP: Steering indicator for the project finance portfolio

4.2.4 Steering indicator: Aggregated portfolio level

For the progress of the entire financial company, the I-PEPs of the three asset classes can be aggregated using a bottom-up calculation. However, this measure will serve less for the specific steering of the company, but, similarly to those metrics at the level of the asset classes, for visibility and for communication purposes.

Calculation method: I-PEPs at aggregated portfolio level

In order to calculate I-PEPs at aggregated portfolio level, the weightings of the three asset classes must first be determined according to their outstanding volume in relation to the total analysed, aggregated portfolio volume.

Figure 11: Calculation of the weightings of the asset classes (investments, corporate lending, project finance)

$$\omega_A = \frac{V_A}{V_P}$$

V_A → Outstanding volume in asset class A

V_P → Total analysed portfolio volume

The calculated weightings are then used to aggregate the asset class-specific I-PEPs already determined and to obtain the Aggregated Portfolio-weighted Emission Performance, APEP[18].

[17] InPEP: Investment Portfolio-weighted Emission Performance; PPEP: Project finance-related Portfolio-weighted Emission Intensity Performance

[18] APEP: Aggregated Portfolio-weighted Emission Performance

Figure 12: Calculation of the Aggregated Portfolio-weighted Emission Performance (APEP)

$$\rho_P = \sum_i (\omega_i * \rho_i)$$ ρ_i... Emission performance of asset class i

4.3 Interpretation and significance of I-PEPs compared to PCAF-based GHG accounting metrics

As mentioned at the beginning, I-PEPs measure the decarbonisation progress (i.e. performance) of a financial company and at the same time offer an indicator for the emission-related transition risks of a portfolio. The underlying calculation logic of I-PEPs – the calculation of individual, relative changes at individual asset level and their subsequent portfolio-weighted aggregation at portfolio level – is an established approach on the financial market for measuring performance and risks (for example in the calculation of ESG/climate scores). However, the exclusive focus on measuring the change in climate performance limits the informative value with regard to other aspects, which are discussed in more detail below.

GHG accounting for Scope 3 Category 15 emissions: PCAF Standard

Emission-based metrics are largely based on a standard developed by the Partnership for Carbon Accounting Financials (PCAF). The original objective was to develop a transparent, harmonised methodology for measuring and disclosing "financed" GHG emissions from investments and loans in accordance with the GHG Protocol (Scope 3, Category 15). The basic idea of the PCAF Standard is to assign real economy GHG emissions (e.g. from companies) to a portfolio according to an attribution factor. The aim is to quantify the responsibility of financial companies with regard to real-economy emissions. Based on the PCAF calculation methodology, different metrics can be determined. These include absolute, financed emissions and emission intensities.

I-PEPs use either absolute GHG emissions or physical emission intensities as a data point. For that reason, the following chapters compare the I-PEPs with the PCAF-based metrics "absolute, financed emissions" and "physical emission intensities".

4.3.1 Methodological comparison with the metric “absolute, financed emissions”

The best-known metric in the area of GHG accounting for Scope 3 Category 15 emissions of financial companies is the calculation of absolute, financed emissions based on the PCAF Standard (Part A). PCAF has currently defined seven asset classes whose attribution logic follows a common pattern: The outstanding financial portfolio volume (e.g. lending volume) in the asset is set in relation to its asset value. For the asset classes equities and corporate bonds as well as corporate lending (listed), the enterprise value including cash (EVIC) is used as the asset value. For mortgages and commercial real estate, on the other hand, the property value at the time the loan was originated is considered. The development of the PCAF metrics between the years is therefore also significantly characterised by the dynamics of this attribution factor. As I-PEPs are not weighted via the attribution of financed emissions, the results between I-PEPs and the development of absolute, financed emissions can differ significantly.

Sample calculation: Comparison of I-PEPs versus PCAF-based financed emissions.

An exemplary lending portfolio simulation in the annex in chapter 5.2 compares the results between LPEP and the performance measurement related to PCAF-based financed emissions.

4.3.2 Methodological comparison with physical emission intensity metrics

Physical emission intensity metrics are usually used at sector level. The GHG emissions of the underlying asset are compared with a sector-specific unit (for example, the physical activity or output of the company). They enable a sector-related statement on GHG emission efficiency, but require additional data points. The PCAF Standard is usually used as the basis for calculation. The financed emissions for the asset are calculated on the basis of the attribution logic (see chapter 4.3.1) and then set in relation to the allocated quantity of the company´s specific unit.

I-PEPs can also be used at sector level on the basis of physical emission intensities through a simple mutation of the calculation logic. Within the CNC, this is intended for project finance in the real estate sector and in electricity production (see chapter 4.2.2). However, it

can also be applied according to the same principle for all sectors for which the use of physical emission intensity indicators makes sense. It should be emphasised that the results of the PCAF Standard and the emission-intensity-based I-PEPs differ. The divergence can be attributed to the difference in the weighting mechanism, which has already been roughly described in chapter 4.3.1.

Sample calculation: Comparison of I-PEP versus development of physical emission intensities (PCAF-based)

A comparison between the results of the physical emission intensity based on PCAF versus I-PEPs is presented in the annex in chapter 5.2 using a sample calculation for commercial real estate.

4.3.3 Discussion

GHG metrics based on the PCAF Standard[19] attribute the GHG emissions of the underlying portfolio components to the financial portfolio. This attribution logic is used to calculate metrics such as financed emissions and physical emission intensities. The allocation is based on an attribution logic that reflects the responsibility of the financial company for the GHG emissions generated.

This metric is certainly justified in the context of GHG accounting, for example to identify GHG hot spots as at the reporting date and initiate appropriate engagement measures. It remains to be seen to what extent it is suitable as a metric across reporting dates without taking extensive corrective measures. These concerns relate to influencing factors that determine the denominator of the attribution factor and therefore have a significant effect on the financed emissions. As these influencing factors change over time, their changes, in addition to the actual GHG emission development of the financed/invested company, also have an influence on the financed emissions of the financial company. A statement on the development of the GHG emissions of the portfolio under review in a specific period is therefore only possible to a limited extent with this metric.

[19] PCAF. *"The Global GHG Accounting & Reporting Standard for the Financial Industry/Part A"*. December 2022, carbonaccountingfinancials.com/en/standard

I-PEPs, on the other hand, have no additional claim to be used as reporting date-related accounting metrics, apart from their intended purpose of reflecting the decarbonisation progress and certain climate-related transition risks of a portfolio (see chapter 3). Furthermore, they do not aim to quantify the responsibility of financial companies for the resulting GHG emissions.

Effects of using EVIC (PCAF) versus avoiding it (I-PEPs)

For equities and corporate bonds, for example, the attribution calculation is based on the enterprise value including cash (EVIC). The EVIC is an established financial metric. However, its value can fluctuate significantly due to different influencing factors (such as share price), which in turn affects the attribution factor.[20] While these fluctuations may be neglected for reporting date-related considerations and statements in the context of GHG accounting, this is a major problem in the context of historical considerations and following statements on climate-related portfolio development. In the case of I-PEPs, the challenge of an attribution logic of absolute GHG emissions is avoided by using the relative evolution of GHG emissions (i.e. emission performance) of companies. This is then weighted according to the relative portfolio share of the investment/lending volume of the company in the portfolio. The use of EVIC is therefore not required.

