CDP Technical Note

Portfolio Climate Change Impact Metrics for Financial Services Companies

CDP Corporate Questionnaire

Version

Version number	Release/Revision date	Revision summary
1.0	07 January 2021	First release.
2.0	21 January 2022	Minor revisions and question numbers updated to align with the 2022 CDP climate change questionnaire.
3.0	25 January 2023	Minor revisions and the addition of avoided emissions, emission removals, insurance-associated emissions, and sovereign debt.
4.0	28 June 2024	Addition of facilitated emissions, addition of asset class mapping, removal of worked examples, other simplifications, more references directly to PCAF standards, documentation and methodologies.
5.0	21 May 2025	Minor revisions referring to ongoing PCAF and SBTi consultations.

Contents

Glossary

Asset managers	Also known as investment managers, asset managers are hired by clients to invest assets on their behalf.
Asset owners	Includes public- and private-sector pension plans, (re)insurance companies, endowments, and foundations that invest assets on their own behalf or on behalf of their beneficiaries.
Avoided emissions	The reduction in emissions achieved by a project compared to a baseline of what would have been emitted in the absence of the project.
Banks	Financial institutions that mostly undertake lending, deposit taking and other financial intermediary activities.
Carbon footprinting metrics	Metrics for assessing the greenhouse gas emissions associated with a portfolio, depending on the metric emissions are expressed either in absolute terms or as an intensity.
Carbon intensity	Volume of carbon emissions per million of revenue in unit currency (carbon efficiency of a portfolio), expressed in tons CO_2e/Million revenue.
Commercial real estate	For the purpose of this technical note, commercial real estate is on-balance-sheet loans for the purchase, refinance, construction, or rehabilitation of commercial real estate. This definition implies that the property is used for commercial purposes.
Corporate loans	For the purpose of this technical note, corporate loans are on-balance sheet loans and lines of credit with unknown use of proceeds to businesses, non-profits, and any other structure of organization. Revolving credit facilities and overdraft facilities as well as corporate loans secured by real estate, such as commercial real estate-secured lines of credit, are also included in this asset class.
Double counting	Double counting occurs when a GHG emission or emission reduction is counted more than once towards attaining mitigation pledges or financial pledges for the purpose of mitigating climate change.
Emission removals	The action of removing GHG emissions from the atmosphere and store it through various means, such as in soils, trees, underground reservoirs, rocks, the ocean, and even products like concrete and carbon fiber.
EU TEG	European Union Technical Expert Group on Sustainable Finance.
EVIC	The sum of the market capitalization of ordinary and preferred shares at fiscal year-end, and the book values of total debt and minorities' interests. No deductions of cash or cash equivalents are made to avoid the possibility of negative enterprise values.

Exposure metrics	Metrics for assessing the exposure to fossil fuel assets in a portfolio, depending on the metric exposure is expressed either in currency terms or as a percentage.
GHG emissions	For the purposes of this technical note, GHGs are the seven gases covered by the UNFCCC: carbon dioxide (CO2); methane (CH4); nitrous oxide (N2O); hydrofluorocarbons (HFCs); perfluorocarbons (PFCs); sulfurhexafluoride (SF6), and nitrogen trifluoride (NF3).
GHG Protocol	Comprehensive global standardized framework to measure and manage GHG emissions established by World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD).
Global Industry Classification Standard	The Global Industry Classification Standard (GICS) is a four-tiered, hierarchical industry classification system developed by MSCI and S&P Dow Jones.
Insurance-associated emissions	GHG emissions in the real economy, which are associated with specific re/insurance policies aggregated in the re/insurance portfolio. This definition is for accounting purposes only. It is not intended, and should not be interpreted as, an admission of liability by any re/insurer for any emissions caused, or contributed to, by an insured or an insured activity.
Insurers	Financial institutions that provide and sell insurance underwriting products and services to their policyholders. Please note that where references are made to “insurance”, these are also applicable to reinsurance unless otherwise specified.
Investees	For the purposes of this technical note, investees means the underlying companies and assets a financial institution is invested in or lending to.
Facilitated emissions	GHG emissions associated with capital market transactions, i.e. those associated with services provided by financial institutions to support the issuance of capital market instruments.
Financed emissions	Financed emissions: the absolute greenhouse gas emissions associated with a portfolio, expressed in tons CO2e. For financial institutions, the indirect emissions caused by their financing activities are relevant and their emissions inventory would be incomplete without accounting for them. The GHG Protocol classifies these emissions in Scope 3 Category 15 Investments. They are also known as portfolio emissions or financed emissions. Put simply, they are emissions that occur at sources owned or controlled by other organizations, but which are made possible because those organizations are financed by the lending and investment of financial institutions; and therefore are indirect to the financial institution and should be included in the financial institution’s Scope 3 inventory.

Mortgages	For the purpose of this technical note, mortgages are on-balance sheet loans used to purchase residential property, including multifamily properties with no limit on the number of units. This definition implies that the property is used for residential purposes.
Motor vehicle loans	For the purpose of this technical note, motor vehicle loans are on-balance sheet loans that are used to finance one or several motor vehicles.
PCAF	Partnership for Carbon Accounting Financials.
Portfolio	The entire collection of a financial institution's core financing activities - loans, investments and insurance policies. For bank lending, this is the entire collection of products and loans held on the balance sheet for which the receivable stream is owned. For asset owners, this is the entire collection of products, funds and investments owned and controlled. For asset managers, this is the entire collection of products and investments held and/or managed on behalf of clients. For insurance underwriting, this is the entire collection of products and insurance policies provided to clients.
Portfolio carbon footprint	Total carbon emissions for a portfolio normalized by the market value of the portfolio, expressed in tons CO_2e/Million of unit currency invested.
Private equity	For the purpose of this technical note, private equity is all equity holdings in non-listed companies held on the balance sheet and/or actively managed by the financial institution.
Project finance	For the purpose of this technical note, project finance is on-balance sheet loans or equity with known use of proceeds that are designated for a clearly defined activity or set of activities, such as the construction of a gas fired power plant, a wind or solar project or energy efficiency projects.
Scope 1 emissions	Emissions from operations that are owned or controlled by the reporting company.
Scope 2 emissions	Indirect emissions from the generation of purchased or acquired electricity, steam, heat or cooling consumed by the reporting company.
Scope 3 emissions	All indirect emissions (not included in Scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions.
Sovereign debt	Sovereign debt is issued by a country's government to borrow money. Sovereign debt is also known as government debt, public debt, and national debt.
TCFD	Task Force on Climate-related Financial Disclosures.

