Next steps: updates from implementing GHG accounting for the financial sector in the Netherlands

Partnership for Carbon Accounting Financials (PCAF) The Netherlands, update report 2020

PCAF
Partnership for Carbon Accounting Financials

The Partnership for Carbon Accounting Financials, or PCAF, is an industry-led partnership to standardise carbon accounting for the financial sector. It was founded by a group of Dutch financial institutions that joined forces to improve carbon accounting in the financial sector and to create a harmonised carbon accounting approach. It has evolved into a global collaboration with more than 86 financial institutions worldwide representing 17.5 trillion dollars in assets at time of writing. More information on the global partnership, including how to join, can be found on carbonaccountingfinancials.com

Through this report, the Dutch participants share their findings from implementing the accounting methods with other interested parties to encourage others to adopt carbon accounting as a positive step towards a low carbon economy.

Today, PCAF Netherlands consists of the following participants:

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About this report

Addressing the emergency of climate change is more pressing than ever. The past five years were the warmest on record globally, and scientists only expect this trend of record-breaking to continue.[1] To limit global warming to 1.5°C above pre-industrial levels, all sectors of society need to decarbonise and collectively reach net zero emissions by 2050. The financial sector can facilitate and drive the transition in line with the Paris Agreement.

Harmonised and transparent greenhouse gas (GHG) emissions accounting is an imperative first step in this direction. Measuring and disclosing the GHG emissions associated with lending and investment activities of financial institutions (so-called financed emissions) is the foundation to creating transparency and accountability, and to enabling financial institutions to align their portfolio with the Paris Agreement.

Regulators are asking financial institutions to provide transparency on climate-related risks. Consumers are asking for their banks and insurers to contribute to sustainable development. Measuring and disclosing financed emissions of loans and investments contributes to meeting these needs.

Comparability and transparency of GHG accounting requires uniform disclosure, following the same guidelines and methods and ideally using the same metrics.

Leading up to the Paris Agreement, 14 Dutch financial institutions joined forces to improve GHG accounting through the Partnership for Carbon Accounting Financials (PCAF). Its collaboration evolved into a global collaboration with more than 86 financial institutions worldwide representing US$17.5 trillion in assets at time of writing. Over the past three years, PCAF Netherlands launched three reports—providing a set of common principles and proposing harmonised guidelines for loans and investments along several different asset classes—and solicited feedback from the global financial community. These guidelines evolved into a Global Standard (see inset).

PCAF Netherlands consists of 20 participants representing $3.1 trillion in total financial assets and, as part of the global partnership, continues to develop methodologies. This fourth report serves as an update to Dutch implementation activities such as

- Unlocking higher quality data
- Connecting GHG accounting to setting targets to decarbonize portfolios
- Extending methodologies to cover a more diverse set of financial activities
- Lessons learned

PCAF Netherlands working groups cover the following asset classes:

1. Sovereign bonds
2. Listed equity
3. Project finance
4. Mortgages and commercial real estate
5. Corporate debt
6. Corporate/SME loans
7. Indirect investments
8. Public loans

1 Arguez et al., Bull. Amer. Meteor. Soc. (2020) 101 (5): E655–E663

PCAF Global

Since its launch in 2015 as a Dutch initiative, PCAF has inspired others in the financial sector (including in the US and Canada) to develop a methodology for North America in January 2019. PCAF North America (PCAF NA) builds upon and tailors the PCAF NL methodology for the US and Canada, which differ in terminology, data availability, and the types of loan and investment activities specific to its context.

Shortly after PCAF North America was launched, 28 members of the Global Alliance for Banking on Values (GABV) committed to a concerted, global effort among banking institutions to track and monitor the GHG impact of its portfolio of loans and investments within a period of 3 years, and ultimately ensure alignment with the Paris Agreement. This commitment of GABV banks triggered a globalization of PCAF, which was launched on 23rd of September 2019.

The PCAF global initiative aims to standardize the measurement of financed emissions globally and rapidly and substantially extend the reach of carbon accounting in general, and PCAF in particular, over a three-year period.

The initiative developed the Global GHG Accounting and Reporting Standard for the Financial Industry, applicable by financial institutions wherever they are in the world. Next to this, the global initiative builds a network of regional technical support, and tools - such as a comprehensive, open source emissions database - to make the practical application of carbon accounting easier than ever.

Visit www.carbonaccountingfinancials.com for more information.