Conclusion

The use of the PCAF Standard for the GHG accounting of financial companies is aimed at making reporting date-related statements regarding the responsibility of a financial company for the GHG emissions caused in the real economy. However, these metrics can only be used to a limited extent to manage portfolio decarbonisation. The reason for this is that these GHG accounting metrics are subject to external influencing factors, which make it difficult to make robust statements on developments over time without major adjustments. I-PEPs are subject to significantly fewer external influences. Therefore, they are proposed as a complementary indicator for decarbonisation management in addition to the PCAF-based GHG accounting metrics.

[20] See the discussion in the PCAF standard (p. 61)

4.4 Challenges and limitations of I-PEPs

I-PEPs are indicators that use absolute GHG emissions or physical emission intensities of financed/invested underlying assets as a data point for calculating emission performance. Similar to other emission-based metrics in the financial sector, such as financed GHG emissions and emission intensity metrics, there are limitations and challenges associated with the use of underlying GHG emission data.

4.4.1 Challenges and limitations due to the use of GHG emission data

Decarbonisation targets of financial companies are usually based on climate scenarios that represent forecasts for the development of GHG emissions. Financial companies try to define their targets on the basis of these GHG development curves.

Limited emission data availability and data quality-related emission volatility

Even though the number of companies disclosing their GHG emissions data is steadily increasing, financial companies are faced with the challenge of dealing with this changing data quality, which leads to unwanted volatility in their own GHG reporting. Due to the EU disclosure requirements as part of the Corporate Sustainability Reporting Directive (CSRD)[21], it can be assumed that the data situation will improve steadily over the next few years, at least in Europe. This should significantly improve the informative value of emission-based metrics such as I-PEPs in the near future. However, dealing with the SME sector and certain regions outside the EU remains a challenge for the time being.

GFA assessment: Due to the expected improvement in emission data availability and quality, these limitations will be partially resolved in the near future.

Limited availability of sectoral, physical data points

A common practice in the financial sector is the use of metrics based on physical emission intensities. These metrics use sector-specific data points (such as production volume in the manufacturing industry or floor area in the property sector) to calculate emission intensity.

[21] EU. *„Directive (EU) 2022/2464 amending Regulation (EU) No 537/2014, 2004/109/EC, 2006/43/EG and 2013/34/EU as regards corporate sustainability reporting“*. 14.December 2023, eur-lex.europa.eu/legal-content/DE/TXT/PDF/?uri=CELEX:32022L2464

This additional data point means additional financial and staff-related resources in the financial companies in order to obtain the corresponding company-specific information. Data quality (e.g. estimates versus reported data) must also be considered in terms of its robustness. I-PEPs only provide physical emission intensities as a data point for the project finance asset class (property sector and electricity production). Therefore, the aforementioned limitations also apply to the I-PEPs to a limited extent.

GFA assessment: I-PEPs use physical emission intensities for project finance in the real estate sector as well as in electricity production, which limits the challenge of the associated data point determination to these areas.

Challenges in dealing with corporate actions

Corporate actions, such as mergers or acquisitions, can have a significant impact on companies´ reported GHG emissions. The challenge for financial companies is how to deal with these sudden changes in GHG emissions in order to avoid incorrect conclusions. The calculated company-specific emission performance of I-PEPs can also be distorted due to a corporate action that took place in the reporting year.

Recalculation for the base year in accordance with the GHG Protocol

The GHG Protocol requires companies to define a recalculation rule that specifies when the company must recalculate its GHG emissions for the base year[22]. Possible triggers for such a recalculation include structural changes to the organisation that would have a significant impact on the company´s emissions in the base year, such as corporate actions. The recalculation should take the changes into account retroactively in the base year in order to ensure the consistency of the reported GHG emissions.[23]

This results in two possible solutions for the calculation of the I-PEPs:

- Base year corresponds to previous year[24]: The company complies with the obligation of the GHG Protocol and carries out a retroactive recalculation. In this case, the

[22] Refers to the year that the company uses as the reference year for its own performance calculation.
[23] GHG Protocol. *"A Corporate Accounting and Reporting Standard"*. March 2004, ghgprotocol.org/corporate-standard
[24] Assumption: The company complies with the obligation of the GHG Protocol and carries out a retroactive recalculation.

corporate action is retroactively taken into account in the GHG emission calculation of the previous year and therefore the company-specific emission performance can be calculated.

- Base year does not correspond to the previous year: The financial company must provide an alternative solution for taking the corporate action into account in the previous year. If this is not possible, the financial company shall not take the company into account once in the calculation of the KPI and disclose its temporary exclusion in the climate report.

GFA assessment: As with all emission-based metrics, I-PEPs also have the challenge of dealing with corporate actions. For those cases in which the companies concerned do not independently take the corporate action into account in the disclosed GHG emissions of the previous year, financial companies have two options: Either a separate adjustment must be made for the corporate action effect or, if this is not possible, the calculation of the company´s emission performance must be suspended once and its temporary exclusion disclosed.

Incentive to optimise metrics through divestments and avoidance of GHG-intensive sectors/companies

One of the main criticisms of emission-based metrics is that financial companies have an incentive to avoid certain GHG-intensive sectors and companies in order to achieve decarbonisation targets. In the case of liquid assets, there is an additional incentive to achieve the decarbonisation targets by divesting from such companies. Yet, global climate targets can only be achieved by providing financial support to GHG-intensive companies willing to transition, which creates the need to resolve this challenge. By relying on relative emission performance, I-PEPs avoid this problem, as there is no deterioration in the metric due to investments/financing in GHG-intensive companies. The only decisive factor is the company-specific emission performance. Hence, I-PEPs capture the readiness to transition and not the GHG intensity of companies. The evaluation of transition readiness is also an important aspect from a climate risk perspective, as GHG-intensive companies also entail an increased transition risk, which is made visible through the evaluation of their transition readiness.

GFA assessment: In contrast to most emission-based metrics, there is no incentive to avoid GHG-intensive sectors/companies per se when using I-PEPs but only those that are unwilling to transition.

4.4.2 Further challenges and limitations

In the following, further aspects that are common challenges for decarbonisation metrics are discussed in the context of I-PEPs.

Analysis of the portfolio as at the reporting date

I-PEPs consider the portfolio composition on the balance sheet at a specific point in time as the basis for their calculation. They use the relative, volume-weighted share of the underlying reference values (e.g. companies) to aggregate the reference value-specific emission performance. This reporting date approach is a standard financial market method for determining metrics and is used in the PCAF Standard for calculating financed emissions. Although this approach simplifies the traceability and calculation of KPIs, it does not take into account portfolio dynamics or market price fluctuations:

- **Portfolio position changes:** Changes in the portfolio holdings (inflows and outflows) can lead to significant changes in the portfolio composition both between balance sheet dates and during the year.
- **Market price volatility:** In the investment portfolio in particular, market prices are constantly changing, which in turn influence the valuation of the portfolio positions. This means that even if no inflows/outflows have taken place, market price volatility can lead to changes in the portfolio weightings.

A further challenge faced by such metrics is the incentive for financial companies to artificially optimise metrics by selling underperforming portfolio positions before the reporting date. However, this risk mainly exists for liquid assets that are not subject to certain trading restrictions (hold-to-maturity obligations).

