



Paving the way towards a harmonised carbon accounting approach for the financial sector

Progress report of the Platform Carbon Accounting Financials (PCAF)

PCAF

Platform Carbon Accounting Financials

Paving the way towards a harmonised Carbon Accounting Approach for the Financial Sector

The Platform Carbon Accounting Financials, or PCAF, was created by a group of Dutch financial institutions which have joined forces to improve carbon footprinting in the financial sector and to create a harmonised carbon footprinting approach. At COP21 in Paris, these members formulated their Dutch Carbon Pledge, urging global leaders to take effective measures to keep global warming within safe levels. The group will share its findings with other interested parties to encourage others to adopt carbon accounting as a positive step towards a low carbon economy.

PCAF consists of the following members:



ABN AMRO



Achmea Investment
Management



ACTIAM



APG



ASN Bank



FMO



MN



PGGM



Stichting Pensioenfonds
Metaal en Techniek (PMT)



Stichting Pensioenfonds van
de Metalektro (PME)



Triodos Bank



De Volksbank

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1 Introduction

1.1 Climate Change: a call to action for the financial sector

The climate conference in Paris (COP21) has produced a landmark agreement. The commitments made by 195 countries are a big leap forward. Global greenhouse gas (GHG) emissions need to be decoupled from economic growth and need to be reduced by approximately 60% in 2050 to limit global warming well below 2 °C. Staying within a 1.5 °C temperature increase implies decisions very similar to the ones needed for a 2 °C pathway but they need to be taken (and scaled up) sooner. Climate action of all actors across sectors and countries is needed to reach the climate goals of the Paris Agreement and transition to a low-carbon society.

The financial sector has a clear role to play in this global transition. First; by being transparent on its footprint, i.e.: where its investments - defined in their broadest sense - go and what these activities could mean for GHG emissions. And secondly; what it is able to do to curtail emissions through transforming their portfolios and engaging with their investees. However, it is not just a moral appeal. Increasingly, the sector itself views climate action as being in its enlightened self-interest. Decreasing exposure to carbon-related risks is increasingly viewed as making good business sense.

What can the financial sector do to make this happen? Several initiatives have been launched over the past few years. These initiatives range from a partnership working to understand the impact of environmental considerations on financial performance to a platform to encourage policy and investment practices to address long term risks of climate change.

| UNEP Finance Initiative | 2° Investing Initiative | Institutional Investors Group on Climate Change |
|--|---|---|
| <ul style="list-style-type: none"> Partnership of over 200 financial institutions working to understand impact of environmental considerations on financial performance Strong focus on policy, stimulating financials to take part in climate negotiations Their Portfolio Decarbonisation Coalition is a group of financials pledging to make fully transparent, restructure and decarbonize their portfolio via the Montreal Carbon Pledge Portfolio Carbon Initiative provides guidance on how to define, assess, and track climate performance for asset owners and banks | <ul style="list-style-type: none"> Think-tank developing methodologies, metrics and policies to align investments with a 2 °C scenario The alignment methodology enables a portfolio coverage to be split along various sectors and provides insight into exposure to carbon-intensive assets Strong in utility sector, fossil fuel sector, automotive | <ul style="list-style-type: none"> European platform of investors to encourage policy and investment practices to address long term risks of climate change Encourage public policy adoption that ensure an orderly and efficient move to a low carbon economy, as well as measures for adaptation Inform investment practices to preserve and enhance long-term investment values |
| <p>To be addressed: The PCI is a global effort and has been in development for quite some years. It provides a basis for target setting, but does not provide methodology.</p> | <p>To be addressed: Not all sectors are covered. Long-term (i.e. 2030/2050) target setting is currently not supported.</p> | <p>To be addressed: No methodology development to provide guidance on defining, assessing and/or tracking climate performance</p> |

Figure 1. Examples of initiatives aimed to address climate change by the financial sector.

As indicated in Figure 1, some of these initiatives and legislations have resulted in a trend of carbon footprinting of investment portfolios and a rising need for transparency and uniformity of footprinting methods. Although some harmonisation attempts have been made in international initiatives, no standard has emerged yet.

1.2 Dutch developments: PCAF

In the Netherlands, several financial institutions can be considered global frontrunners in the field of carbon footprinting of investment portfolios. Dutch financial institutions have been working on increased transparency for years. Some of the Dutch frontrunners have signed PRI's Montréal Pledge, and others are members of the Portfolio Decarbonization Coalition. These organizations are committed to report their carbon footprint and set targets for reducing their climate exposure.

Paving the way towards a harmonised Carbon Accounting Approach for the Financial Sector

Eleven Dutch financial institutions have joined forces to improve carbon footprinting through the Platform Carbon Accounting Financials (PCAF). The founding members are banks (ABN AMRO, ASN Bank, de Volksbank¹ and Triodos Bank), asset managers (ACTIAM, APG, MN, and PGGM) and a development bank (FMO). At the COP21 in Paris, these members formulated their Dutch Carbon Pledge², urging the parties to calculate their carbon emissions, set emission targets as appropriate and take effective measures to keep global warming under safe levels. This year Achmea Investment Management joined PCAF. PCAF became part of the Dutch Sustainable Finance Platform in 2017 as well as a working group.

1.2.1 PCAF governance

PCAF is currently facilitated by the ASN Bank with Piet Sprengers as Chair, Freek Geurts as Secretary and Jeroen Loots as Coordinator for the project. PCAF started with four Working Groups (WGs), with each WG chaired by a different financial institution: Listed Equity (Erik Jan Stork, APG), Project Finance (Albert van Leeuwen, FMO), Sovereign Bonds (Kees Ouboter, Actiam) and Mortgages (Laura van Heeswijk, de Volksbank). This document will treat these WGs separately to provide clear content distinction where necessary. PCAF started two new WGs, Corporate Debt Finance (Thierry Oeljee, Achmea Investment Management) and Real Estate (Tjeerd Krumpelman, ABN AMRO), in 2017. Next to the four Working Groups PCAF engages regularly with a Sounding Board that consists of the following organizations: ING, Rabobank, Van Lanschot, BNG and NVB.

1.2.2 The objective, mission and vision of PCAF

The objective of PCAF is to achieve transparency and uniformity in carbon footprinting and target setting.

PCAF aims to develop carbon footprinting methodology that can be applied to calculate the emissions of Scope 3 Category 15 (investments) in the GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard and builds on GHG protocol methodology, expanding on it where appropriate. Ideally, this methodology will also be suitable and methodologically in line with calculating the avoided emissions of project finance (GHG Protocol for Project Accounting). PCAF's goal is to harmonise methodologies per asset category, improve robustness of methods and improve data quality as well as to promote using a single language and reporting method.

PCAF distinguishes: reporting, monitoring and steering in its approach to carbon footprinting. While striving for underlying methodologies and metrics that can serve all those purposes, we acknowledge that differentiations may be inevitable to serve all these purposes well. PCAF supports the ultimate objective that investors should over time move beyond the monitoring of their carbon footprint towards one or more of the following objectives: asset (risk) management, liability (funding) management and/or broader responsibility, long term stability and impact management. In this sense, a solid carbon footprint would be the requirement for credible, science-based targets that would allow financial institutions to effectively and demonstrably bring their actions in line with at most a 2 °C scenario. This is described in more detail under section 2.1.

1.3 The purpose and scope of this document

PCAF's work is open source: this document is designed to share the current status of PCAF's work and provide an opportunity for peer review on its work to date. PCAF actively welcomes external suggestions and recommendations.

This document is intended to provide a clear overview of the work that has been done so far by PCAF's WGs. It should provide insight into what the next steps should be and what gaps in methodology or data have emerged. It is intended to provide an overview of the current status of carbon footprinting methodologies per asset class.

¹ Formerly SNS Bank N.V.

1.4 The structure of this document

The Greenhouse Gas (GHG) Protocol, developed by the World Resources Institute (WRI) and World Business Council on Sustainable Development (WBCSD), is the leading standard on carbon accounting. To increase the accessibility and legibility of this report, we use the layout and structure of the GHG Protocol as guidelines. To make it easy to find relevant topics for interested financial institutions, we provide the results per asset class and present the findings in easy to read tables. Finally, it is important to realise that the PCAF 'project' is work in progress. Any methodological gaps and data will be filled at a later stage.