Weighted average carbon intensity	Portfolio's exposure to carbon-intensive companies, expressed in tons CO_2e/Million of revenue in unit currency.

1. Introduction

This Technical Note provides references to specific guidance on the methodologies used to calculate portfolio climate change impact metrics requested by CDP. It is aimed at banks, asset managers, asset owners and insurers responding to CDP's Corporate questionnaire. The Technical Note should be used alongside CDP's 2025 reporting guidance.

The technical note is comprised of this introduction and four further sections:

Section 2: A mapping of asset classes listed in CDP's Corporate questionnaire to asset classes referenced in the Partnership for Carbon Accounting Financials (PCAF) standard.

Section 3: An overview of the different portfolio impact metrics requested by CDP.

Section 4: Specific guidance for each metric. The guidance covers methodologies for calculating the metrics and best-practice in reporting the metrics to CDP.

Section 5: Guidance on breaking down portfolio impact metrics by asset class, by industry, and by scope.

Section 6: A discussion on how financial institutions can go further in using these metrics once they have measured their portfolio impact. For example, setting targets to reduce the climate change impact of their portfolio.

Alignment with a 1.5-degree world will require a major redirection of capital into sustainable solutions and low-carbon technologies, which only the financial services sector can provide. This profound influence on the wider economy means financial institutions' climate change impact occurs mostly in their portfolios, rather than through their direct operations. It also means financial institutions can play a pivotal role in accelerating the low-carbon transition. Measuring the climate change impact of financial portfolios will be crucial in realizing this role.

The importance of measuring portfolio impact is underlined by the TCFD, which recommends financial institutions disclose the metrics used to measure and manage climate-related risks and opportunities, and describes specific portfolio impact metrics for this purpose[1]. In addition to highlighting risks and opportunities, a quantification of climate change impact is a pre-requisite for financial institutions to measure improvements in the climate performance of their portfolios, and measure progress towards the net zero commitments that are increasingly being made[2]. Mark Carney, the UK Prime Minister's finance advisor for COP26, said[3]:

> "To achieve net zero we need a whole economy transition – every company, every bank, every insurer and investor will have to adjust their business models, develop credible plans for the transition and implement them. For financial firms, that means reviewing more than the emissions generated by their own business activity. They must measure and report the emissions generated by the companies they invest in and lend to."

[1] Task Force on Climate-related Financial Disclosures (2017). "Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures."
[2] See, for example, the net zero commitments made by Barclays and Morgan Stanley.
[3] https://carbonaccountingfinancials.com/en/newsitem/partnership-for-carbon-accounting-financials-pcaf-launches-uk-coalition#newsitemtext.

The financial services sector is heterogeneous, with banks, investors and insurers providing a diverse set of services which together underpin the stability of our financial system. Financial institutions also hold a variety of different asset classes in their portfolios. Reflecting this, there is no single, globally approved methodology for measuring portfolio impact that applies to all financial institutions and all financing activities. However, there have been important developments in methodologies since the release of the TCFD's recommendations, including those by the PCAF.

Alongside these developments, CDP launched its first questionnaire focusing on publicly listed financial services companies in 2020. The questionnaire fills a critical data gap by shifting the focus onto the environmental impacts these companies finance in the wider economy. Portfolio impact metrics are included as a disclosure request in module 12. CDP's questionnaire allows financial institutions to report the impact of their portfolio on climate change choosing from a variety of metrics.

Financial institutions that are leaders in carbon accounting of portfolio impacts should be:

- Disclosing multiple impact metrics, including absolute and intensity-based metrics in addition to financed and facilitated emissions.
- Working with data providers and regulators to improve emissions data quality across the market.
- Requesting disclosure from their investees and counterparties to improve access to primary data and reduce the reliance on proxy data, and increase the portfolio coverage of their calculations.
- Reporting comprehensively as to the methodological assumptions taken, as well as explaining any mismatches in emissions year on year – the principles for comprehensive disclosure are outlined in the Reporting Requirements and Recommendations in the PCAF Standard.

2. CDP questionnaire asset classes

CDP's list of asset classes offers a breakdown in line with the asset classes used by the IFRS Sustainability Disclosure Standard for climate-related disclosures. You are requested to select from the list of asset classes when disclosing the impact of your portfolio in the following questions:

- (12.1.1) Provide details of your organization's financed emissions in the reporting year and in the base year.
- (12.2.1) Break down your organization's financed emissions and other portfolio carbon footprinting metrics by asset class, by industry, and/or by scope.

The table below maps the asset classes used by CDP to the asset classes used in the PCAF Global GHG Accounting & Reporting Standard, so you can refer to the additional guidance and methodology provided by them, when measuring your portfolio impact on the climate. Note that in December 2024 PCAF launched a public consultation on newly developed methods for measuring financed emissions that either fall under – or support – Part A of the Global GHG Accounting and Reporting Standard[4]. The next iteration of this technical note will include references to those methods once they are finalised post-consultation and ahead of 2026.

CDP Questionnaire Asset Classes (Based on ISSB Asset Classes)	PCAF Asset Classes	PCAF Standard
Loans	Business Loans and Unlisted Equity; And all loan categories with known Use of Proceeds (UoP)	Part A
Project finance	Project Finance	Part A
Bonds	Listed Equity and Corporate Bonds	Part A
Equity investments	Listed Equity and Corporate Bonds	Part A

[4] PCAF (2024), "New guidance and methods for public consultation", https://carbonaccountingfinancials.com/files/PartA-Methods2024-Master-01.pdf.