It may be noted that all limitations present profound arguments, yet, these do not relate solely to the specific methodology of I-PEPs. Solutions to segregate and adjust these effects as well as to mitigate the risk of false incentives already exist on the financial market. Generally, these corrections increase the complexity of the calculation and therefore a balance must be struck between the added value and the additional expense. A profound added value is to be expected for equities and corporate bonds. A proposed solution for this limitation has been developed as part of the I-PEPs methodology, which is presented in the annex in chapter 5.4 and provides an alternative weighting approach ("I-PEPs $_{dynamic}$").

GFA assessment: I-PEPs, like all reporting date-related metrics, are subject to the limiting effect of market price volatility and changes in the portfolio composition during the year. Although these influences can be segregated mathematically, the meaningfulness (additional expense versus added value) of their implementation must considered. A method developed as part of the GFA to isolate these effects is presented in the annex (chapter 5.4).

4.5 Portfolio steering signals derived from I-PEPs

The use of I-PEPs and their target path results in steering signals for allocation decisions that affect both existing and new portfolio positions. At the same time, the use of I-PEPs implies that steering signals disappear that usually exist because of the use of emission-based metrics.

4.5.1 No incentive to avoid GHG-intensive sectors and companies

As the absolute level of GHG emissions of financed/invested companies has no influence on I-PEPs, financial companies are no longer incentivised to avoid them. This effect is intentional as the necessary reduction in real GHG emissions is better achieved through active transition support for these companies/sectors than through divestment.

4.5.2 Incentive to evaluate the transition readiness of companies

The emission performance of the investees/borrowers is the sole input parameter for I-PEPS. Hence, financial companies must take a detailed look at companies´ transition readiness and planning. If there are no credible and solid plans, these new portfolio positions will have a negative impact on the financial companies' overall performance.

Evaluation of transition readiness in the investment portfolio

The performance-oriented approach of I-PEPs is an established approach for financial companies, as the forward-looking financial performance of companies must be analysed when making investment decisions. Through already existing due diligence processes, the future-oriented performance and its transition features may be evaluated. Similar processes are conducted on an annual basis for existing positions in the investment portfolio.

Evaluation of transition readiness in the lending portfolio

When deciding on new lending, financial companies consider, among other things, the credit risk of borrowers. A lack of willingness to transition can entail considerable transition risks (with possible consequences for creditworthiness). Their consideration is important both for the management of I-PEPs and for the management of climate risks and should therefore be integrated into the existing credit assessment processes. Financial companies also regularly evaluate the risk of existing lending positions. Even if, in contrast to liquid investment positions, the scope for action is more limited, there are established processes within financial companies for dealing with a change in the risk profile of financed companies. I-PEPs should also be integrated into this process by evaluating the transition readiness and progress.

4.5.3 Lack of direct consideration of past GHG reduction achievements

One topic that is still a subject of much discussion internationally is how to deal with companies that have been significantly reducing their GHG emissions for years and have already implemented a comprehensive climate strategy (pioneers) and those that are only at the beginning of their decarbonisation pathway (laggards). While some approaches take historical decarbonisation performance into account and integrate this either through the use of certain metrics or by adjusting the target path, there are others that do not. There are plausible arguments and counter-arguments for both approaches, which are discussed in numerous publications. However, since in our opinion the arguments for taking historical performance into account are based on numerous assumptions and make the derivation of a target trajectory significantly more complicated and less transparent, we see greater added value in not taking historical decarbonisation performance into account. Arguments in favour of this decision are:

Decarbonisation expectations for pioneers

Pioneers who have already had a climate neutrality target for years and are decarbonising accordingly must remain on this path. This also requires corresponding ambitions in the future. Since I-PEPs look at relative emission performance, the disaggregated, implicit absolute reduction expectations for pioneers are accordingly lower due to their reduced GHG emission base.

Decarbonisation expectations for laggards

Laggards, who have a significantly higher GHG emission level and have only recently started their transition, are "only" expected to make the same percentage of progress as pioneers. In the first few years, such companies often have simple and very effective measures at their disposal to reduce GHG emissions ("low-hanging fruits"), which have already been exploited by pioneers in the past. Nevertheless, it can be argued that at least the same efforts are required of laggards, as they have to set up/reorganise internal processes at the beginning of their transition, train employees and integrate climate targets into their corporate strategy. Until this process, which usually takes several years, is actually implemented, they can utilise low-hanging fruits to achieve progress in relative emission performance.

Average emission performance for broadly diversified portfolios

By using I-PEPs, financial companies must **on average** meet the GHG emission reductions according to the target pathway. However, this does not mean that all financed/invested companies in the portfolio contribute the same emission performance. Financial companies can therefore very much reflect the historical decarbonisation performance in the expectations of the company on an individual basis (if desired) as long as the average emission performance targets are met. This approach is particularly suitable for broadly diversified portfolios that reflect the whole market.

4.5.4 Treatment of corporate growth

The I-PEPs that use absolute GHG emissions as an input parameter only take into account the emission development of the financed/invested companies.[25] The extent to which the emission trend is caused by company growth is not considered in these I-PEPs. When deriving the target pathway for these I-PEPs, a simplified assumption is made that the sectoral market share of the financed/invested companies remains constant over time ("constant market share approach"), which means that the climate scenario-based sector pathway can be used as the basis for the I-PEPs target pathway without adjustments for changes in market share. This assumption harbours the risk that successful companies that were able to increase their market share in the period under consideration will be "punished" for their

[25] This applies to LPEP, CPEP and the respective sectoral sub-indicators.

success in respect to their emission performance. If financial companies want to take market share dynamics into account when using I-PEPs, there are two options:

Alternative use of sectoral, physical emission intensities

Instead of using absolute GHG emissions to determine the emission performance, financial companies can use physical emission intensities for LPEP and CPEP. However, this requires the portfolios consisting of corporate lending and corporate investments to be divided into sector portfolios. Furthermore, it is necessary to define and collect sector-specific input parameters to calculate the physical emission intensity. The calculation of the emission performance of such modified I-PEPs could be done using the steps described in chapter 4.2.1 (with the modification of using physical emission intensities instead of absolute GHG emissions as an input parameter). Financial companies need to weigh the added value from such adjustments and the additional resources needed.

Considering changes of the sectoral market share in the target path

If financial companies want to integrate changes in market shares, they can adjust the target pathway: This would primarily affect the Hi-CPEP and Hi-LPEP as these relate to GHG-intensive sectors. The target pathways for the two KPIs are currently based on a portfolio-weighted aggregation of the sectoral decarbonisation pathways within climate scenarios and assumes constant market shares. An adjustment of the decarbonisation path for a rising market share would result in a flatter decarbonisation curve, whereas a falling market share would result in a steeper one.

However, the following aspects should be taken into consideration when making such an adjustment:

- A change in market share is only taken into account in the target path if the aggregated market share of the invested/financed sector companies changes. While this may be reasonable for portfolios consisting of a few individual positions, it is questionable for a broader and more diversified sector portfolio.

- Even though it may be reasonable to make such corrections ex-ante when determining the target path, they can only be taken into account ex-post, as it is not possible to make reliable statements about market shares in advance.[26]

Both proposed solutions for the consideration of company growth are aimed exclusively at growth that leads to an increase in market share. A general growth in sectoral production that exceeds that in the climate scenario shall not and will not be taken into account.