This document contains footprinting guidance on 4 asset classes: government bonds, listed equity, project finance and mortgages. In Chapter 2, the reasons for calculating the carbon impact of these asset classes are laid out in more detail. Chapter 3 sets the principles of this type of carbon footprinting. Chapter 4 details methodologies arising from these principles per asset class. This is done in accordance with the thematic WG order of PCAF. After this, Chapter 5 lists which aspects are critical when reporting carbon footprint. Chapter 6 describes the next steps for PCAF. Finally, a glossary of terms is provided in Chapter 7.

2 Why would a financial institution calculate the carbon footprint of its assets?

2.1 Business goals

Before we look in more detail at the methods and key assumptions, let us first assess what objectives financial institutions could have for determining the carbon footprint of their assets. PCAF identified the following objectives for carbon footprinting:

| | Risk Management | Value |
|-------------------------------------|---|--|
| Internal (steering purpose) | Asset management: a high carbon footprint could imply a potentially high risk in an increasingly decarbonised economy. | Active ownership: on a line by line level, carbon footprint data are indicators of (carbon) efficiency of a given organization, sovereign or asset and a metric to compare these within their peer group or over time. Data acts as supporting material for engaging with investees on their carbon footprint. |
| External (reporting purpose) | Stakeholder management: clients and beneficiaries increasingly demand that their savings are managed in a way that is resilient to climate change. They may withdraw money (if they can) and entrust their savings with another financial institution if they feel that climate risk is not managed properly. | Broader responsibility, long term stability and impact management: by reducing the carbon footprint, financial institutions reduce the likelihood and impact of climate change and contribute to a better world. Insight in the carbon footprint is a prerequisite to this type of target-setting. |

We acknowledge that these objectives may sometimes determine the choice of metrics used. For instance, if the main objective is to generate a positive impact, accuracy and completeness are important. For strategies aimed at external reporting, simplicity and comparability may dominate. A financial institution which steers on its carbon footprint may wish to hold external factors – such as asset prices – constant. An alternative approach could be that a financial institution announces intentions, and manages expectations by explaining that external factors are out of its control.

In general, PCAF members support the ultimate objective that financial institutions should exert their influence (through asset allocation and active ownership) to accelerate the transition to a low carbon economy.

3 Principles of carbon accounting for financials

3.1 GHG Protocol

The basis for carbon accounting is the GHG Protocol, as explained in chapter 1. This protocol defines three distinctly different scopes that all entities may report separately, see Figure 2. In the next section, these scopes are used from the perspective of the reporting financial institution (FI). In the next chapter where asset classes are detailed further, these asset classes are part of the FI scope 3 category 15 (Investments) or financed emissions. There, scope 1, 2 and 3 actually refers to the scopes from the viewpoint of the investee, be it a project, company, person or a country.

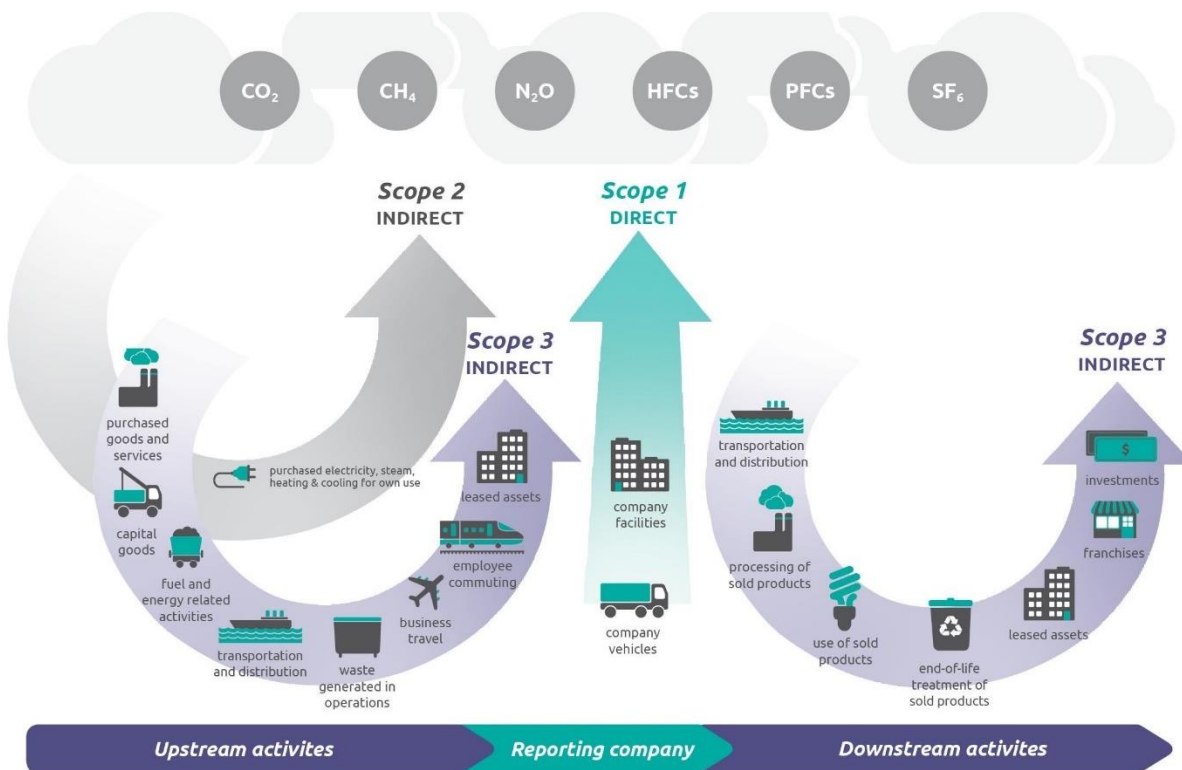


Figure 2. The scope definitions from the GHG Protocol (Image from GHG Protocol).

3.2 Overarching principles

This section lists common sets of basic design and accounting principles for carbon accounting for financial institutions, regardless of the type of investment. These principles will provide guidance on how to account for and report on financed emissions / avoided emissions by a financial institution. In order to distil a set of overarching principles for the various WGs, PCAF members rely on work already done on this topic. For an overview of work that served as inspiration, see Appendix B.

To define basic design and accounting principles, PCAF members made a practical selection out of the already available principles for carbon accounting and combine these selected principles with some generally accepted accounting principles.

3.2.1 Recognition

The carbon footprint of any financial institution should, according to the Corporate Value Chain (Scope 3) Accounting and Reporting Standard, include:

- Scope 1 of the reporting financial institution
- Scope 2 of the reporting financial institution
- Scope 3: the financed emissions of the reporting financial institution (category 15: investments)

3.2.2 Presentation and disclosure

Financed emissions should be accounted for and be reported at least annually. The following disclosure requirements are required:

- The relevance of the carbon footprint to the financial institution; for instance, because the financial institution is working towards a specific carbon footprint target or to monitor the effectiveness of its wider strategic goals in this area.
- The completeness of the financial institution's carbon footprint; disclose and justify any specific exclusions.
- The footprint cross-asset or only for the relevant asset classes
- Coverage of the assets that are included, preferably all assets in any included asset class but at least the majority
- The footprint of multiple comparable time periods (e.g. years)
- The relevance of the carbon footprint to the financial institution; for instance, because the financial institution is working towards a specific carbon footprint target or to monitor the effectiveness of its wider strategic goals in this area.
- The completeness of the financial institution's carbon footprint; disclose and justify any specific exclusions.
- Transparency; disclose any relevant assumptions and make appropriate references to the accounting and calculation methodologies and data sources used.
- The financial institution's absolute and/or relative emissions plus an explanation of their difference
- Recalculations of previous reporting years; A recalculation can be made of the financial institution's previous reports using the most recent, most relevant or most accurate data to be able to make a more reliable comparison between the current report and previous years. The recalculation steps should be made transparent.
- An explanation of scope 1, 2 and 3 in a simple and precise manner.

3.2.3 Measurement

- The six GHGs listed in the Kyoto protocol are measured: carbon dioxide (CO₂); methane (CH₄); nitrous oxide (N₂O); hydrofluorocarbons (HFCs); perfluorocarbons (PFCs); and Sulphur hexafluoride (SF₆). These six gases can be expressed in Carbon Dioxide equivalents.
- Absolute emissions are expressed in carbon dioxide equivalents: CO₂
- Relative emissions are expressed in carbon dioxide equivalents per million Euro: CO₂/M€
- Prudence; showing scope 1, 2 and 3 separately to ensure comparability, avoid overstating performance and provide transparency on potential areas of double counting.
- Emissions and avoided emissions should be allocated proportionally to a FI's stake in the financed underlying assets
- Ensure the GHG inventory appropriately reflects the GHG emissions of the financial institution and serves the decision-making needs of users – both internal and external to the company. This leads to the following set of key principles:
- Follow the money is a key principle for footprinting of financial assets, i.e. the money should be followed as far as possible to understand and account for the carbon impact on the real economy.
- Influence of the financial institutions on steering the investment, if the influence is bigger, also the proportional share for accounting the footprint to the investment is larger.
- The denominator, i.e. the financial value of the asset that in relation to the investment determine the proportional share for accounting the carbon footprint, should include all financial flows (i.e. equity and debt) to the investee as much as possible. When deviating from this, it should be made clear why.
- These overarching principles were applied consistently to design and agree upon the carbon footprinting methodology per asset class.