Ultimately, GHG accounting is a means to an end. To help financial institutions align investment and lending portfolios with the global 1.5°C climate goal and support the transition to a low carbon world, several PCAF Netherlands participants contributed to Science Based Targets for financials: developing target-setting methods and implementation guidance for financial institutions to set climate targets in line with the Paris Agreement for their investing and lending activities. This report devotes a separate section to these efforts.

From the Netherlands since 2015... **...to North America in 2018...** **...to global in 2019**

Foreword: Tjeerd Krumpelman

What are your key takeaways after your first year as chair of the Dutch chapter of PCAF?

I had the honour to succeed Piet Sprengers as chair for PAF Netherlands. Big shoes to fill, but it has been a great experience so far. Despite the need for virtual meetings during the pandemic, I still sense the commitment and sense of responsibility of the PCAF partners in the Netherlands. It is a highly committed and engaged group of people that work hard to bring our GHG accounting methods to the next level. There was progress in unlocking public data that support our accounting efforts, many of the PCAF NL members started the journey towards setting science-based targets on the greenhouse gas emissions of our portfolio and we welcomed new institutions in our midst: insurance company NN and state-owned impact investor Invest-NL, bringing the total number in the Netherlands to 20. And all the while all of us continued implementing and sharpening the GHG accounting standard that has been developed by PCAF.

You mentioned growth by the latest Dutch members that joined, but can you also reflect on the global growth?

Indeed, there has been tremendous growth of PCAF globally. It is great to be a part of this. I feel a sense of pride that what became the global standard for GHGaccounting of financial portfolios started here, in The Netherlands. In the group that I am honored to chair today. We now have 86 participants globally, representing a total of $17.5 trillion in assets under management. To get where we are has been a remarkable journey.

And the relevance of PCAF is unmistakable. Climate action starts with measurement and disclosure. The financial sector has an important role to fulfill in steering financial flows towards activities that decarbonize our economy. But it also makes perfect business sense; insight in the carbon intensity of your investments is a great tool in gaining insight in transitional risks stemming from societies' response to climate change. With that in mind, it's perhaps no surprise that PCAF methods are increasingly embraced as a global standard.

Let's turn our focus to homegrown activities then. What did the Dutch institutions do this year to advance this agenda?

One of the great achievements this year is our collaboration with RIVM and Statistics Netherlands (CBS). By engaging with these Dutch governmental agencies as a group we were able to unlock real data that helps improve data quality and insight into the greenhouse gas emissions associated with our mortgage and corporate loans portfolios, without compromising privacy. For many of us, these emissions make up a considerable share of our total portfolio, so this is a significant step. We still seek more accurate and recent data, but I'm confident we can get there through this collaboration.

Other advancements are still being made too. The Project Finance group is working on methods to account for "negative emissions" or carbon removal methods like reforestation. The Listed Equity group collectively engage with data providers to harmonize their services. I could go on and on.

What do you expect from next year?

A very relevant development for PCAF here in The Netherlands is the commitment the financial sector made towards the Dutch climate accord. [2] This commitment in short shows the willingness of the sector to a) invest in solutions towards the Dutch climate goals, b) tracks greenhouse gas emissions associated with their investments, for which PCAF is of course a great tool and c) publish their action plans reduce such emissions and how these plans stack up to the Paris accord. I know the Dutch PCAF members are working hard towards these goals so expect to see more on that.

That point on action plans towards Paris brings me to another important development in the Dutch group. The Working Group Science-based Targets has explored ways to set targets on decarbonizing financial portfolios in line with what climate science believes is necessary to meet 'Paris'. Several of us have done extensive road testing of methods developed by the Science-based Target initiative and Guidehouse to see what a well-below-2-degrees pathway will look like for our portfolios. As a tangible example, we can see how much of the houses covered by our mortgages need to reduce in terms of GHG emissions each year; and that's a pretty steep downward curve. We need to get to action! We need to help our customers with financing home insulation or invest in alternative forms of heating such as heat pumps or district heating.

There is plenty to do for our group. We need to increase the accuracy of GHG accounting data, unlock more data, make tangible plans to reduce the carbon footprint of our investments and act on these plans. I look forward to this journey!

Tjeerd Krumpelman is Global head of advisory, reporting & engagement at ABN AMRO and chairman of PCAF Netherlands.