4.6 Definition of I-PEPs-based target pathways

As is commonly done for emission-based decarbonisation metrics, target paths shall also be defined on the basis of climate scenarios when using I-PEPs. Since the GFA criteria 1.1.5 and 2.1.5 stipulate that climate scenario-based targets must correspond to a 1.5 °C scenario with no or low overshoot, this requirement must be applied when deriving I-PEPs-based target pathways. When deriving target pathways for I-PEPs, financial companies can build on already established processes in the market. However, in contrast to other market approaches, the global GHG budget is not broken down to the financial company level (I-PEPs do not allocate emissions to financial companies!). Instead, the climate scenario-based pathway is directly employed as the basis for the target pathway.

The derivation of a target pathway is usually divided into the following steps:

1. Analysis of the current and forecasted portfolio structure from different, scenario-relevant perspectives:
   - What is the current and expected regional mix of my portfolio?
   - What is the current and expected sectoral mix of my portfolio?
   - Are there any other important topics that should be considered for the target pathway?
2. Selection of a climate scenario: Determination of a 1.5 °C scenario that makes sense for the underlying portfolio, for example:
   - When using APEP: Climate scenarios with regional pathways (e.g. for OECD countries) in accordance with the portfolio priorities

[26] Just because companies expect an increase in their market share (ex-ante) does not mean that this will actually occur (ex-post).

- When using CREPEP/MPEP: Customised climate scenarios for the real estate sector
- When using Hi-LPEP/Hi-CPEP: Climate scenarios with sufficiently granular sector pathways

3. Determination of a scenario-based metric: Definition of the climate scenario-based metric underlying the portfolio target pathway:
   - For I-PEPs based on absolute GHG emissions: Relative rate of change of GHG emissions according to climate scenario
   - For I-PEPs based on physical emission intensities: Development of the relative rate of change of the sector-related, physical emission intensity according to the climate scenario
4. Modelling of the climate target pathway: Deriving a portfolio-specific decarbonisation pathway. Consideration of the current and expected portfolio structure with regard to
   - regional portfolio composition
   - sectoral portfolio composition

   Replication of the portfolio structure in the target pathway by using and weighting the corresponding decarbonisation curves of the climate scenario.

5 Annex

5.1 Overview of steering indicators (I-PEPs)

The following table provides an overview of the presented Indicators for Portfolio-weighted Emission Performances, or I-PEPs. Which steering indicators financial companies actually disclose and use for management purposes depends on their individual portfolio: If there are material[27] portfolio volumes within a (sub-) asset class of one of the I-PEPs, the corresponding KPI shall be used for management purposes.

Table 1: Overview of the Indicators for Portfolio-weighted Emission Performances (I-PEPs) based on absolute GHG emissions

Abbr.	I-PEPs	(Sub-)asset class
APEP	Aggregated Portfolio-weighted Emission Performance	Entire, analysed portfolio
LPEP	Lending Portfolio-weighted Emission Performance	Corporate lending
Hi-LPEP	High GHG Emission Sector-related Portfolio-weighted Emission Performance	Corporate lending (high GHG emission sectors)
Lo-LPEP	Low GHG Emission Sector-related Portfolio-weighted Emission Performance	Corporate lending (low GHG emission sectors)
InPEP	Investment Portfolio-weighted Emission Performance	Investments
CPEP	Corporate-related Investment Portfolio-weighted Emission Performance	Investments (equities and corporate bonds)
Hi-CPEP	High GHG Emission Sectors Corporate-related Investment Portfolio-weighted Emission Performance	Equities and corporate bonds (high GHG emission sectors)
Lo-CPEP	Low GHG Emission Sectors Corporate-related Investment Portfolio-weighted Emission Performance	Equities and corporate bonds (low GHG emission sectors)

[27] The evaluation of materiality is the responsibility of the financial companies. Usually, the share of the asset class under consideration in relation to the overall portfolio size is used as a basis for decision-making and a percentage limit for materiality is defined.

Abbr.	I-PEPs	(Sub-)asset class
SPEP	Sovereign Bond-related Portfolio-weighted Emission Performance	Sovereign bonds

Table 2: Overview of Indicators for Portfolio-weighted Emission Performances (I-PEPs) based on physical emission intensities

Abbr.	I-PEPs	(Sub-)asset class
PPEP	Project Finance-related Portfolio-weighted Emission Intensity Performance	Project finance
CREPEP	Commercial Real Estate-related Portfolio-weighted Emission Intensity Performance	Commercial real estate
MPEP	Mortgage-related Portfolio-weighted Emission Intensity Performance	Mortgages
EPEP	Electricity Production-related Portfolio-weighted Emission Intensity Performance	Project finance-Electricity production

5.2 Sample portfolio simulations: Calculation of the emission performance based on I-PEPs versus PCAF-based indicators

In the following sample calculations, the emission performance based on the I-PEPs methodology is compared to the PCAF Standard using exemplary portfolios. It should be emphasised that the PCAF Standard is primarily a method for GHG accounting of Scope 3 Category 15 emissions, yet it is also used by financial companies as an emission performance metric, which makes the comparison to the I-PEPs methodology meaningful.

5.2.1 Corporate lending and corporate investments

For the asset classes of corporate lending and corporate investments, I-PEPs use absolute emissions of the invested/financed companies as the input parameter for the performance

calculation.[28] As a benchmark for the sample calculation, the financed emissions are determined on the basis of the PCAF Standard. The PCAF Standard[29] specifies the formula shown in Figure 13 for calculating financed emissions for portfolios consisting of listed companies (shares, bonds, loans).

Figure 13: Calculation of financed emissions according to the PCAF Standard for portfolios consisting of listed companies

$$Financed\ emissions = \sum_c \frac{Outstanding\ amount_C}{EVIC_c} \times Company\ emissions_c$$

"c" refers to the financed/invested company.

Sample calculation: key data and results

For the sample calculation, the asset class of corporate lending is considered. However, the conclusions are also valid for corporate investments (shares and bonds). The following metrics are compared:

- Lending Portfolio-weighted Emission Performance (LPEP)
- Performance of PCAF-based financed emissions (PCAF approach)

For the analysis, a simplified lending portfolio consisting of two listed companies whose outstanding lending volume is identical and remains constant between the previous year (t) and the reporting year (t+1) is compared. In order to consider the effects of production volumes (and thus indirectly the emission intensity), it is assumed that both companies are electricity producers.

[28] For more information on KPIs and the calculation method, see chapter 4.2.1

[29] PCAF. "*The Global GHG Accounting & Reporting Standard for the Financial Industry/Part A"*. December 2022, carbonaccountingfinancials.com/en/standard

Table 3: Sample calculation – lending portfolio data

	Lending volume Previous year (t)	Lending volume Reporting year (t+1)	Portfolio share (t and t+1 identical)
Company A	EUR 5 million	EUR 5 million	50 %
Company B	EUR 5 million	EUR 5 million	50 %
Total	EUR 10 million	EUR 10 million	100 %

The main simulations performed in this example are a sharp increase in the EVIC of company A and a sharp increase in the GHG intensity of company B between t and t+1 (both shown in Table 4 in red). Other factors remain unchanged. To calculate the emission performance, the following key data on the financed companies is assumed.