3.3 Double counting

Double counting occurs when GHG emission or emission reduction is counted more than once towards attaining mitigation pledges or financial pledges for the purpose of mitigating climate change.

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Apart from the double counting that intrinsically occurs between the different scopes, double counting can take place at two levels:

- Between financial institutions
- Across asset classes
- Co-financing the same entity or activity
- Between transactions within the same financial institutions
- Across different asset classes
- Within the same asset class

PCAF recognizes that double counting of GHG emissions can't be avoided completely, but it should be avoided as much as possible. Double counting between co-financing institutions and between transactions within the same asset class of a financial institution may be avoided by appropriate attribution rules.

3.4 Avoided emissions

In this context, avoided emissions are investments in for example renewable energy projects or energy efficiency products leading to a lower consumption of fossil fuels elsewhere in the economy. Reporting on avoided emissions is a way to quantify and show your positive contribution to preventing climate change.

For the financial sector, which provides finance for projects and products that lead to avoided emissions, quantifying this effect could be interesting as well. Avoided emissions are most relevant for project finance, where there is a direct link between the involvement of the financial institution and a reduction in fossil fuel consumption. It is important to quantify and report avoided emissions separately from actual emissions. Otherwise financial institutions could "cherry pick", i.e. only focusing on the positive impact of a portfolio and purposefully ignoring the negative impacts.

In calculating these avoided emissions, it is important to select the right baseline (i.e. average product or technology on the market) and to be conservative to limit the chance of overstating avoided emissions. This baseline represents the emissions that would have occurred if the project had not been implemented. The difference between the emissions from the baseline and the emissions from the project are the avoided emissions.

4 Carbon footprinting methodology per asset class

This chapter covers the methodologies as detailed by the four WGs of PCAF. All methodologies follow from the overarching principles outlined in the previous chapter. The asset classes covered are:

- **Government bonds**
- **Listed Equity**
- **Project Finance**
- **Mortgages**

The working groups on real-estate and corporate debt finance have started and will be included in the final report.

All paragraphs below use the same form of table for clarity and to enable a direct comparison between asset classes. When parts of a table remain empty, it shows no decision has been made on this aspect yet or the item is not relevant for this asset class.

| | Outcome |
|-------------------------------------|---|
| Scopes covered | Decision on minimum requirements. |
| Portfolio coverage | Decision on minimum requirements. |
| Attribution | How is the investor's share of the total emissions of the investee attributed? |
| Data | What data to use? What considerations are important for this decision? |
| Absolute vs. relative emissions | What type of emission metric needs to be presented and how should the reporting institution arrive at this? |
| Avoided emissions | A description of how to account for avoided emissions when applicable. |
| Asset class specific considerations | Room for additional, asset class-specific considerations. |
| Limitations | The limitations of the proposed methodology are discussed. |

4.1 Government bonds

This section covers government bonds or 'sovereign bonds' as discussed and brought forward by the WG of the same name and concluded by PCAF.

| Topic | Outcome |
|--|---|
| Scopes covered | Scope 1, scope 2 and scope 3 category Purchased goods & services. No clear guidance on minimum requirements yet. Calculate and report the different scopes separately. For steering and risk mapping purposes it is useful to see what steps of the governmental supply chain are most exposed to carbon emissions. For reporting purposes the separation of scopes is necessary to allow separate government decision makers to draw informed conclusions. |
| Portfolio coverage | |
| Attribution | Attribution is proportional to the exposure of the financial institutions; the sum invested in government bonds from a country, see below. |
| Data | Eurostat provides up to date and credible input-output and emission tables, which have been used to calculate the carbon footprint of European government bonds. However, for many non-European bonds, it is more difficult to find reliable and accurate data sources. Ideally, the calculation would be based on uniform global input-output tables coupled with emission sources for the economic sectors per country. |
| Absolute vs. relative emissions | <p>(1) $absolute\ footprint_t = \sum_{asset \in portfolio} \frac{exposure_t}{denominator_t} emissions_{t-delay}$</p> <p>(2) $relative\ footprint_t = \frac{absolute\ footprint_t}{AuM_t}$</p> <p>In equation (1), the variable <i>emissions</i> refer to the emissions of a portfolio asset in period <i>t</i>. In this case these are the emissions of sovereign bonds, hence of governments (scope 1, 2 and 3). The <i>exposure</i> is the amount of euros invested in a specific sovereign bond. The <i>denominator</i> (government debt + equity) can be seen as the value that defines which part of CO₂ emissions can be attributed to the portfolio or as the value that normalizes the CO₂ emissions. Countries can be compared by their normalized CO₂ which cancels out the size bias of a country. The delay mentioned arises from a typical delay in emissions reporting. Under ideal circumstances, this should be set to zero.</p> |
| Avoided emissions | Green Bonds issued by a government could lead to avoided emissions, however this is not covered yet in this report. |
| 4.1.1 Asset class specific considerations | |
| State owned companies | State-owned companies are not included in this analysis. Their emissions could be attributed to scope 3 of government and it is not certain if state owned companies are already taken into account in the money flows in the input-output tables. There is also no publically available database with state owned enterprises per country. Including state-owned enterprises is recommended, but requires governments to disclose this information. |
| Energy imports and exports in I/O tables | Input-output tables do not account for energy imports and exports. |

4.1.2 Limitations

Government debt as denominator The absolute level of a country's debts influences the indicator and makes comparison between countries difficult. If government debt is low, a large proportion of the emissions is allocated to a government bond. A bond may have high emissions despite the fact that the government itself has an emphasis on energy efficiency and renewable energy. It may have effectively realized energy efficiency measures. If government equity is also taken into account in the denominator, we expect the problem would be less prevalent. However, data on government equity is not readily available.

Flow versus state variables When using data on CO₂ emissions of governments we use a flow variable to assess how much CO₂ is emitted during a certain year. However, when we determine the contribution of the investor to these government emissions we look at a specific point in time. This can give the wrong information about what an investor really contributed during the whole year.

E.g. if an investor owns 100% of company X during the entire year, but sells all his shares on December 30th. The calculation on December 31st wouldn't show the shares of company X anymore and the influence the investor exerted on the company during the year is not expressed correctly in the carbon footprint.

A solution could be to increase the number of days the attribution factor is calculated and average the results. This would provide a more balanced opinion about the investor's contribution, but is more time intensive.

4.1.3 Calculation example

Description of example An example of how direct and indirect emissions are calculated. Input-output tables are linked to GHG emissions accounts to determine the share of the government in the GHG emissions per sector. Central government debt is used as denominator.

- Used data**
- Central Government Debt, 2015, derived from Eurostat table: *Government deficit/surplus, debt and associated data [gov_10dd_edpt1]*
 - Share of government spending per NACE activity, 2014, derived from Eurostat table: *Symmetric input-output table at basic prices (industry by industry) [naio_10_cp1750]*
 - GHG emission account per NACE activity, 2014, derived from Eurostat table: *GHG/Air emissions accounts by industry and households (NACE Rev. 2) [env_ac_ainah_r2]*

Calculation and results **Example calculation for a Dutch sovereign bond**
The central government of the Netherlands has a debt of €409,8 billion in 2015. The direct emissions of the Dutch government are extracted directly from Eurostat by summing the emissions of economic activity (NACE) category O (Public administration and defence; compulsory social security).