	Business Loans and Unlisted Equity	Part A
Undrawn loan commitments	*Not yet specified*	-
Fixed income	Listed Equity and Corporate Bonds	Part A
	Sovereign Debt	Part A
Cash equivalents/money market instruments	*Not yet specified*	-
Real estate	Commercial Real Estate	Part A
	Mortgages	Part A
Commodities	*Not yet specified*	-

3. Overview of common portfolio impact metrics

As anthropogenic climate change is caused by GHG emissions, carbon footprinting metrics are measured in GHG emissions 'owned' by the portfolio, which can then be normalized to compare across portfolios[5]. This approach demands data on the GHG emissions of companies in the portfolio, which can be either self-disclosed or estimated.

Table 1 presents an overview of common carbon footprinting which can be used to measure portfolio impact and reported to CDP[6]. It lists which industry activities and asset classes each metric is applicable to, along with the pros and cons of each metric, including which can be calculated without demanding data requirements. Section 3 goes into more detail on each metric presented.

Metric	Description	Industry activities	CDP question	Pros	Cons
Financed emissions	The absolute greenhouse gas emissions associated with a portfolio, expressed in tons CO_2e	Banks, Asset owners, Asset managers	12.1.1	+ May be used to communicate the carbon footprint of a portfolio consistent with the GHG protocol + May be used to track changes in GHG emissions in a portfolio + Allows for portfolio decomposition and attribution analysis	– Not generally used to compare portfolios because the data are not normalized – Changes in underlying companies' market capitalization can be misinterpreted

[5] There are different approached to normalization, as described in Section 4.
[6] Task Force on Climate-related Financial Disclosures (2017). "Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures."

Metric	Description	Industry activities	CDP question	Pros	Cons
Weighted average carbon intensity	Portfolio's exposure to carbon-intensive companies, expressed in tons CO_2e/Million revenue	Banks, Asset owners, Asset managers	12.1.3	+ Can be easily applied across asset classes since it does not rely on equity ownership approach + The calculation is fairly simple and easy to communicate to investors + Allows for portfolio decomposition and attribution analysis	– Sensitive to outliers – Using revenue (instead of physical or other metrics) to normalize the data tends to favor companies with higher pricing levels relative to their peers
Portfolio carbon footprint	Total carbon emissions for a portfolio normalized by the market value of the portfolio, expressed in tons CO_2e/Million invested	Banks, Asset owners, Asset managers	12.1.3	+ May be used to compare and benchmark portfolios + Using the portfolio market value to normalize data is fairly intuitive to investors + Allows for portfolio decomposition and attribution analysis	– Does not take into account differences in the size of companies (e.g. does not consider the carbon efficiency of companies) – Changes in underlying companies' market capitalization can be misinterpreted
Carbon intensity	Volume of carbon emissions per million dollars of revenue (carbon efficiency of a portfolio), expressed in tons CO_2e/Million revenue	Banks, Asset owners, Asset managers	12.1.3	+ May be used to compare and benchmark portfolios + Takes into account differences in the size of companies (e.g. considers the carbon efficiency of companies) + Allows for portfolio decomposition and attribution analysis	– The calculation is somewhat complex and may be difficult to communicate – Changes in underlying companies' market capitalization can be misinterpreted

Metric	Description	Industry activities	CDP question	Pros	Cons
Insurance-associated emissions	GHG emissions in the real economy, which are associated with specific re/insurance policies aggregated in the re/insurance portfolio. This definition is for accounting purposes only. It is not intended, and should not be interpreted as, an admission of liability by any re/insurer for any emissions caused, or contributed to, by an insured or an insured activity.	Insurers	12.1.3	+ A standardized way to measure and report the GHG emissions associated to re/insurance underwriting portfolios + Addressing the issue of double counting by maintaining that the reporting of insurance-associated emissions remains a supplementary note to the financed emissions	– The first version of the PCAF Insurance-Associated Emissions Standard covers only two business segments
Facilitated emissions	GHG emissions associated with capital market transactions, i.e. those associated with services provided by financial institutions to support the issuance of capital market instruments.	Banks	12.1.3	+ A standardized way to measure and report the GHG emissions associated with capital market transactions	– The PCAF methodology does not cover how targets should be set for facilitated emissions

Table 1 is not exhaustive. For example, avoided emissions and emission removals are not included in the table, but they are briefly described in section 4.

If a financial institution wishes to disclose a portfolio impact metric not listed in Table 1, they can do so by:

- Selecting 'Yes' in response to 12.1 'Does your organization measure the impact of your portfolio on the environment?', column one;
- Selecting 'Other carbon footprinting and/or exposure metrics (as defined by TCFD)' or 'Other, please specify' in response to 12.1, column two; and
- Disclosing the metric in response to 12.1.3 'Provide details of the other metrics used to track the impact of your portfolio on the environment.' in column three.

4. Metric-level technical guidance

4.1. Financed emissions

Anthropogenic climate change is caused by GHG emissions. Therefore, the most natural way for companies to measure their impact on climate change is by accounting for the GHG emissions caused by their operations. The GHG Protocol Corporate Standard divides a company's GHG emissions inventory into direct and indirect emissions. For financial institutions, the indirect emissions caused by their financing activities are relevant and their emissions inventory would be incomplete without accounting for them[7]. The GHG Protocol classifies these emissions in Scope 3 Category 15 Investments[8]. They are also known as portfolio emissions or financed emissions. Put simply, they are emissions that occur at sources owned or controlled by other companies, but which are made possible because those companies are financed by the investment and lending of financial institutions; therefore, they can be thought of as caused indirectly by the financial institution and should be included in the financial institutions Scope 3 inventory[9].

The general approach to accounting for portfolio emissions is to establish the emissions of the investees in the portfolio and then allocate those emissions based on the proportional share of the investment in the investee. Exactly how the emissions of the investee are allocated between investors differs depending on the asset class, but the principle of proportional share applies in each case. Summing across all investments in the portfolio yields the total portfolio emissions in tons CO_2e. This approach has been formalized by PCAF who have developed the Global Carbon Accounting Standard for the financial industry with the GHG Protocol as its foundation. CDP has a strong relationship with PCAF, and PCAF has supported the latest development of CDP's questionnaire for the Financial Services sector to ensure that module 12 'Environmental performance - Financial Services' is aligned with the PCAF standards.