Table 4: Sample calculation – company data

	Company A			Company B		
	t	t+1	Change (relative)	t	t+1	Change (relative)
EVIC (EUR million)	110,000	150,000	+36 %	35,000	35,000	0 %
Absolute GHG emissions ($ktCO_2e$)	13,695	13,695	0 %	600	750	+25 %
Electricity production - (GWh)	165,000	165,000	0 %	30,000	30,000	0 %
GHG intensity (tCO_2e/GWh)	83	83	0 %	20	25	+25 %

The following can be concluded from the company´s key data:

- Company A: Electricity production and GHG intensity remained constant, similar to the company's absolute GHG emissions. However, the EVIC has risen by 36 percent, for example, due to an increase in the share price.

- Company B: The EVIC and electricity production remain constant. However, the absolute GHG emissions have increased by 25 percent due to the increased GHG intensity (e.g. due to a change in the electricity mix).

The calculated results for both metrics are shown in Table 5 and differ significantly: LPEP reflects the poor emission performance as there is an increase of 12.5 percent. However, the PCAF approach shows that financed emissions have fallen by around 20 percent due to the increase in EVIC.

Table 5: Comparison of portfolio key figures according to LPEP and PCAF

	t	t+1	Emission performance
LPEP (normalised)	1.00	1.13	12.5 %
PCAF approach: Financed emissions (tCO_2e)	708	564	-20.4 %

Interpretation of the results

The comparison shows that the performance calculations between LPEP and the PCAF approach differ significantly: The 12.5 percent increase in LPEP results from the portfolio-weighted average (50 percent each for company A and B) of the absolute emission performance of company A (0 percent) and company B (+25 percent). In this example, the lower financed emissions according to PCAF are based exclusively on the effect of the increased share price of company A. This results in an increase in the EVIC and thus, with a constant lending volume, a reduction in the attribution factor. Thus, without segregating and interpreting the drivers, the result would suggest a very good emission performance (-20.4 percent). In order to avoid such misleading conclusions, the drivers of emission performance must therefore be identified when using the PCAF approach. Methods to perform such a segregation are considered by various initiatives and market participants[30], but would re-

[30] The following publication is an example of how to identify the performance drivers: UN-convened Net-Zero Asset Owner Alliance. *"Understanding the Drivers of Investment Portfolio Decarbonisation"*. December 2023, unepfi.org/industries/understanding-the-drivers-of-investment-portfolio-decarbonisation/

quire additional resources by the financial companies and increase the complexity of performance communication. Such a segregation is not necessary with the LPEP as it reflects the increased emissions of company B in the emission performance.

As the LPEP is also used to measure GHG-related transition risks, the results should also be interpreted from a transition perspective: The "bad" result of the LPEP signals to the financial company that GHG-related transition risks may have increased and prompts the financial company to take a closer look at company B. The result of the PCAF approach would not trigger this signalling effect without segregating the drivers of "positive" emissions performance.

5.2.2 Project finance for real estate

For the project finance asset class, I-PEPs use physical emission intensity as the input parameter for calculating the emission performance (see chapter 4.2.2). For real estate, this is calculated using the parameter $kgCO_2e/m^2$. Financial companies that apply the PCAF Standard for their emission performance calculation commonly use $kgCO_2e/m^2$ as the metric. The common feature of both calculation methods (I-PEPs and PCAF) is therefore the input parameter, namely the use of the property-related emission intensity. The difference, however, concerns the approach of calculating the aggregated emission intensity: The PCAF Standard[31] employs the formula shown in Figure 14 for the calculation of financed emissions for commercial real estate portfolios and mortgage portfolios.

Figure 14: Calculation of financed emissions according to the PCAF Standard for commercial real estate and mortgage portfolios

$$Financed\ emissions = \sum_b \frac{Outstanding\ amount_b}{Property\ value\ at\ origination_b} \times Building\ emissions_b$$

"b" refers to the financed property.

[31] PCAF. *"The Global GHG Accounting & Reporting Standard for the Financial Industry/Part A"*. December 2022, carbonaccountingfinancials.com/en/standard

Sample calculation: key data and results

For the sample calculation, the I-PEPs' (sub-)asset class of commercial real estate is considered. However, the statements are also valid for mortgages. The following indicators are compared as key figures:

- Commercial Real Estate-related Portfolio-weighted Emission Intensity Performance (CREPEP)
- Performance of the PCAF-based physical emission intensity (PCAF approach)

For the analysis, a simplified portfolio consisting of three properties is compared. In this sample calculation, only one point in time is considered and the physical emission intensities on the reporting date are calculated for this point in time based on the CREPEP and the PCAF approach. Input parameters are then changed and their impact on the physical emission intensities is analysed and compared. The aim of this comparison is to better understand the different dynamics and diverging factors influencing both KPIs.

Base case

In the base case (see Table 6), it is assumed that two properties have a low emission intensity (properties A and C), but only account for around 27 percent of the commercial real estate portfolio. As the property value at the time the loan is granted is required for attribution in accordance with the PCAF approach, it is included in the table. In the base case, it is assumed that the attribution factor is 75 percent and identical for all three properties.

Table 6: Sample calculation for commercial real estate portfolio key data (base case)

	Emission intensity ($kgCO_2e/m^2$)	Building area (in m^2)	Property value (at origination)	Loan volume (in % of the property)	Loan share of the portfolio
Property A	9.8	500	€ 1,000,000	€ 750,000 (75 %)	15 %
Property B	32.8	2,500	€ 5,000,000	€ 3,750,000 (75 %)	74 %
Property C	9.8	400	€ 800,000	€ 600,000 (75 %)	12 %

	Emission intensity ($kgCO_2e/m^2$)	Building area (in m^2)	Property value (at origination)	Loan volume (in % of the property)	Loan share of the portfolio
Total				€ 5,100,000	100 %

The following results are derived from the input data:

Table 7: Result of the physical emission intensities (base case)

Commercial real estate portfolio (aggregated)	Emission intensity ($kgCO_2e/m^2$)
CREPEP-based	26.7
PCAF-based	26.7

The same results can be attributed to the identical attribution factor for all three properties, which means that all three properties are included in the overall result according to their portfolio weighting.

Adjusted case

In the adjusted case, a significantly higher property value of property B at the time the loan was granted (EUR 4,000/m^2) and a higher loan volume are simulated (see figures marked in red in Table 8). The input parameters for properties A and C remain unchanged. The emissions intensity also remains unchanged, which means that the building emissions are constant.

Table 8: Sample calculation for commercial real estate portfolio key data (adjusted case)

	Emission intensity ($kgCO_2e/m^2$)	Building area (in m^2)	Property value (at origination)	Loan volume (in % of the property)	Loan share of the portfolio
Property A	9.8	500	€ 1,000,000	€ 750,000 (75 %)	12 %
Property B	32.8	2,500	€ 10,000,000	€ 5,000,000 (50 %)	79 %

	Emission intensity ($kgCO_2e/m^2$)	Building area (in m^2)	Property value (at origination)	Loan volume (in % of the property)	Loan share of the portfolio
Property C	9.8	400	€ 800,000	€ 600,000 (75 %)	9 %
Total				€ 6,350,000	100 %

The following results are derived from the adjusted data:

Table 9: Result of the physical emission intensities (adjusted case)

Commercial real estate portfolio (aggregated)	Emission intensity ($kgCO_2e/m^2$)
CREPEP-based	27.9
PCAF-based	24.7