The following table shows the direct emissions of the Netherlands:

| Direct emissions by the Dutch government | |
|--|------------------|
| Carbon dioxide | 1.637.881 |
| Methane (tCO ₂) | 182.727 |
| Nitrous oxide (tCO ₂) | 28.358 |
| Hydrofluorocarbons (tCO ₂) | - |
| Perfluorocarbons (tCO ₂) | - |
| Sulphur hexafluoride (tCO ₂) | - |
| Total direct emissions in tCO₂ | 1.848.966 |

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The indirect emissions, scope 2 and 3, are calculated by following government expenses within sectors and determining the financed emissions within each sector. By summing all financed emissions in each NACE sector, we can calculate the total indirect emissions of the Dutch government, see the table below.

| NACE code | NACE activity | Financed by the Dutch government (million euro) | Total financing in the sector (million euro) | Share of government financing per sector | GHG emissions per sector (tCO ₂) | Financed emissions by the government (tCO ₂) |
|--|--|---|--|--|--|--|
| A01 | Crop and animal production, hunting and ... | 153 | 23.757 | 0,6% | 29.041.641 | 187.034 |
| A02 | Forestry and logging | 9 | 116 | 7,8% | 67.404 | 5.230 |
| A03 | Fishing and aquaculture | 3 | 179 | 1,7% | 504.620 | 8.457 |
| B | Mining and quarrying | 186 | 39.610 | 0,5% | 3.055.640 | 14.349 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| U | Activities of extraterritorial organisations | - | - | 0,0% | - | - |
| Total indirect emissions in tCO₂ | | | | | | 6.721.466 |

By summing the direct and indirect emissions and dividing it by the central government debt, the relative emissions for the Dutch government bond is calculated, as shown in the below table. The absolute emissions can be derived by multiplying the relative emissions with the financed amount.

| | GHG Emissions (tCO ₂) | Government debt (Trillion euro) | Emission factor (tCO ₂ /M€) |
|------------------------|-----------------------------------|---------------------------------|--|
| Direct emissions | 1.848.966 | | 4,51 |
| Indirect emissions | 6.721.466 | | 16,40 |
| Total emissions | 8.570.432 | 409.883 | 20,91 |

The decision on the denominator is, like the decision on scope, dependent on the purpose of carbon accounting. Because there is an advantage in comparing the carbon emissions of sovereign bonds with the carbon emissions of other classes, the choice of denominator is important. For steering on carbon in mixed funds that include sovereigns and other assets or bonds, PCAF members want to keep the denominators of different asset classes as similar as possible. In an ideal scenario you would therefore have the government debt + equity as denominator, describing the government balance. However, PCAF members urge governments to be more transparent about their data.

4.2 Listed equity

This section covers listed equity as discussed and brought forward by the WG of the same name and concluded by PCAF.

| Topic | Outcome |
|--|---|
| Scopes covered | Scope 1 and scope 2 minimum. Scope 3 optional. Consider reporting scope 1 and 2 separately. The reason to measure these scopes separately, even though this will require greater effort, is that scope 1 eliminates double counting and measures direct impact, also of a potential carbon tax. The reason to not include scope 3 as a mandatory requirement is that this would require better accounting and disclosure. To date, the comparability, coverage, transparency and reliability of scope 3 data is insufficient. |
| Portfolio coverage | Ideally, 100% of the portfolio should be covered. At least the majority of the portfolio should be covered and an indication should be provided for a pathway to full coverage. Provide an explanation of which product type (futures, ETFs, fund of funds, external mandates, prefs) were included or excluded and what the main method was for estimating missing data. Cash positions can be considered as having zero emissions. Short positions can be distracted. |
| Attribution | For the time being, emissions are attributed to equity investors as 'owners' of the companies. In other words, attribution in this case is the ratio of invested value per company over the total market capitalisation (market value of all of a company's outstanding shares) of this company. This follows the so-called ownership approach and is aligned with financial reporting and consolidation rules. It also aligns voting rights and rules for reporting substantial interest in listed companies and is aligned with the principles in the GHG Protocol. Going forward, PCAF may decide to use enterprise value over market value to be able to also attribute emissions to other funding sources, like debt. The working group on corporate loans will continue with defining and harmonising the use of enterprise value. |
| Data | PCAF does not recommend a preferred source. Analysis of Kepler Cheuvreux ² for IIGCC demonstrates that for scope 1 and 2 emissions differences between data vendors are 12-24%. It is encouraged to use the most recent available data and to mention the data source, reporting period or 'time stamp' of these data. |
| Absolute vs. relative emissions | As a minimum, the WG suggests to disclose both absolute and relative emissions. In external communications we propose to use total assets under management as a metric for monitoring and reporting. The variable denominator is used to calculate a relative footprint as a means to measure the footprint per euro invested. In order to achieve this, the absolute footprint is typically divided by the total assets under management. |
| Avoided emissions | Avoided emissions are not appropriate for this asset class |

4.2.1 Asset class specific considerations

| | |
|--|--|
| Aggregation of output | A decision needs to be made on the aggregation of outputs; should the total portfolio be enough or should a division be made between for instance advanced and emerging markets? |
| Challenges in steering carbon footprint | PCAF will in addition highlight the challenges linked to steering a carbon footprint and describe the metrics currently in use by investors as emerging practice ³ . |

² Kepler Cheuvreux, 2015: Carbon Compass: Investor guide to carbon footprinting. <http://www.iigcc.org/publications/publication/investor-guide-to-carbon-footprinting>

³ ABP/APG use normalized invested value. This is a metric that corrects for market fluctuations but does account for capital allocations. The metric is calculated as the number of participation that a client has in the fund multiplied by the price of a participation in a reference year. It represents the invested value at this year's market price levels. The advantage of the metric is that achieving the target becomes independent of market volatility. Disadvantage is that the normal economic growth is also neutralized which makes the target more ambitious in case of economic growth.

4.2.2 Limitations

| | |
|----------------------------------|---|
| Market price fluctuations | When using the market value as denominator, it is important to realize that assets under management change as a result of a fluctuating market price. An objective to reduce a relative footprint by a certain percentage becomes a moving target under the influence of this fluctuation. ⁴ |
|----------------------------------|---|

4.2.3 Calculation example

| | |
|-------------------------------|---|
| Description of example | <p>The absolute footprint of an investment in a company is calculated by multiplying the total emissions by the shareholding in the company. The absolute footprint of a portfolio of companies is calculated as the sum over all footprints.</p> <p>Total absolute footprint = Σ emissions company * (invested value / market cap)</p> <p>The relative carbon footprint is calculated by dividing the absolute carbon footprint over the invested value (per million).</p> <p>Total relative carbon footprint = absolute footprint / assets under management</p> |
|-------------------------------|---|

| | |
|------------------|---|
| Used data | <p>The information required for these calculations are:</p> <p>Company identifiers : for larger portfolios it is important to have unique company identifiers in order to combine information from various sources. Examples of such identifiers are: SEDOLs, ISINs, CUSIPs, Bloomberg Tickers. For large portfolios match external data sources can be a challenge, when for example two companies merge in market intelligence tools the company identifiers will be adjusted immediately while carbon data providers might only update such information on an annual basis.</p> <p>Emissions : can be taken from company reports if available but for large portfolios external data providers are often used. Examples of data sources include: CDP, Bloomberg, MSCI, Trucost and Southpole. In the choice of data source asset managers will have to compare the various options (for example on coverage, data quality, transparency, service, costs etc.).</p> <p>Market capitalization: this information is widely available in commercial market intelligence tools and commercial providers of financial data that are used by investors.</p> <p>Invested value : this information is normally available in the internal systems used by investors for portfolio management and performance monitoring.</p> |
|------------------|---|

| Calculation and results | Fund I is composed of two Listed companies and contains a bit of cash (5million). | | | |
|--------------------------------|---|-------------|--|-------------------------|
| | Company | Market cap | Invested | Total emissions |
| | A | 37,5billion | 100 million in a-shares and 50 million in b-shares | 500 ton CO ₂ |
| | B | 18 billion | 90 million | 400 ton CO ₂ |
| | Cash | | 5 million | |
| | Total invested | | 245 million | |

⁴ A possibility to overcome this would be to use normalized assets under management, whereby prices are held constant over the target period. Such adjustments should be made transparent.

Paving the way towards a harmonised Carbon Accounting Approach for the Financial Sector

Total emissions company * (invested value / market cap)

For company B: $400 * (90\text{mln} / 18\text{bln}) = 400 * 0,5\% = 2 \text{ ton CO}_2$

For company A: $500 * (150\text{mln} / 37,5\text{bln}) = 500 * 0,4\% = 2 \text{ ton CO}_2$

For cash no emissions are attributed

Total absolute carbon footprint = $2 + 2 = 4 \text{ ton CO}_2$

The relative carbon footprint is calculated by dividing the absolute carbon footprint over the invested value (per million).