[7] Relevance and completeness are two of the GHG accounting and reporting principles in the GHG Protocol Corporate Standard.

[8] Bhatia, P., Cummis, C., Brown, A., Rich, D., Draucker, L., & Lahd, H. (2012). "Corporate Value Chain (Scope 3) Accounting and Reporting Standard. Supplement to the GHG Protocol Corporate Accounting and Reporting Standard."

[9] Portfolio emissions are included in financial institutions' Scope 3 inventory if they are using a control approach to defining operational boundaries and consolidating GHG emissions. In contrast, if the equity share approach is used, emissions associated with equity investments would be included in financial institutions' Scope 1 inventory. PCAF's Global Carbon Accounting Standard for the financial industry requires financial institutions to use the operational control approach, so that approach is assumed throughout the guidance in this technical note. For more information on different approaches to defining operational boundaries and consolidating GHG emissions see the GHG Protocol.

PCAF

PCAF is an industry-led initiative created in 2015 by Dutch financial institutions and now includes a global group of bank and investor members. The partnership works together to develop and implement a harmonized approach to assessing and disclosing the GHG emissions associated with loans and investments. PCAF has developed its accounting methods into the Global Carbon Accounting Standard for the financial industry covering the following asset classes: Listed equity and corporate bonds, business loans, private equity, project finance, commercial real estate, mortgages, motor vehicle loans, and sovereign debt.

Financial institutions can join PCAF by committing to assess and disclose the GHG emissions of its portfolio using the methodology. Financial institutions that join receive technical support in implementing carbon accounting and can join one of five regional teams which will adapt the Global Carbon Accounting Standard to their regional context, for example by expanding to additional asset classes important to the region.

PCAF Partnership for Carbon Accounting Financials

Calculating the metric in CO_2e is useful for communicating the total size of the impact of a financial institution. However, it is not as useful for comparing different portfolios, for example comparing an investor's different funds, as the data are not normalized. In addition to being a useful metric in its own right, portfolio emissions are used as a building block in other carbon footprinting metrics, and is normalized to allow comparisons. How portfolio emissions are normalized depends on what is being analysed and communicated. For example, to understand a portfolio's carbon footprint per amount invested, it is necessary to normalise by the portfolio market value. To understand the efficiency of a portfolio in emissions per unit of output, it is necessary to normalise by an issuer's accounting figure such as revenues. These normalization approaches lead to different portfolio impact metrics which will be discussed later.

Reporting financed emissions to CDP

The portfolio emissions metric should be disclosed by:

- Selecting 'Yes' in response to 12.1 'Does your organization measure the impact of your portfolio on the environment?', column one;
- Selecting 'Financed emissions' in response to 12.1, column two; and,
- Disclosing the metric in response to 12.1.1 'Provide details of your organization's financed emissions in the reporting year and in the base year.'

- See the Global Carbon Accounting Standard for fuller explanations of the methodology for calculating financed emissions for the different asset classes.

Financed emissions should be disclosed in metric tons CO_2e in column 2 (Portfolio emissions (metric unit tons CO2e) in the reporting year).

In explaining their calculation methodology, it will be important for e.g. a bank to explain:

- Why the calculation excludes certain asset classes, for example it covers their corporate loan and mortgage portfolio but not consumer lending;
- Why a certain Scope has been excluded, for example Scope 1 and 2 emissions of their borrowers have been included, although not Scope 3;
- The data sources used for reported emissions data of the borrowers C;

- The approach taken to estimating borrower emissions when primary data was not available – whether emissions were estimated using physical activity-based modelling or economic activity-based modelling; and,

4.2. Weighted average carbon intensity

The TCFD recommends that asset owners and asset managers disclose the weighted average carbon intensity of their portfolios in tCO_2e/Million revenue[10]. This metric normalizes each company's emissions by the company's revenue to obtain the carbon intensity of each individual holding; and then weights each holding according to the importance of the holding in the portfolio. If lots of the portfolio's overall investment is in carbon intensive companies, the weighted average carbon intensity will increase.

A primary benefit of this metric is that it does not rely on attributing emissions between the investors in the same company. The need to attribute emissions results in a variety of attribution approaches depending on the asset class for the portfolio emissions metric. Instead of attributing emissions, portfolio weights (the current value of the investment relative to the current portfolio value) are used, which means the same calculation can be used for listed equity, listed bonds, corporate loans and private equity. This in turn means the metric is fairly simple to communicate to investors.

Weighted average carbon intensity calculation methodology

Across all the asset classes to which weighted average carbon intensity is applicable, the methodology remains the same:

$$\sum_{c=1}^{C} \frac{\boldsymbol{Outstanding\ amount_c}}{\boldsymbol{Current\ portfolio\ value}} \times \frac{\boldsymbol{Company\ emissions_c}}{\boldsymbol{Company\ revenue_c}}$$

Where:

$\boldsymbol{c}$	is an investee in a portfolio of investees from $1 \dots C$;
$\boldsymbol{Outstanding\ amount_c}$	is the actual outstanding investment or loan amount in investee c;
$\boldsymbol{Current\ portfolio\ value}$	is the total size of the investor's portfolio;
$\boldsymbol{Company\ emissions_c}$	is the total accounted emissions of investee c; and,
$\boldsymbol{Company\ revenue_c}$	is the revenue of investee c for the reporting period.

Information on outstanding investment amounts and total portfolio value used for calculating portfolio weights should be at hand for all investors. Financing portfolios are dynamic, and it may make sense for financial institutions to correct the portfolio weights with a flow variable[11].

As with the portfolio emissions metric, weighted average carbon intensity depends on good quality data or estimations on the GHG emissions of underlying companies within the portfolio. Therefore, all the same data challenges previously discussed are relevant when calculating the weighted average carbon intensity of a

[10] Task Force on Climate-related Financial Disclosures (2017). "Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures."
[11] As described in the portfolio emissions methodology for listed equity and listed bonds.

portfolio. The limitations should not deter financial institutions from attempting to calculate the metric if it is relevant and decision useful to their own portfolio. They should use the best quality data or estimations available from the hierarchy of possible data sources and should engage with investees and clients to drive better disclosures on company emissions.