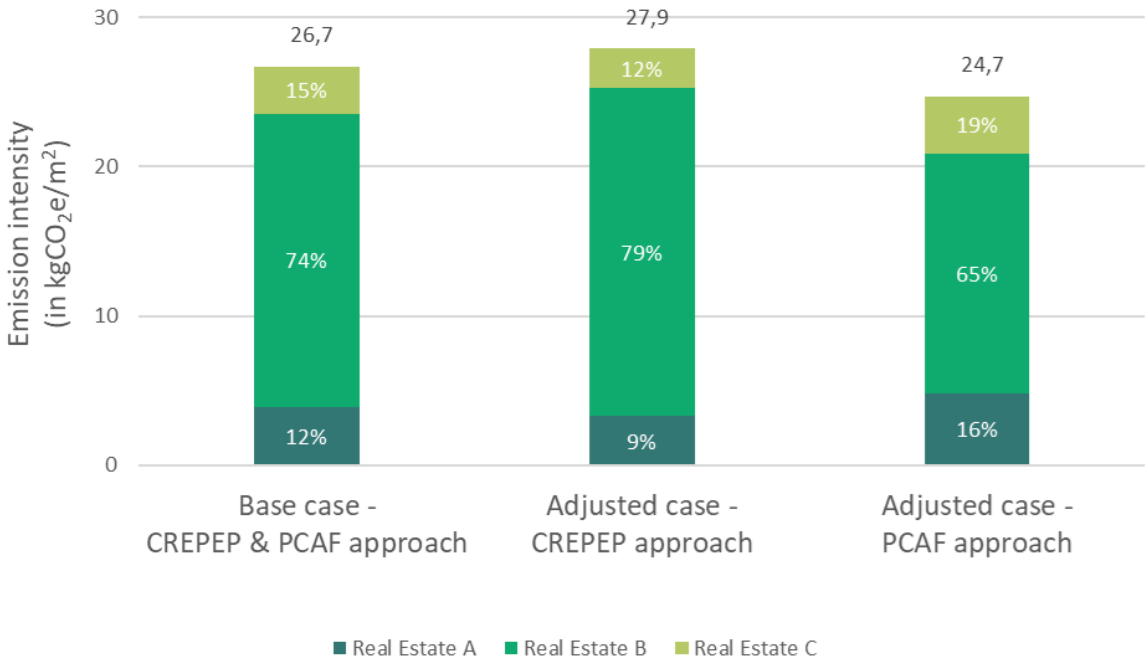
The increase in physical emission intensity based on CREPEP can be attributed to the increased portfolio weighting of property B due to the increased loan volume. The decrease in the PCAF-based physical emission intensity is due to the lower attribution factor of property B (50 percent instead of 75 percent).

Interpretation of the results

Figure 15 illustrates the drivers that lead to the divergence of the results in the adjusted case. The percentages in the figure reflect the relative influence of the property on the aggregated result. While the property-specific weightings were identical for both methods in the original case, the change in the input parameters for property B resulted in a diametrically opposed effect. Despite the assumption of a higher loan volume in the most GHG-intensive property B, the effect on the PCAF-based emission intensity would lead to a lower result. Similar to the sample calculation in chapter 5.2.1., a segregation and interpretation of the drivers would be necessary to avoid false conclusions. The change in the CREPEP-based calculation is based exclusively on the increased loan volume and thus higher exposure in property B.

Similar to LPEP, the CREPEP seeks to measure the GHG-related transition risks: The deterioration of the CREPEP-based calculation signals a potentially higher GHG-related transition risk to the financial company and prompts the financial company to analyse the commercial real estate portfolio more intensively, especially property B. The result of the PCAF approach shows a lower physical emission intensity. However, in order to trigger the same signal effect, the drivers of emission intensity would have to be analysed in greater detail.

Figure 15: Comparison of the results and the property-specific impacts



Note: The percentage in the bars reflects the weighting/impact of the respective property on the aggregated emission intensity.

Although the portfolio simulation relates exclusively to a singular reporting date, it illustrates the different factors influencing the metrics. Although the deposited property value as an input parameter should not change over time, there are certainly changes in the outstanding volume that have an impact on both key figures.

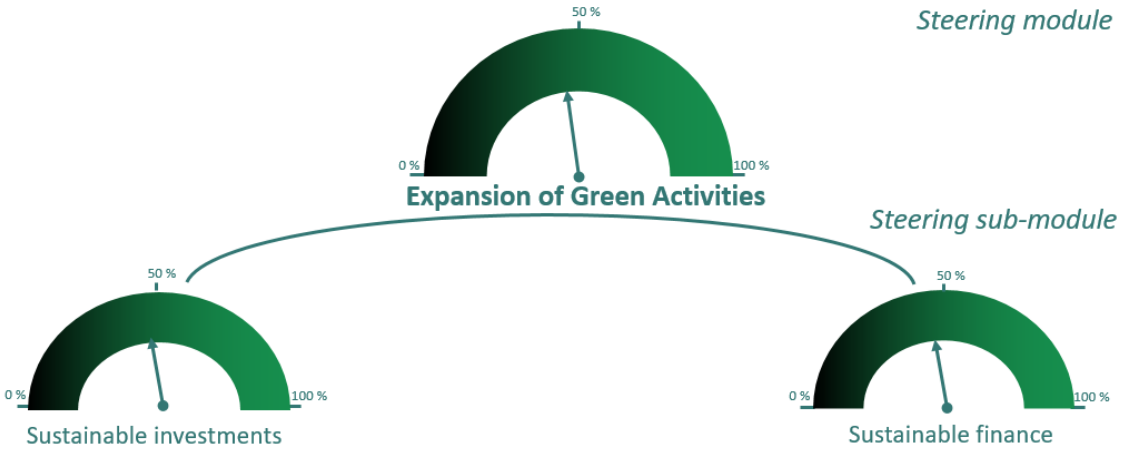
5.3 Climate Navigation Cockpit: Other steering modules

The Expansion of Green Activities and Impact-Engagement steering modules of the Climate Navigation Cockpit are presented in more detail below.

5.3.1 Steering module: Expansion of Green Activities

The selection of steering indicators for the Expansion of Green Activities module was developed on the basis of a comprehensive analysis of regulatory requirements, established market practice, and international initiatives and standards. It therefore gives GFA members the opportunity to define their own targets and objectives on the basis of proven indicators. A distinction is made between indicators for two steering sub-modules: sustainable investments and sustainable finance.

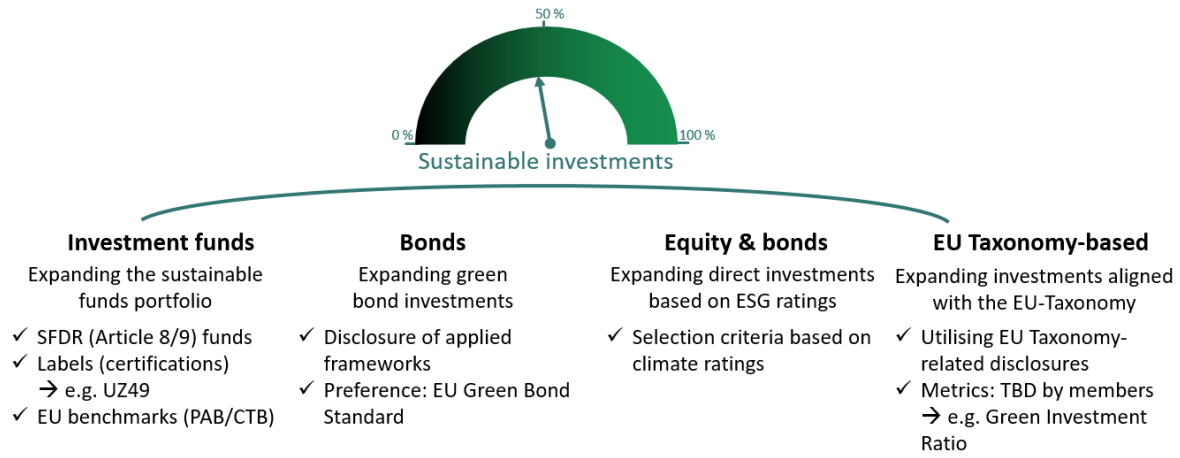
Figure 16: CNC steering module – Expansion of Green Activities



Sustainable investments

The steering indicators for sustainable investments were defined at financial product level in order to take into account the product-specific characteristics in the management process.