Total relative carbon footprint = absolute footprint / invested value per million invested

Total relative carbon footprint = $4 \text{ ton CO}_2 / 240 = 16,7 \text{ kg CO}_2 \text{ per million invested}$

4.3 Project finance

This section covers project finance as discussed and brought forward by the WG of the same name and concluded by PCAF.

| Topic | Outcome |
|--|---|
| Scopes covered | Scope 1 and scope 2 minimum. Scope 3 optional. |
| Portfolio coverage | Ideally, 100% of the project portfolio should be covered. The coverage of the project portfolio should be clearly indicated. The coverage of security types should also be stated clearly. |
| Attribution | <p>Ratio of the investment (either debt, equity and/or mezzanine) over total project size (total debt+equity necessary to realize the project).</p> <p>Guarantees have no attribution, until they are called and turned into loan.</p> <p>The WG proposes to use actual outstanding exposure. For debt, this means adjusting the numerator annually (for instance reflecting the end-of-year exposure), resulting in the attribution to decline to 0 at the end of the lifetime of the loan (when it is fully repaid).</p> <p>In case of equity, the attribution factor remains constant regardless of value fluctuations (as these influence the numerator and the denominator by the same factor), until the moment the FI would buy or sell shares or the company would issue additional shares (diluting investor exposure) or would buy back shares (increasing investor exposure).</p> |
| Data | <p>It is proposed that for project finance data should not be based on generic input-output models, but on project-specific source data that will be fed into an accepted calculation methodology for the activity financed. It is proposed to require to use the most recent and realistic actual annual production figures from the project. To enable estimating the expected carbon footprint of a project already at the time the investment is made (when the project is not yet operational) it is essential that the methodology provides guidance on the way the annual production is estimated (conservative/neutral/aggressive scenario).</p> <p>For renewable energy projects it is customary to have experts calculate percentile production predictions based on an analysis of historic data resource data (wind, irradiation, hydraulic flow etc.): a P50 value meaning that the actual production may be expected to be exceed this value in 50% of the production years, the P90 value meaning that it you may expect it to be exceeded in 90% of the production years. The WG proposes to use the P50 predicted production.</p> <p>For eligible data sources, the WG proposes the following hierarchy of preference:</p> <ol style="list-style-type: none"> 1. expert emission report in accordance with the GHG Protocol 2. calculated from verifiable source data, using pre-approved calculation tools (IFC-CEET or AFD carbon tool) 3. for agriculture related projects: use credible agri-specific calculation tool or expert study 4. client report, not evidenced in accordance with the GHG Protocol |
| Absolute vs. relative emissions | Please note that in this context, relative emissions are not the emissions per unit of production, but per monetary unit of finance. Standard approach should be reporting absolute as well as relative emissions. The WG states that the methodology depends on the goal, e.g. monitoring and communication purposes or steering portfolios against a carbon target. The WG proposes to focus on the method for monitoring and communication purposes. Both use absolute and relative footprint. |
| Avoided emissions | <p>The WG proposes the following hierarchy of preferred sources for the reference emission factors:</p> <ol style="list-style-type: none"> 1. UNFCCC validated reports (CDM or otherwise) |

2. emission factors and calculation methodology from the IFI Approaches to GHG Accounting for Renewable Energy Projects and for Energy Efficiency Projects
3. for projects involving forestry, biomass or (other) carbon sequestration: dedicated carbon balance studies performed by independent experts.

4.3.1 Asset class specific considerations

Grid connected renewable energy projects The WG proposes to adopt a more sophisticated methodology than using the average grid emission factor to account for avoided emissions. Such a methodology is currently being developed by a harmonisation initiative of international finance institutions in collaboration with the UNFCCC.

Lifecycle emissions Lifecycle emissions, such as manufacturing, transporting and installing equipment should be accounted for to incentivise more efficient production in the future. When this is not possible, this should be clearly stated. The WG will investigate accounting for the emissions from the construction and decommissioning of projects for renewable energy projects. The WG foresees using an agreed estimation model. These emissions could be neglected when they are below a 5%; a threshold often used by the GHG Protocol.

Accounting timeframe The most commonly adopted accounting principle for GHG emission and other ESG data is to account for and report on the actual emissions that have taken place in the portfolio during the most recently completed reporting period (usually a calendar year). This approach is also proposed for project finance. However, project finance inherently relates to an activity that will only start after development, construction and commissioning have been completed, which is often years later, and may even be after the institution having provided the project finance is no longer exposed because it has been sold or otherwise refinanced. In order to be able to account for the impacts of investment decisions in the year that these investments are being made, several (development) finance institutions calculate and report on estimated future ('ex-ante') annual GHG emissions for all new investments in a given year. The WG proposes that the methodology provides for both ex-ante (estimated) and ex-post (actual) emissions.

Construct list of eligible methods For renewable energy, energy efficiency, fuel switch and other methods, an inventory of eligible methodologies will be made.

Boundary setting The boundaries (both for the GHG emission calculation and for the attribution) are set around the project; if the project is not fully greenfield (i.e. a new build project) this means that only the financed extensions are included and the emissions and financials related to the existing activities and/or installations are not considered.

4.3.2 Limitations

Emission data Although in project finance the availability of relevant project-specific data is high relative to some of the other asset classes, expert GHG emission reports, specific to the project will often not be available. Instead, the emission data will be based on project-specific source data, being calculated into emission data using sector- and country-specific factors.

Lifecycle emissions As mentioned before, it is proposed to neglect lifecycle emissions if these are smaller than 5% of total lifetime (avoided) emissions. If bigger than 5% these emissions should be accounted for, but in most case this must be based on generic model-based data. The proposed accounting methodology presents annual emissions; this implies that the emissions related to construction are to be reported only in the years in which they occur, so only during the construction period. In case the scope 3 lifecycle emissions may not be neglected, how to attribute them over the reporting years is not yet agreed.

4.3.3 Calculation example

| | |
|-------------------------------|---|
| Description of example | <p>Project: Greenfield windfarm project in Costa Rica, comprising of 25 2MW wind turbines Start of construction: February 2012 Start of operation: November 2013 Installed capacity: 50 MW Total investment: 150 mln USD</p> |
| Used data | <p>Estimated annual electricity production Source: wind studies and turbine supplier data, verified and confirmed by the Lenders Technical Advisor. Alternatives: use P90 (lenders' base case) or P50 (equity base case). As over the lifetime of the wind park the average annual production should equal the P50 value, it is proposed to use P50 Data: P90: 200 GWh/yr P50: 230 GWh/yr</p> <p>Actual production Source: audited data provided by the company Data: 2012: 0 GWh/yr (not yet in production) 2013: 50 GWh/yr (production started in Q3) 2014: 220 GWh/yr 2015: 240 GWh/yr ... 2023: 230 GWh/yr 2024: 220 GWh/yr</p> <p>Funding Source: finance documentation Data: 50 mln USD equity + 100 mln USD debt (from 4 lenders)</p> <p>Transaction Source: own systems Data: 12yr loan of 20 mln USD, approved in 2011, signed in 2012,</p> <p><u>Exposure</u> (only principle, at end of year): Source: own systems Data: 2011: 0 2012: 20 mln USD (of which 15 mln disbursed) 2013: 20 mln USD (fully disbursed, no repayments yet) 2014: 20 mln USD 2015: 18 mln USD 2023: 2 mln USD 2024: 0</p> <p>Project ('gross') GHG emissions Emissions from construction transport and production of the equipment (predominantly scope 3) are mostly neglected over the lifetime of the project, but it could be approximated at 629 tCO₂ per MW installed. Source: AFD carbon calculation tool. Data: construction GHG emission: 31,450 tCO₂ Emissions from operation (may contain both scope 1 and 3) are commonly neglected, but it could be considered to approximate this. Source: fuel + electricity consumption data from company & AFD tool.</p> |

Data: operational GHG emission: < 500 tCO₂/yr

Reference scenario GHG emissions

To be able to calculate avoided (or 'net') emissions it is necessary to estimate the baseline emission factor that would apply if the electricity had to be produced in the absence of the project in a most likely alternative scenario. The most authoritative framework on calculating can be found in the UNFCCC approved methodologies. For CDM registered projects a validated baseline emission factor is available. For non-registered projects, it is most common to use the average grid emission factor (mostly from the IEA). As this does not take the merit order for electricity dispatch into account, nor the aspect of electricity consumption growth, this results in a bias, notably in countries with high penetration of renewable energy and in countries with suppressed demand. Therefore, an alternative calculation method for grid emission factors is currently being developed by IFI's in collaboration with UNFCCC.