When establishing the emissions of companies within the portfolio, it is important to be clear which Scopes are considered. When weighted average carbon intensity was first defined by the TCFD, only Scope 1 and 2 emissions of the underlying portfolio companies were recommended to be included in the calculation. The formula easily extends to include Scope 3 emissions, although this increases the chances of double counting emissions across Scopes and is likely to exacerbate data limitations.

Reporting weighted average carbon intensity to CDP

The weighted average carbon intensity metric should be disclosed by:

- Selecting 'Yes' in response to 12.1 in column one "We measure the impact of our portfolio on the climate."
- Selecting 'Other carbon footprinting and/or exposure metrics (as defined by TCFD)' in response to 12.1, column two "Disclosure metric"; and
- Disclosing the metric in response to 12.1.3." Provide details of the other metrics used to track the impact of your portfolio on the environment.", using 'Weighted average carbon intensity (tCO_2e/Million revenue)' in column three "Portfolio metric".

- See the Task Force on Climate-related Financial Disclosures for fuller explanations of the methodology for calculating weighted average carbon intensity.

The weighted average carbon intensity should be disclosed in column four (Metric value in the reporting year).

In explaining their calculation methodology, it will be important for e.g. an asset manager to explain:

- Why the calculation covers their equity investments and bonds but not investments through other funds;
- Why Scope 1 and 2 emissions of their borrowers have been included, although not Scope 3;
- The data sources used for reported emissions data; and,
- The approach taken to estimate company emissions when primary data was not available – were emissions estimated using physical activity-based modelling or economic activity-based modelling?

4.3. Portfolio carbon footprint

The portfolio carbon footprint metric takes the portfolio emissions metric already described and normalizes it by the market value of the portfolio to allow comparisons. The metric is expressed in tCO_2e/Million invested. This makes the metric particularly useful for asset owners with a fixed amount of capital to invest, who are interested in the climate change impact of investing that capital through different investment managers. Likewise, it is useful for savers with a fixed amount of savings, who are interested in the climate change impact of how those savings are reinvested on the opposite side of their bank's balance sheet.

Since the starting point for calculating a portfolio's carbon footprint is to first calculate Scope 3 portfolio emissions, this metric is applicable across the same asset classes as the latter metric. As with portfolio emissions, emissions of the investees in the portfolio must be established and then allocated based on the proportional share of the investment in the investee, with the exact method of allocation differing depending on asset class.

Portfolio carbon footprint calculation methodology

The methodologies for calculating portfolio emissions for each asset class are described in the Global Carbon Accounting Standard and therefore the formulas are not repeated here. Instead, one formula is provided which assumes portfolio emissions have already been calculated according to the methodologies described.

$$\frac{\left(\sum_{i=1}^{I} \boldsymbol{Portfolio\ emissions_i}\right)^*}{\boldsymbol{Current\ portfolio\ value}}$$

Where:

$\boldsymbol{i}$	is an investment in a portfolio of investments from $1 \ldots I$;
$*$	denotes a term calculated according to the methodologies for calculating portfolio emissions;
$\boldsymbol{Portfolio\ emissions_i}$	is the Scope 3 portfolio emissions associated with investment i; and,
$\boldsymbol{Current\ portfolio\ value}$	is the total size of the investor's portfolio.

If a financial institution has already calculated portfolio emissions, it is relatively simple and intuitive to calculate the portfolio carbon footprint, dividing by the total portfolio size in currency. It is important to note that for the metric to be a true reflection of the climate change impact per Million invested, the total value of the part of the portfolio which has been measured should be used.

Portfolio carbon footprint is measured at a fixed point in time and it is likely that the portfolio value at that point of time will be used for normalization. However, for financing portfolios which are very dynamic, if flow variables have been used to correct the ratios for attributing company emissions when calculating portfolio emissions[12], it may be intuitive to use an average portfolio value over the reporting period.

As it is so closely related to the portfolio emissions metric, portfolio carbon footprint depends on good quality emissions data or estimations in the same way. All the same data challenges previously discussed are relevant. The limitations should not deter financial institutions from attempting to calculate the metric if it is relevant and decision useful to their own portfolio.

[12] As described in the portfolio emissions methodology for listed equity and listed bonds.

Reporting portfolio carbon footprint to CDP

The portfolio carbon footprint metric should be disclosed by:

- Selecting 'Yes' in response to 12.1 in column one "We measure the impact of our portfolio on the climate."
- Selecting 'Other carbon footprinting and/or exposure metrics (as defined by TCFD)' in response to 12.1, column two "Disclosure metric"; and
- Disclosing the metric in response to 12.1.3." Provide details of the other metrics used to track the impact of your portfolio on the environment.", using 'Portfolio carbon footprint (tCO_2e/Million invested)' in column three.

The portfolio carbon footprint per Million invested should be disclosed in column four (Metric value in the reporting year).

4.4. Carbon intensity

The carbon intensity metric uses a different approach to normalizing portfolio emissions, normalizing by the revenue of the companies in the portfolio. This approach leads to a measurement of how efficient the portfolio is at producing units of output while generating less GHG emissions. The carbon intensity metric is expressed in tCO_2e/Million revenue.

To calculate carbon intensity, financial institutions must attribute the emissions of the companies they invest in or lend to between the equity and debt owners of those companies, in a similar way to when calculating portfolio emissions. In addition, they must attribute the revenue of the companies they invest in or lend to between the equity and debt owners of those companies. There are different approaches to attribution depending on asset class. With this information, they can calculate the emissions of their portfolio relative to the revenue or economic output the portfolio produces. One advantage of this normalization approach is that it takes into account the carbon efficiency of the underlying companies.

Carbon intensity calculation methodology

Below are the methodologies for calculating carbon intensity for each applicable asset class, as defined by PCAF.