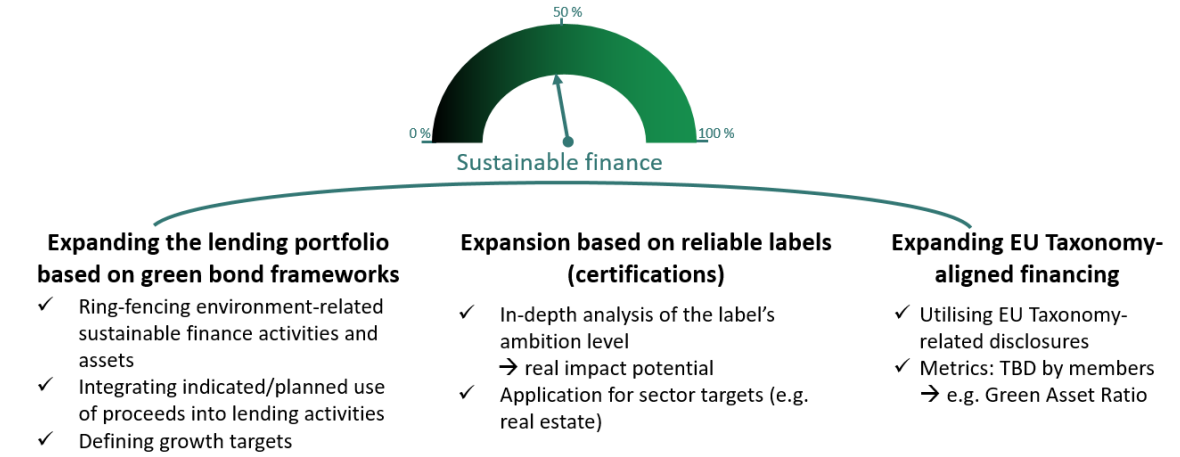
Figure 17: CNC steering sub-module – Sustainable investments



Sustainable finance

The steering indicators for sustainable finance were developed on the basis of the referenced frameworks for identifying and separating sustainable finance activities.

Figure 18: CNC steering sub-module – Sustainable finance

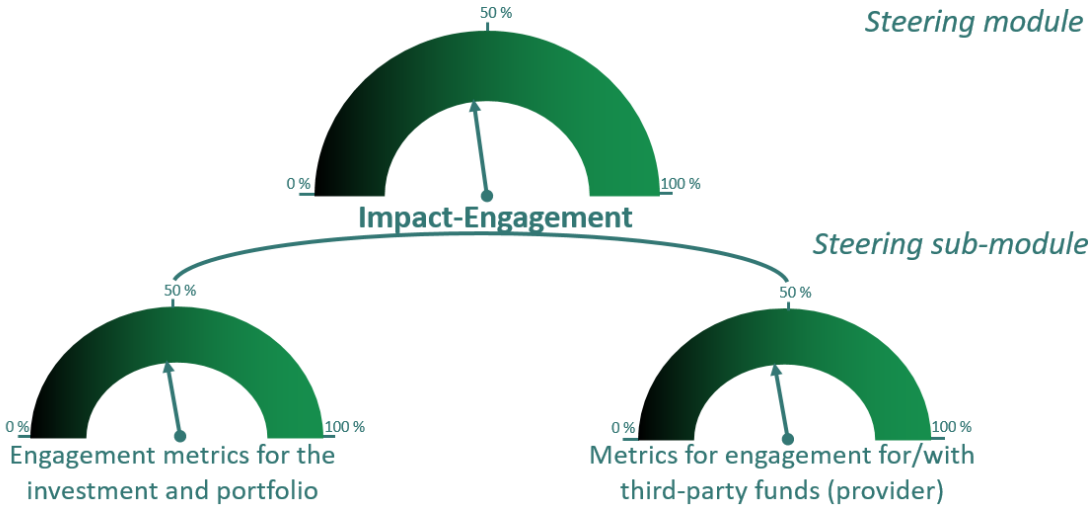


5.3.2 Steering module: Impact-Engagement

The dialogue with borrowers and investees is a key element in achieving climate targets. Therefore, the GFA requires its members to disclose an engagement strategy (measure 1.3) and to annually disclose their engagement activities (measure 1.4). The CNC steering module Impact-Engagement substantiates the existing GFA measures with numerous KPIs to manage their engagement activities and develop a target. A distinction is made between

direct engagement with borrowers/investees and indirect engagement with third-party fund providers and their fund managers.

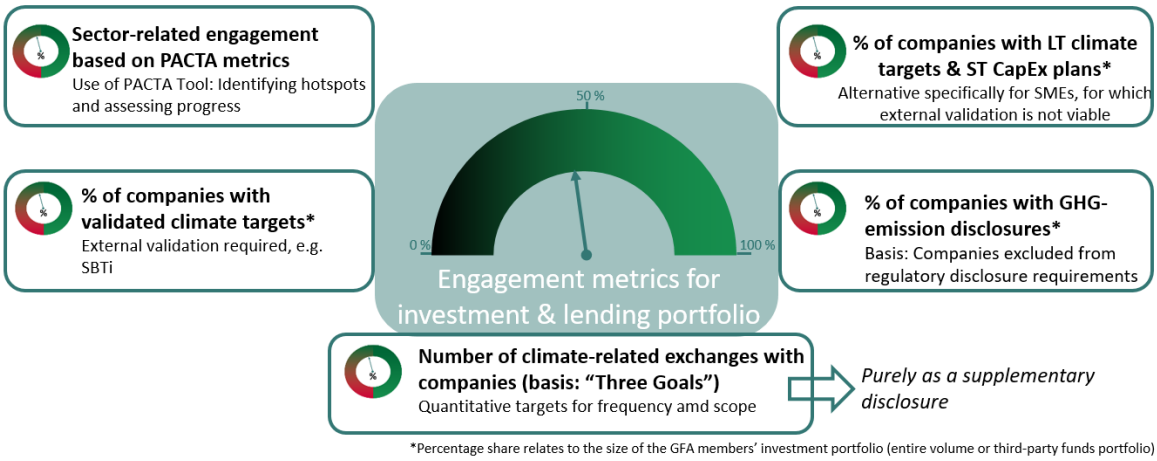
Figure 19: CNC steering module – Impact-Engagement



Steering sub-module: Engagement indicators for the investment/lending portfolio

The steering indicators in this steering sub-module seek to quantify the impact of the structured dialogue with borrowers and invested companies in order to obtain both positive and critical signals. GFA members can choose between four different steering indicators. A further fifth steering indicator is available as an optional supplement.