Source1 (CDM registered project): UNFCC

Data1: 355.9 tCO₂/GWh

Source2 (non CDM registered, simple average grid factor): IEA

Data2: 81 tCO₂/GWh

Source3 (non CDM registered, corrected grid factor): IFI Harmoniz. Framew.

Data3: 239 tCO₂/GWh (used in this example)

Calculation and results

Attribution

attribution factor = exposure / total investment

2011: 0%

2012: 20 / 150 = 13.33%

2013: 13.33%

2014: 13.33%

2015: 18 / 150 = 12%

.....

2023: 2 / 150 = 1.33%

2024: 0%

Absolute gross emission, non-attributed

ex-ante estimate (reported ultimo 2012): 500 tCO₂/yr

2011: 0

2012: 50% of construction emission = 15,700 tCO₂/yr

2013: 50% of construction emission = 15,700 tCO₂/yr

2014-end: < 500 tCO₂/yr

Absolute gross emission, attributed

ex-ante estimate (reported ultimo 2012): 13.33% x 500 = 67 tCO₂/yr

2011: 0

2012: 13.33% x 15,700 = 2,100 tCO₂/yr

2013: 13.33% x 15,700 = 2,100 tCO₂/yr

2014: 13.33% x <500 = <70 tCO₂/yr

2015: 12% x <500 = <60 tCO₂/yr

.....

2023: 1.33% x <500 = <7 tCO₂/yr

2024: 0

Relative gross emission:

ex-ante estimate: <500,000/150,000,000 = <0.003 kg CO₂/yr / USD

2011: 0

2012: 15,700,000/150,000,000 = 0.105 kg CO₂/yr / USD

2013: 15,700,000/150,000,000 = 0.105 kg CO₂/yr / USD

2014-end: <500,000/150,000,000 = <0.003 kg CO₂/yr / USD

Absolute net emission, non-attributed

ex-ante estimate: 500 - 230 x 239 = - 54,500 tCO₂/yr

2011: 0
2012: 15,700 tCO₂/yr
2013: 15,700 - 50 x 239 = 3,750 tCO₂/yr
2014: 500 - 220 x 239 = - 52,100 tCO₂/yr
2015: 500 - 240 x 239 = - 56,900 tCO₂/yr

...

2023: 500 - 230 x 239 = - 54,500 tCO₂/yr
2024: 500 - 220 x 239 = - 52,100 tCO₂/yr

Absolute net emission, attributed

ex-ante estimate: 13.3% x - 54,500 = 7,300 tCO₂/yr

2011: 0
2012: 13.33% x 15,700 = 2,100 tCO₂/yr
2013: 13.33% x 3,750 = 500 tCO₂/yr
2014: 13.33% x - 52,100 = - 7,000 tCO₂/yr (avoided emission)
2015: 12% x - 56,900 = 6,800 tCO₂/yr

...

2023: 1.33% x - 54,500 = 730 tCO₂/yr
2024: 0 x - 52,100 = 0 tCO₂/yr

Relative net emission:

ex-ante estimate: - 54,500,000/150,000,000 = - 0.363 kg CO₂/yr / USD

2011: 0
2012: 15,700,000/150,000,000 = 0.105 kg CO₂/yr / USD
2013: 3,750,000/150,000,000 = 0.025 kg CO₂/yr / USD
2014: - 52,100,000/150,000,000 = - 0.347 kg CO₂/yr / USD
2015: - 56,900,000/150,000,000 = - 0.379 kg CO₂/yr / USD

...

2023: - 54,500,000/150,000,000 = - 0.363 kg CO₂/yr / USD
2024: 52,100,000/150,000,000 = - 0.347 kg CO₂/yr / USD

4.4 Mortgages

This section covers mortgages as discussed and brought forward by the WG of the same name.

| Topic | Outcome |
|--|--|
| Scopes covered | Energy use of buildings (scope 1 and 2) |
| Portfolio coverage | |
| Attribution | 100% of building, even if a lower share is covered by the mortgage. The WG suggests not to use loan-to-value (LTV) ratio, because it leads to emissions fluctuating with property value. The LTV ratio is calculated as the amount of the mortgage loan divided by the appraised value of the property, expressed as a percentage. |
| Data | The WG suggests to work with actual data on the energy consumption of the properties, if available. For the Netherlands, PCAF is in contact with Netbeheer Nederland to provide actual energy consumption data. |
| Absolute vs. relative emissions | The methodology results in absolute emissions per household. This information can be further specified and translated into relative emissions based on preferred disclosure on the portfolio. |
| Avoided emissions | A mortgage on a house that is climate-positive, i.e. generating more energy than it consumes, could be seen as avoided emissions. However, this is not covered yet in this report. |

4.4.1 Asset class specific considerations

| | |
|--|---|
| Obtaining data on energy consumption | The preferred method Working with Netbeheer Nederland on the possibilities of unlocking the actual energy consumption of properties for carbon accounting purposes. The WG is interested in exploring the possibilities of combining energy labels with the actual energy consumption of the building. The actual energy consumption will be more accurate than working with the average energy consumption per energy label. |
| Double counting | How to account for the double counting of mortgages that are also included in e.g. green bonds? |
| Off-balance mortgages and subsidiaries | Decide on how to account for the emissions of off-balance mortgages and subsidiaries. |
| Distinguishing between private and corporate mortgage | Decide on whether to distinguish between private and corporate mortgages. |
| How to measure | <p>Following the principles, a preference is stated to use data on actual energy use. The electricity and gas consumption is multiplied with the emission factors for electricity and gas to arrive at the emissions of the mortgage.</p> <p>If this data is not available, another approach could be to use energy label combined with average emission per energy label. This is easy to apply but quite uncertain, because the family situation and behaviour of the inhabitant is not included.</p> |

4.4.2 Limitations

| | |
|---|--|
| Result dependent of data quality | <p>Many assumptions must be made in order to calculate the emissions of mortgages as data is often difficult to retrieve due to privacy reasons. Even though the calculation method does not differ greatly, the data sources used can yield different results, for instance when average consumption data is replaced by actual consumption data coming from grid operators.</p> <p>Furthermore, if actual consumption data is used, it is not clear if all the energy consumption is applicable solely for the house or for instance also for an electric car.</p> |
|---|--|

Country specific assumptions Some country specific adjustments need to be made to make the calculation applicable for a certain country. The Dutch energy label, for instance, is the result of a European directive and differs from ways to categorize energy efficiency of houses in countries outside of Europe. Country specific adjustments need to be considered depending on the data availability and standards in each country.

Double counting As 100% of the emissions per mortgage is attributed to the mortgage provider, it is possible that in some cases houses with mortgages at multiple providers get double counted.

4.4.3 Calculation example

Description of example The emissions of the mortgage portfolio for a fictional house in a mortgage portfolio, and a fictional mortgage portfolio.

- Used data**
- Emission factors for electricity of unknown source and natural gas are derived from the Dutch CO₂-database available at www.co2emissiefactoren.nl
 - Energy labels are provided by the Netherlands Enterprise Agency (RVO).
 - The average natural gas and electricity consumption for Dutch households per energy label are derived from WoON2012.

Calculation and results **Example calculation for a fictional house**
A mortgage is provided of €100.000 on a house with a value of €350.000. The Netherlands Enterprise Agency (Rijksdienst voor Ondernemend Nederland) provides a list of definitive and provisional energy labels for all households in the Netherlands. This particular house has an energy label G.

Databases on consumption data, like the one provided by WoON2012, reveal the average consumption of gas and electricity for Dutch households per energy label. The average consumption for gas and electricity for energy label G is 1.883 m³ and 2.942 kWh respectively according to this source.