Equity investments and bonds

$$\frac{\sum_{c=1}^{C} \frac{\boldsymbol{Outstanding\ amount_c}}{\boldsymbol{EVIC_c}} \times \boldsymbol{Company\ emissions_c}}{\sum_{c=1}^{C} \frac{\boldsymbol{Outstanding\ amount_c}}{\boldsymbol{EVIC_c}} \times \boldsymbol{Company\ revenue_c}}$$

Where:

$\boldsymbol{c}$	is an investee in a portfolio of investees from $1 \dots C$;
$\boldsymbol{Outstanding\ amount_c}$	is the actual outstanding amount in listed equity or bonds of investee c;
$\boldsymbol{EVIC_c}$	is the enterprise value including cash of investee c;

$\boldsymbol{Company\ emissions_c}$	is the total accounted emissions of investee c; and,
$\boldsymbol{Company\ revenue_c}$	is the revenue of investee c for the reporting period.

For listed equity and bonds, the attribution of emissions and revenue is according to the ratio of an investor's outstanding investment amount to the enterprise value of the company they are invested in. EVIC is the most natural measure to use for enterprise value, if available, as it ensures that exactly 100% of all investee's emissions and revenue will be attributed to the equity and debt holders as these jointly determine 100% of the company's EVIC.

For financial institutions which only invest in equity, attribution can instead be according to the ratio of outstanding amount in listed equity to total market capitalization. This follows the ownership approach and is aligned with financial reporting and consolidation rules.

Carbon intensity is calculated by dividing the total emissions attributed to the portfolio by the total revenue attributed to the portfolio.

As with all other carbon footprinting metrics, the emissions of the companies within the portfolio are a crucial component of the calculation. All the same data challenges previously discussed are relevant when calculating the carbon intensity of a portfolio. The limitations should not deter financial institutions from attempting to calculate the metric if it is relevant and decision useful to their own portfolio. They should use the best quality data or estimations available and should be clear which Scopes are considered. When carbon intensity was first defined by the TCFD, only Scope 1 and 2 emissions of the underlying portfolio companies were recommended to be included in the calculation. The formula easily extends to include Scope 3 emissions, although this increases the chances of double counting emissions across Scopes and is likely to exacerbate data limitations.

Loans and equity investments

$$\frac{\sum_{c=1}^{C} \frac{\boldsymbol{Outstanding\ amount_c}}{\boldsymbol{(EVIC_c)\ or\ (Total\ company\ equity + debt_c)}} \times \boldsymbol{Company\ emissions_c}}{\sum_{c=1}^{C} \frac{\boldsymbol{Outstanding\ amount_c}}{\boldsymbol{(EVIC_c)\ or\ (Total\ company\ equity + debt_c)}} \times \boldsymbol{Company\ revenue_c}}$$

Where:

$\boldsymbol{c}$	is an investee in a portfolio of investees from $1 \dots C$;
$\boldsymbol{Outstanding\ amount_c}$	is the actual outstanding amount in listed equity or bonds of investee c;
$\boldsymbol{EVIC_c}$	is the enterprise value including cash of investee c;
$\boldsymbol{Total\ company\ equity + debt_c}$	is the total equity and debt from investee c's balance sheet;
$\boldsymbol{Company\ emissions_c}$	is the total accounted emissions of investee c; and,
$\boldsymbol{Company\ revenue_c}$	is the revenue of investee c for the reporting period.

For corporate loans and private equity, the same principle is followed of attribution according to the ratio of an investor or bank's outstanding investment (loan) amount to the value of the company they are invested in

(lending to). However, for non-listed companies, EVIC is not likely to be available due to a lack of information on market capitalization. In this case, the total balance sheet value expressed as the sum of total company equity and debt shall be used.

Reporting carbon intensity to CDP

The carbon intensity metric should be disclosed by:

- Selecting 'Yes' in response to 12.1 in column one "We measure the impact of our portfolio on the climate."
- Selecting 'Other carbon footprinting and/or exposure metrics (as defined by TCFD)' in response to 12.1, column two "Disclosure metric"; and
- Disclosing the metric in response to 12.1.3." Provide details of the other metrics used to track the impact of your portfolio on the environment.", using 'Carbon intensity (tCO_2e/Million revenue') in column three.

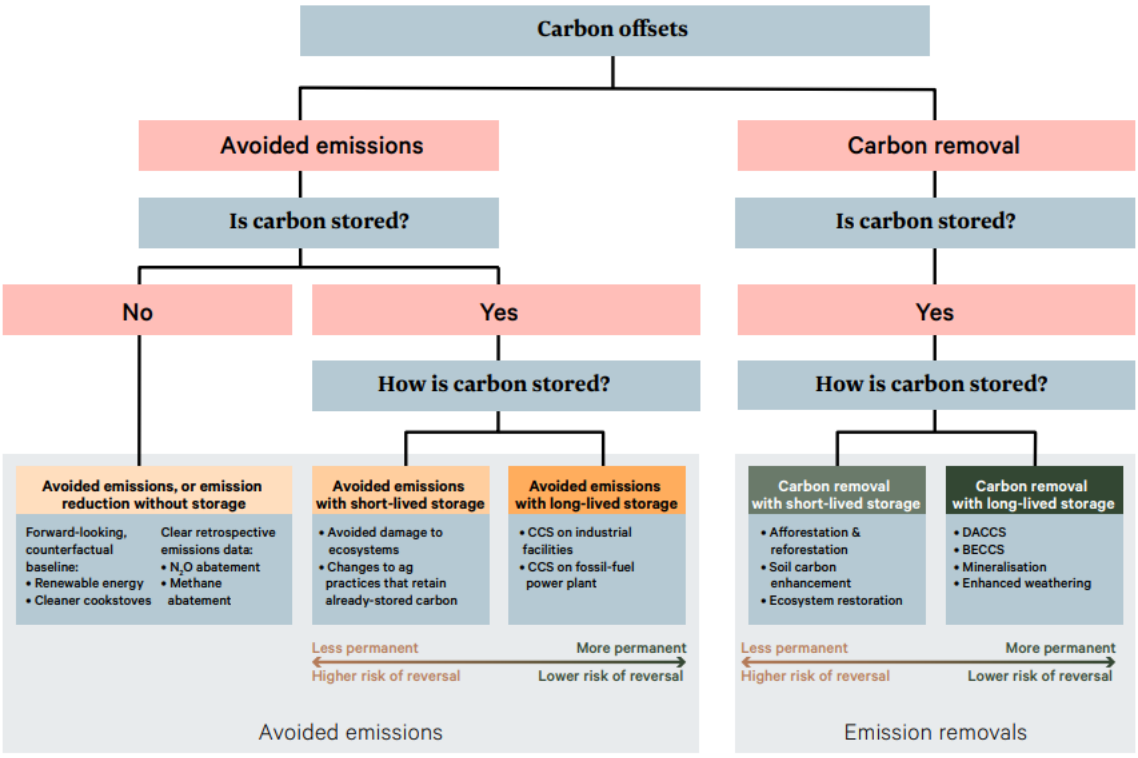
The carbon intensity per Million revenue should be disclosed in column four (Metric value in the reporting year).