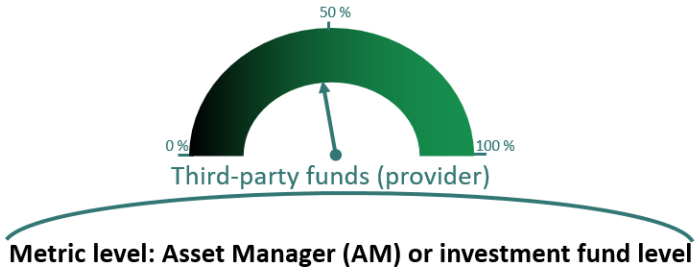
Figure 20: Investment/lending portfolio – CNC steering sub-module for engagement



Steering sub-module: Engagement indicators for third-party funds (providers)

Investments in third-party funds can make up a significant proportion of the investment portfolio. As it is generally not possible to engage directly with the indirectly invested companies in such investments, the focus is on dialogue with the asset manager or fund management. GFA members have four KPIs at their disposal, which are intended to reflect the progress or success of the engagement. A further fifth KPI is available as an optional supplement.

Figure 21: Third-party funds (providers) – CNC steering sub-module for engagement



Metric level: Asset Manager (AM) or investment fund level

- ✓ % of AMs* with validated, science-based climate targets (SBTi)
- ✓ % of AMs* with an engagement strategy (basis: Climate Action 100+ requirements)
- ✓ % of AMs* with public voting policies & yearly climate-related reporting
- ✓ % of AMs* or funds with exclusion policies for fossil fuels (coal, oil, and gas)
- ✓ Number of climate-related exchanges with AMs or fund managers (basis: "Three Goals")**

*Percentage share relates to the size of GFA-members´ investment portfolio (entire volume or third-party funds portfolio)
**Purely as a supplementary disclosure

5.4 Alternative weighting approach: Integration of portfolio dynamics

The weighting mechanism proposed in this consultation document uses a reporting date-based approach and considers the portfolio composition on the balance sheet date of the reporting year. However, this simplified approach can lead to a limited informative value of the indicator (see explanations in chapter 4.4.2). One possible solution would be to take into account the portfolio dynamics between the two reporting dates in the calculation.

In a first step, the position-related, relative minimum exposure is determined and aggregated to form a segregated portfolio. The minimum exposure is determined exclusively on the basis of two reporting dates (t and t+1) and, therefore, does not take into account any

portfolio changes within the year.[32] The portfolio referred to as the Constant Asset Portfolio (CAP) reflects the constant component of the portfolio exposure that has existed throughout the reporting year, regardless of portfolio dynamics and market price fluctuations.

Figure 22: Step 1 – Calculation of the company weighting in the analysed portfolio at time t and t+1

$$\omega_{A,t} = \frac{V_{A,t}}{V_{P,t}} \qquad \omega_{A,t+1} = \frac{V_{A,t+1}}{V_{P,t+1}}$$

ω_A ... Weighting of company A in the analysed portfolio volume at time t and t+1

Figure 23: Step 2 – Definition of a segregated portfolio (Constant Asset Portfolio) based on the position-related minimum exposures

Constant Asset Portfolio – Weighting of company A:

$$\omega_{A,CAP} = \frac{\min(\omega_{A,t}, \omega_{A,t+1})}{\sum_i \min(\omega_{i,t}, \omega_{i,t+1})}$$

In a next step, the amounts of the relative changes in exposure between t and t+1 are calculated and considered as a separate segregated portfolio. This portfolio, known as the Flow Asset Portfolio (FAP), reflects both the portfolio dynamics and market price fluctuations that have led to a change in weighting of the individual positions.

Figure 24: Step 3 – Definition of a segregated portfolio based on the changes in portfolio exposure

Flow Asset Portfolio – Weighting of company A:

$$\omega_{A,FAP} = \frac{abs(\omega_{A,t+1} - \omega_{A,t})}{\sum_i abs(\omega_{i,t+1} - \omega_{i,t})}$$

[32] Note: This approach makes the simplified assumption that no additional changes in inventories have taken place during the year. In principle, consideration of inflows/outflows during the year could be integrated into the approach, but would make the calculation even more complex. This additional adjustment is therefore not made.

The aggregated emission performance for both the CAP and the FAP can be calculated based on the company-specific emission performance according to the weightings:

Figure 25: Step 4 – Calculation of the aggregated emission performance for CAP and FAP

$$\rho_{P,CAP} = \sum_i (\omega_{i,CAP} * \rho_i) \qquad \rho_{P,FAP} = \sum_i (\omega_{i,FAP} * \rho_i)$$

To determine the I-PEPs, the two emission performance results for CAP and FAP must be weighted and aggregated. In order to determine the relative importance of the two portfolios, a monetary quantification of the affected absolute portfolio volume (CAP) and the portfolio flow volume (FAP) is calculated.

Figure 26: Step 5 – Calculation of the absolute volumes underlying the CAP and FAP

$$V_{P,CAP} = \sum_i (\omega_{i,CAP_{unadjusted}} * V_{P,t+1}) \qquad V_{P,FAP} = \sum_i abs(V_{i,t+1} - V_{i,t})$$

$$\text{with: } \omega_{i,CAP_{unadjusted}} = \min(\omega_{i,t}, \omega_{i,t+1})$$

In a final step, the emission performance is calculated based on the I-PEPs *dynamic* for the portfolio by taking into account the emission performances of both portfolios weighted by their respective volume.

Figure 27: Step 6 – Calculation of the emission performance based on I-PEPs *dynamic*

$$\rho_P = \frac{(V_{P,CAP} * \rho_{P,CAP} + V_{P,FAP} * \rho_{P,FAP})}{(V_{P,CAP} + V_{P,FAP})}$$

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Abbreviations

APEP	Aggregated Portfolio-weighted Emission Performance
CAP	Constant Asset Portfolio
CNC	Climate Navigation Cockpit
CPEP	Corporate-related Investment Portfolio-weighted Emission Performance
CREPEP	Commercial Real Estate-related Portfolio-weighted Emission Intensity Performance
EPEP	Electricity Production-related Portfolio-weighted Emission Intensity Performance
EVIC	Enterprise value including cash
FAP	Flow Asset Portfolio
Hi-CPEP	High GHG Emission Sectors Corporate-related Investment Portfolio-weighted Emission Performance
Hi-LPEP	High GHG Emission Sectors Lending Portfolio-weighted Emission Performance
InPEP	Investment Portfolio-weighted Emission Performance
Lo-CPEP	Low GHG Emission Sectors Corporate-related Investment Portfolio-weighted Emission Performance
Lo-LPEP	Low GHG Emission Sectors Lending Portfolio-weighted Emission Performance
LPEP	Lending Portfolio-weighted Emission Performance
MPEP	Mortgage-related Portfolio-weighted Emission Intensity Performance
I-PEPs	Indicators for Portfolio-weighted Emission Performances
PPEP	Project Finance-related Portfolio-weighted Emission Intensity Performance
SPEP	Sovereign Bond-related Portfolio-weighted Emission Performance
PCAF	Partnership for Carbon Accounting Financials
SBTi	Science Based Targets initiative

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