The gas and electricity consumption are then expressed in CO₂ emissions using emission factors for electricity from unknown source in the Netherlands; 0,355 kg CO₂/kWh (WTW), and 1,788 kg CO₂/m³ for natural gas (TTW).

$$CO_2emissions = (gas\ consumption \times EF_{gas}) + (electricity\ consumption \times EF_{electricity})$$

$$CO_2emissions_{Energylabel\ G} = (1.883 \times 1,788) + (2.942 \times 0,355)$$

$$CO_2emissions_{Energylabel\ G} = 3.367 + 1.044$$

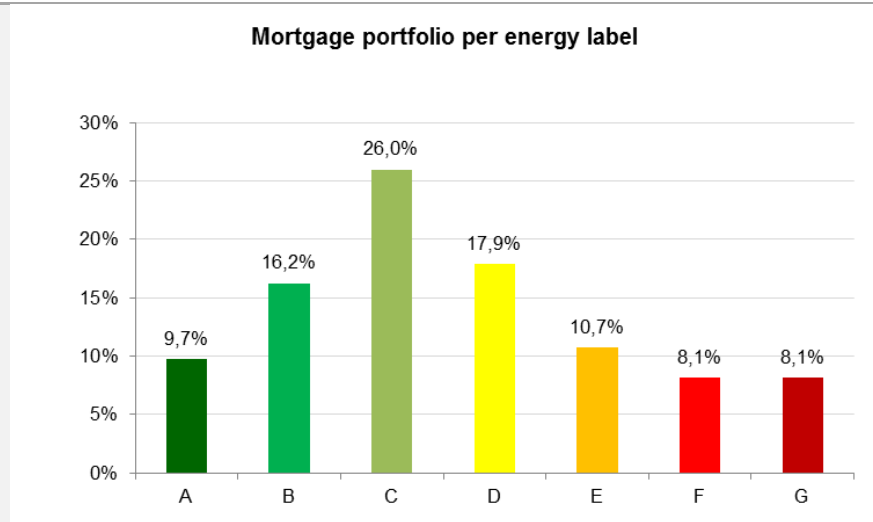
$$CO_2emissions_{Energylabel\ G} = 4.411\ kg\ CO_2$$

The complete emissions of 4,4 tCO₂ are allocated to the mortgage provider for this particular €100.000 mortgage as long as the mortgage is not repaid.

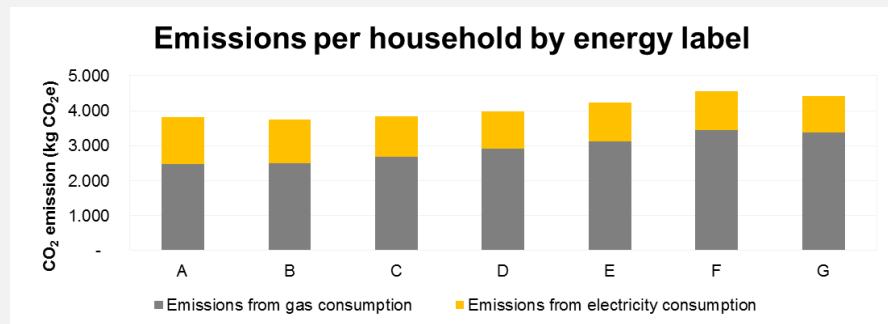
If actual consumption data is available, then this data is preferred over the calculation using average consumption data.

Example calculation for a fictional Dutch mortgage portfolio

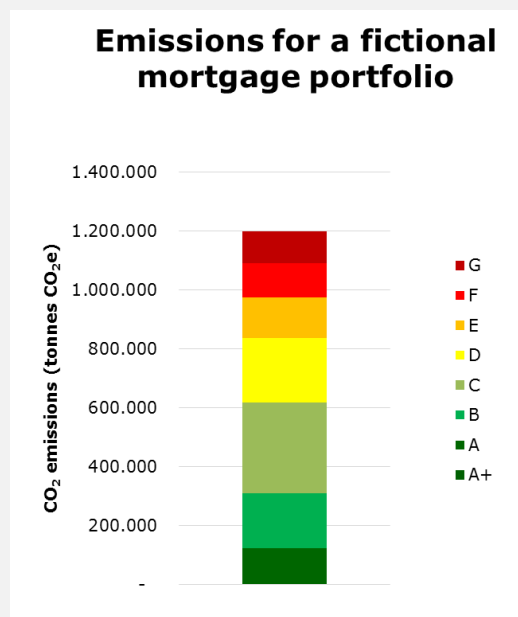
The calculation can be taken to portfolio level if we apply the same method to a whole portfolio. If we assume a mortgage portfolio of 100 billion euro, we can divide the portfolio by energy label as shown in below figure.



The CO₂ emissions for each energy label are calculated by following the same calculation steps as previously shown for energy label G. This leads to the following figure.



The emissions per energy label are then multiplied by the number of houses per energy label. By summing the emissions of all the houses, the CO₂ emissions for the mortgage portfolio is calculated at 1,2 MtCO₂.



5 Reporting

This chapter summarizes the highlights of reporting considerations from all the WGs. Like the work from the various WGs, these considerations are grounded in the overarching principles as defined in section 3.2. This summarizing section focusses on reporting and includes common approaches from all WGs.

- Report on an annual basis. Financial institutions should at least report annually.
- Include scope 1 and 2 as a minimum, scope 3 where relevant. All WGs agree that reporting these scopes separately is useful. Scope 3 emissions should be reported clearly separated from scope 1 and 2 emissions. The ‘Follow the money’ principle to allocate emissions per scope is very helpful when allocation is difficult to achieve.
- Present clearly which asset classes are included and excluded from the footprint and be transparent about the considerations. For instance; explain how certain assets were excluded based on their limited overall impact.
- Report transparently and credible. Ensure your reporting standards allow scrutiny and annual updating. Clearly describe the assumptions made to calculate the footprint.
- Explain methodology employed and limitations thereof. Describe the reasons for choosing a certain methodology and propose steps to reduce these limitations over time.
- Report absolute and relative emission footprints. Allow a direct comparison to footprint reduction KPI’s.
- Explain changes in footprint from one year to the next. Have these changes occurred due to actions from the reporting institution or did they arise from actions outside of their control?

6 Next steps

6.1 Stakeholder consultation

As mentioned in section 1.3, the purpose of this document is to provide PCAF and external stakeholders with an insight into the progress of their activities and share the status on certain carbon accounting issues. As a first next step, PCAF wants to consult and involve external stakeholders, like experts, governments, companies, NGOs, and integrate relevant feedback and findings into their further efforts. PCAF also want to align their carbon accounting guidance with other initiatives. Any carbon accounting methodology for the financial sector can only be successful if it can rely on broad support within the sector.

6.2 Expanding to more asset classes

So far, PCAF and this document have focussed on four asset classes; government bonds, project finance, listed equity and mortgages. The next step will be to build on the existing and fruitful cooperation within this platform and expand to other asset classes. This is currently under discussion by PCAF members and depends on the priorities of the members. Corporate debt finance and real estate will be the next asset classes to be included as a next step. Figure 3 illustrates the possible asset classes.

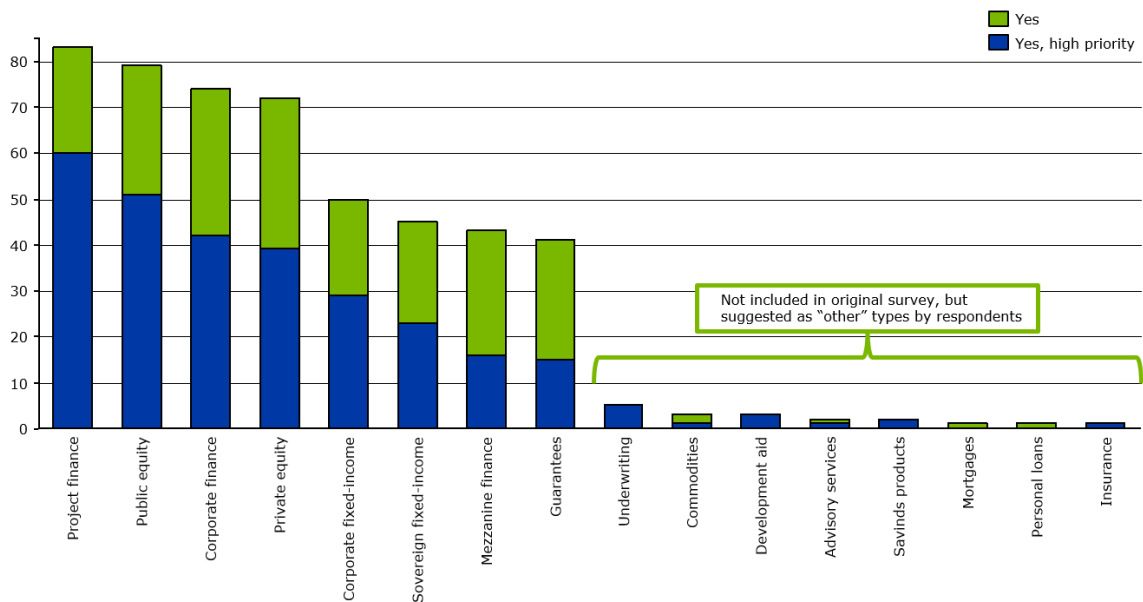


Figure 3. Suggested other asset classes to be included in the GHG protocol (Source: survey GHG Protocol Financial Sector Guidance, January 2013)

6.3 Avoided emissions

Referencing section 3.4, there remains work to be done harmonising a methodology to account for avoided emissions. Several International Financial Institutions (IFIs) have developed a methodology for quantifying the GHG impact of projects, which can also be used to calculate the avoided or 'net' emissions of, for example, renewable energy investments, investments in energy efficiency and investment in less carbon-intensive transportation solutions. Others have their own methodology for calculating the (avoided) impact of a project. In 2017, PCAF will examine the most appropriate avoided emission calculation methodology.