4.5. Avoided emissions and emission removals

Not all loans and investments result in GHG emissions. Some may result in mitigating activities. For instance, project-specific loans and investments in the forestry and land use sector, direct air carbon capture and storage, or bioenergy with carbon capture and storage can result in CO2 being sequestered or removed from the atmosphere and stored in solid or liquid form, removing its harmful global warming effect. Similarly, project-specific loans and investments in renewable energy projects can result in emissions being avoided as they displace the emissions that would have otherwise occurred without the project's implementation, referred to as avoided emissions. Reporting on financed emission removals (also known as carbon removals financed) and avoided emissions financed shall always be done separately from that of the financial institution's scope 1, 2, and 3 GHG inventories.

The above description along with guidance on measurement are included in the second version of PCAF's Global GHG Accounting and Reporting Standard for Financed Emissions, which was launched in December 2022. We invite readers to consult that document as a supplement to this technical note.

PCAF emphasize that the distinction between avoided emissions and emission removals is important from an accounting perspective. They illustrate the differences in the figure below:



In the context of your CDP response, avoided emissions financed and carbon removals financed must be reported separately from any other carbon footprinting and/or exposure metrics used to track the impact of your portfolio on the climate in question 12.1.3

Reporting avoided emissions financed and/or emission removals financed to CDP

The avoided emissions financed and/or emission removals financed should be disclosed by:

- Selecting 'Yes' in response to 12.1 in column one "We measure the impact of our portfolio on the climate."
- Selecting 'Other carbon footprinting and/or exposure metrics (as defined by TCFD)' in response to 12.1, column two "Disclosure metric"; and
- Disclosing the metric in response to 12.1.3." Provide details of the other metrics used to track the impact of your portfolio on the environment.", using 'Avoided emissions financed (tCO2e)' and/or 'Carbon removals financed (tCO2e)' in column three.

The avoided emissions and/or emission removals in tCO_2e should be disclosed in column four (Metric value in the reporting year).

4.6. Insurance-associated emissions

For insurance underwriting, carbon footprinting metrics are in their infancy. A barrier to progress has been the issue of double counting. It is plausible that insurers count Scope 3 emissions on their underwriting portfolio but also count the same emissions on the other side of their balance sheet if the premiums received are invested in the same companies being covered. Until now, there has not been a globally accepted standard for measuring and reporting emissions associated with re/insurance underwriting portfolios ("insurance-associated emissions"). Responding to increasing demand from the insurance industry and other stakeholders, PCAF published the Global GHG Accounting and Reporting Standard for Insurance-Associated Emissions in November 2022. This Standard constitutes Part C of PCAF's Global GHG Accounting and

Reporting Standard for the Financial Industry. As such, this standard supplements the requirements of the GHG Protocol "Corporate Value Chain (Scope 3) Accounting and Reporting Standard".

It's worth noting that disclosers should not aggregate financed emissions and insurance-associated emissions in their reporting. We quote PCAF: "For the avoidance of doubt, insurance-associated emissions and financed emissions are not, and are not intended to be, directly comparable. Insurance-associated emissions and financed emissions shall be reported separately and not, under any circumstance, aggregated under the GHG Protocol scope 3 category 15 (Investments). Insurance-associated emissions are a supplementary accounting note to the GHG Protocol scope 3 category 15 (Investments)."

It is the first version of the Insurance-Associated Emissions Standard and provides detailed methodological guidance for the measurement and disclosure of GHG emissions associated with two segments; commercial lines and personal motor lines. The next version of the Standard aims to address the issue of data availability and consistency across the entire re/insurance value chain, and define an attribution methodology for reinsurance associated with treaty reinsurance aligned with PCAF principles.

Reporting insurance-associated emissions to CDP

The insurance-associated emissions should be disclosed by:

- Selecting 'Yes' in response to 12.1 in column one "We measure the impact of our portfolio on the climate."
- Selecting 'Other carbon footprinting and/or exposure metrics (as defined by TCFD)' in response to 12.1, column two "Disclosure metric"; and
- Disclosing the metric in response to 12.1.3." Provide details of the other metrics used to track the impact of your portfolio on the environment.", using 'Insurance-associated emissions (tCO_2e)' in column three.

The insurance-associated emissions in tCO_2e should be disclosed in column four (Metric value in the reporting year).

4.7. Facilitated emissions

Until 2023, there had not been a globally accepted standard for measuring and reporting emissions associated with capital market activities. PCAF's new standard constitutes PCAF (2023) The Global GHG Accounting and Reporting Standard Part B: Facilitated Emissions for the Financial Industry. As such, the standard supplements the requirements of the GHG Protocol 'Corporate Value Chain (Scope 3) Accounting and Reporting Standard'.

The Facilitated Emissions Standard provides detailed guidance to calculate the facilitated emissions resulting from capital market activities. By following the methodologies, financial institutions can measure GHG emissions for each segment and produce disclosures that are consistent, comparable, reliable, and clear.

Facilitated emissions calculation methodology

Facilitated emissions from primary issuances of capital market instruments are calculated using the formula below:

$$Facilitated\ emissions = \sum_{c} \frac{Facilitated\ amount_c}{Company\ value} \times Weighting\ factor \times Annual\ emissions_c$$

$$(Faciliated\ amount = Total\ raised\ amount \times League\ table\ credit)$$
$$c = The\ issuing\ company$$

Where:

Facilitated amount	Defined as the product of the total amount raised and volume attributed to the financial institution;
Company value	For all listed companies this is the company enterprise value including cash (EVIC) of the respective client. Only for private companies EVIC should be replaced by the sum of the total company equity and debt when no market value for equity is available.