6.4 Target setting

With a reference to section 2.1, PCAF's stance is that a financial institution's footprint reporting is a means to an end. The ultimate purpose is to allow steering towards a low-carbon portfolio in line with keeping global warming well below 2 °C temperature rise above pre-industrial level: a low-carbon economy limiting the worst implications of climate change. Science-

Paving the way towards a harmonised Carbon Accounting Approach for the Financial Sector

based targets (SBT) could help institutions to achieve this goal . This chapter will briefly touch upon several measures to reduce the footprint of a portfolio as discussed during the PCAF meetings. It reflects ongoing work rather than a firm conclusion of PCAF and its members.

6.4.1 Portfolio composition

One way of steering towards a low-carbon portfolio is by changing its composition. This can be achieved through divesting from certain relatively high-carbon intensity assets and replacing them with low-carbon alternatives. This can be done by applying one or more of the following measures:

- Limit exposure to high-carbon intensity assets, increase exposure to low-carbon intensity assets and green bonds
- Set a minimum low-carbon intensity assets target
- Implement a negative screen for high-carbon projects, bonds or other assets
- Explore activities that provide preferential financing conditions for low-carbon intensity assets or higher transaction costs (through reporting, monitoring and verification) for high-carbon intensity assets

6.4.2 Engagement

Another way of steering is by actively engaging with the investees in order to lower their footprint. This approach prevents the asset or investee changing ownership and thereby avoiding a reduction in net emissions reduction. This 'active ownership' approach can be executed through one or more of the following measures:

- Engage with investee companies or asset operators to increase energy efficiency and reduce emissions
- Engage on reducing high-carbon capital expenditure and increase climate friendly investment
- Engage on corporate GHG emission targets and strategies including disclosure and transparency

7 Glossary

| | |
|---------------------------------------|---|
| Double counting | Occurs when a single GHG emission reduction or removal, achieved through a mechanism issuing units, is counted more than once towards attaining mitigation pledges or financial pledges for the purpose of mitigating climate change. |
| Investment | The term “investment” (unless explicitly stated otherwise) is used in the broad sense: ‘putting money into activities or organisations’ with the expectation of making a profit’. This in contradiction to the more narrow definition sometimes used within for example a bank: as one of several financing options, besides e.g. debt finance, equity finance. Most forms of investment involve some form of risk taking, such as investment in equities, debt, property, projects, and even fixed interest securities which are subject to inflation risk, amongst other risks. |
| Government debt | The debt owed by a central government. |
| Government bond | A debt security issued by a government to support government spending. |
| Absolute emissions | Emissions owned by an investor based on ownership. Emissions of a company multiplied by equity share in a company's market capitalisation. Expressed in tons CO ₂ . |
| Absolute emissions per invested value | Emissions owned by an investor (absolute emissions) normalised for the amount invested. Expressed in tons CO ₂ / M€ invested. |
| Absolute emissions per sales | Emissions owned by an investor (absolute emissions) normalised by the claim on sales. Expressed in tons CO ₂ / M€ sales. |

Appendix A: Dutch Carbon Pledge

Dutch Carbon Pledge

November 28th 2015

We ask global leaders during the 21st session of the Conference of the Parties to the UNFCCC to take effective measures to keep global warming under safe levels. As financial institutions we want to take responsibility as well and come with new and meaningful steps. The annual measuring and disclosure of the carbon footprint of investments*, with the aim of using this information to identify and set carbon footprint reduction targets, is still at an early stage. Our initiative, consisting of leaders of different segments of the Dutch financial sector, intends to experiment with annual carbon foot printing, disclosure and target setting for investments. These elements are key in planning and developing investment strategies towards a low carbon society. We want to share and learn from practice and find solutions for dilemma's. We hope this will stimulate the development and adaptation of carbon foot printing and target setting in the financial sector on a larger scale for all their investments. Our goal is to form a group of leading financial institutions that cooperate in a bottom up initiative on achieving transparency and uniformity in carbon foot printing and target setting.

** investments defined in their broadest sense*



Achmea Investment Management



Appendix B: Accounting principles

Existing accounting principles

Accounting principles are the rules and guidelines that companies must follow when reporting financial data. The common set of accounting principles is the generally accepted accounting principles (GAAP). Accounting principles differ around the world, and countries usually have their own, slightly different, versions of GAAP.

GAAP includes principles on:

- Recognition; what items should be recognized in the financial statements (for example as assets, liabilities, revenues, and expenses)
- Measurement; what amounts should be reported for each of the elements included in financial statements,
- Presentation; what line items, subtotals and totals should be displayed in the financial statements and how might items be aggregated within the financial statements
- Disclosure; what specific information is most important to the users of the financial statements. Disclosures both supplement and explain amounts in the statements.

The GHG protocol identifies five GHG accounting and reporting principles in its corporate accounting and reporting standard:

- Relevance; Ensure the GHG inventory appropriately reflects the GHG emissions of the company and serves the decision-making needs of users – both internal and external to the company.
- Completeness; Account for and report on all GHG emission sources and activities within the chosen inventory boundary. Disclose and justify any specific exclusions.
- Consistency; Use consistent methodologies to allow for meaningful comparisons of emissions over time. Transparently document any changes to the data, inventory boundary, methods, or any other relevant factors in the time series.
- Transparency; Address all relevant issues in a factual and coherent manner, based on a clear audit trail. Disclose any relevant assumptions and make appropriate references to the accounting and calculation methodologies and data sources used.
- Accuracy; Ensure that the quantification of GHG emissions is systematically neither over nor under actual emissions, as far as can be judged, and that uncertainties are reduced as far as practicable. Achieve sufficient accuracy to enable users to make decisions with reasonable assurance as to the integrity of the reported information.

For a more practical example, the ASN Bank has been footprinting their portfolio for many years and has drafted a list of nine principles from experience, with the assistance of Ecofys. These principles form the backbone of their carbon profit and loss calculations. De Volksbank has also adopted the methodology and its principles in the beginning of 2016.

- Compatibility with existing and future standards;
- Consistency between different types of investment;
- Prevention of double counting;
- Prudence
- Target setting
- Workability and level of data quality
- Reporting absolute emissions
- Allocating emissions proportionally;
- Annual accounting and reporting of emissions

Organizational boundaries and consolidation approach

As described in the GHG Protocol, first the organizational boundaries have to be defined to be able to determine which parts of the emissions from the organization and its value chain need to be included in the carbon footprint of a company. Furthermore, the selection of a consolidation approach affects which activities in the company's value chain are categorized as direct emissions and as indirect emissions (Scope 1, 2 and 3 emissions).

In line with the GHG Protocol Corporate Standard, ASN Bank, for example, has chosen for an operational control approach, which means that ASN Bank accounts for all the emissions from operations over which it has control, either as Scope 1 (direct) or Scope 2 (indirect) emissions. Examples of Scope 2 emissions are emissions from electricity and heat consumption.

Paving the way towards a harmonised Carbon Accounting Approach for the Financial Sector

ASN Bank invests in a lot of other organizations through different kinds of financial instruments and vehicles as part of its portfolio.

Other consolidation approaches are equity share and financial control. In the equity share approach, a company accounts for GHG emissions from operations according to the share of equity in the operation. In the financial control approach, a company accounts for GHG emissions from operations over which it has financial control. This means it does not account for GHG emissions from operations in which it owns an interest but does not have financial control. Operational control is the most frequently used consolidation approach.

The operational control approach was selected, for example, by ASN Bank because it allocates the emissions most accurately to the parties which can influence them. In addition, the operational control is flexible enough to do justice to the activities of a bank. Using the operational control approach, conventional investments, over which the bank has limited control, can be included under indirect emissions, whereas more strategic investments, such as separate entities which manage funds on the bank's behalf, can be included under direct emissions.

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