For a comprehensive description of the calculation methodology, please refer directly to the PCAF Standard, part B, Facilitated Emissions.

Reporting facilitated emissions to CDP

The facilitated emissions should be disclosed by:

- Selecting 'Yes' in response to 12.1 in column one "We measure the impact of our portfolio on the climate."
- Selecting 'Other carbon footprinting and/or exposure metrics (as defined by TCFD)' in response to 12.1, column two "Disclosure metric"; and
- Disclosing the metric in response to 12.1.3." Provide details of the other metrics used to track the impact of your portfolio on the environment.", using 'Facilitated emissions (tCO2e)' in column three.
- The facilitated emissions in tCO_2e should be disclosed in column four (Metric value in the reporting year).

5. Breaking down portfolio impact metrics

As well as calculating and disclosing portfolio impact metrics for their entire financing portfolio, financial institutions should also break down their portfolio impact to get more granular details on exactly where in their portfolio they face climate-related risks.

CDP requests portfolio impact breakdowns by asset class, industry, and scope. It is worth noting there are other ways of breaking down portfolio impact metrics. For example, the TCFD recommends that in addition, banks break down metrics used to assess the impact of climate-related risks on their lending business activities by credit quality (e.g. investment grade or non-investment grade) and average tenor.

Breakdowns should be disclosed in questions 12.2. and 12.2.1. Question 12.2.1 "Break down your organization's financed emissions and other portfolio carbon footprinting metrics by asset class, by industry, and/or by scope." can be used to break down multiple portfolio metrics.

- Add a row for each portfolio for which you are able to provide a breakdown of your organization's portfolio impact.
- Add a row for each category in each metric breakdown[13].
- If you are able to provide a breakdown of multiple scopes for a single portfolio, industry or asset class, add a separate row for each scope.

In response to 12.2.1, e.g. an asset manager would add two rows, one for each portfolio, asset class, emissions scope and/or industry.

In explaining their calculation methodology, it will be important for the asset manager to explain:

- Why the calculation covers their listed equity and listed bonds portfolios but not investments through other funds;
- Why Scope 1 and 2 emissions of their borrowers have been included, although not Scope 3; and
- The data sources used for reported emissions data; and,
- The approach taken to estimate company emissions when primary data was not available – were emissions estimated using physical activity-based modelling or economic activity-based modelling?

[13] I.e. if you were breaking down a single portfolio's emissions reported in 12.1.1 and also breaking down weighted average carbon intensity reported in 12.1.3, both by asset class into equity investments and fixed income, there would be four rows in total.

6. Going further

Calculating and disclosing portfolio impact metrics is not in itself an end-goal. The metrics requested by CDP quantify portfolio impact at one point in time only. It is the greening of the financial sector which will be instrumental in achieving the low-carbon transition. For most financial institutions, the journey starts with a high-level commitment to act through international initiatives such as the UNEP FI established frameworks for responsible investing, banking and insurance[14]. The next step, which has been the focus of this technical note, is the measurement of climate change impact. Financial institutions can go further once they have calculated portfolio impact metrics by using the metrics to set targets for reducing their climate change impact and to inform actions they can take to reduce their impact. Reporting on progress through effective environmental disclosures is important at every stage of the journey.

The obvious way for financial institutions to go further once they have calculated a portfolio impact metric is to set a target to improve the metric. Each of the metrics requested by CDP in module 12 could be used to construct a target for reducing the climate change impact of financial portfolios over time.

The gold standard for climate change targets are science-based targets. Targets are considered science-based if they are in line with what the latest climate science says is necessary to meet the goals of the Paris Agreement. In 2022, the Science Based Targets Initiative released guidance and criteria on science-based targets for financial institutions; subsequently updated in 2024 [15]. The SBTi also published a Draft Financial Institution Net-Zero (FINZ) Standard for public consultation and pilot testing with consultation closing in October 2024[16]. One approach to target setting permitted under the current criteria, the sector decarbonization approach, builds directly on the portfolio emissions metric requested by CDP in 12.1.1. Other target setting methodologies include those outlined by, for example, the Net Zero Investment Framework (NZIF), the Net-Zero Banking Alliance (NZBA) and the Net-Zero Asset Owner Alliance (NZAOA). NZBA has recently updated its guidelines to include facilitated emissions which now require banks to set 1.5C aligned targets for facilitated emissions from their capital markets activities. We note here with respect to reporting financed avoided emissions and/or emission removals that, in line with science-based target setting, financial institutions should continue to prioritize reducing absolute financed emissions above other forms of mitigation, such as actions taking place beyond their value chains or those of their portfolio companies.

Based on the recent developments announced by industry groups such as PCAF and NZBA, financial institutions should enhance and expand the scope of their emissions accounting by including facilitated emissions. Financial institutions will need to adapt their carbon accounting practices to incorporate new and updated methodologies developed by PCAF. This may involve updating data collection processes, calculation methods, and reporting frameworks. This also calls for better data quality to improve on their data quality scoring of financed and facilitated emissions.

Financial institutions can report on their climate change target setting to CDP in module 7.

Another way financial institutions can go further once they have calculated portfolio impact metrics is through third-party verification. For some time, verification of GHG emissions data has been best practice in environmental reporting as it increases the reliability of data and builds a strong reputation. For financial services companies, as the focus shifts onto the environmental impacts they finance in the wider economy, particularly their portfolio emissions, there will be interest in ensuring the reported metrics are accurate.

Financial institutions can report on their verification to CDP in modules 7 and 13.

[14] See the Principles for Responsible Investment: https://www.unpri.org/, the Principles for Responsible Banking: https://www.unepfi.org/banking/bankingprinciples/ and the Principles for Sustainable Insurance: https://www.unepfi.org/psi/.
[15] SBTi (2024) "Financial Sector Science-based Targets Guidance," https://sciencebasedtargets.org/resources/files/Financial-Sector-Science-Based-Targets-Guidance.pdf.
[16] SBTI (2024) “Financial Institutions Net-Zero Standard”, https://sciencebasedtargets.org/resources/files/FINZ-Consultation-Draft.pdf.

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