2 See this link for more information and a list of signatories: https://www.nvb.nl/english/50-financial-institutions-sign-up-for-climate-goals/

Interview: Marcel Beukeboom

What is a 'climate envoy'? What is your job description?

I am an Ambassador-at-large for climate, the Dutch dedicated representative for this theme. I work with other countries to raise climate ambition, as agreed in the Paris Agreement. I also reach out to other stakeholders, internationally and at home, to work on concrete initiatives. After all, it is the real economy where we have to fulfill the promise of Paris.

How does the financial sector fit in this picture? And the role of PCAF?

The financial sector is a crucial partner in this endeavour. Money makes the world go round, and I hope in this case literally. We have to change the direction of financial flows, from grey to green – as the Paris Agreement stipulates. PCAF is a very useful tool for this purpose. It helps institutions with transparent and relevant information to take the right decisions in this transition.

How does the current pandemic influence climate action? And how can the financial sector help in 'building back better'? Do you see some good examples in the Netherlands or abroad?

The pandemic has a big impact. Of course on our individual health, but also on the health of our societies. We know that people with underlying conditions are extra vulnerable for the virus, the same can be said about our economy. Some sectors are not future-proof, just because they are part of the old, polluting system that we should get rid of. The pandemic has provided us with an X-ray that can help us to invest in sectors and businesses of the future, to build back better. Good examples can be found in infrastructure, mobility and energy, where recovery investments not only create more jobs but also make these sectors Paris-proof.

You recently sponsored an international taskforce to support sustainable finance in preparation of COP26. Can you tell us a bit more about this taskforce?

The Netherlands has a relatively large financial sector with an international orientation. We also have an active climate diplomacy, rooted in the belief that our climate goals can only be reached through international cooperation. In this working group of the Platform for Sustainable Finance we work on a joint 'sustainable finance diplomacy' to increase our effectiveness. COP26 is a clear dot on the horizon for this working group.

What is your message for financial institutions that joined PCAF? What should their next steps be?

We did not have any difficulty filling the positions on this working group. Financial institutions see the benefit of this kind of cooperation, and through that of advancing the overarching objectives. The long-term health of our economy depends on how we can translate that economic term 'sustainability' into the core of our business. The financial sector is one of the most important means to that end. This is a responsibility, but also a challenge for any professional, as the pieces of the puzzle are being developed as we move forward.

Foreword: Femke de Vries

In 2019 fifty financial institutions signed the Netherlands financial sector Climate Commitment Financial Sector. The Commitment reflects the key role the financial sector can play in achieving the goals of the Treaty of Paris and its strong commitment to do so. The Climate Commitment is part of the Dutch Climate Treaty.

In the Climate Commitment the Dutch financial sector commits to contribute to financing the energy transition and to report on the climate impact of their loans and investments from the financial year 2020 onwards. In addition, the sector will have action plans including reduction goals for 2030 in place by the end of 2022. As the independent chair of the Climate Commitment I am proud to contribute to this ambitious agenda.

This October the sector, as a first milestone in the commitment, published a framework that will serve as the basis of the reporting on the carbon footprint from 2021 onwards. Furthermore, an overview of the current climate-related measurement methods was published. This overview shows that over half of the parties to the commitment already report the climate impact of their loans and investments. The framework will also serve as a basis for the action plans that will be published from 2022 on.

Cleary, PCAF's work and other major initiatives to measure climate impact have an integral part in keeping to our promises. Insight in our carbon footprint and taking proactive action towards lowering it are the first steps towards a truly Paris Proof financial sector. With tried and tested methodologies, financial institutions are able to gain insight in their climate impact. The importance of these efforts, together with (and in the context of) broader international developments with the same goals, is irrefutable. The profound impact of the COVID-19 pandemic made the absolute priority of this shift abundantly clear. We know from behavioural science that measuring impact, setting goals and communicating these goals, will contribute to changing behaviour. For sustainable behavioural change it is also essential to keep track of the progress

What is the Dutch Climate Commitment of the Financial Sector?

The Dutch financial sector signed a commitment in support of the Dutch Klimaatakkoord: the national Climate Accord or Treaty that stipulates a 49% reduction of GHG emissions in the country by 2030 compared to 1990. The signatories commit to:

1. Financing the required energy transition within the bounds of their risk-reward profiles
2. Measuring and disclosing their financed emissions starting from 2020 onwards, sharing results and best practices and making steps towards methodological improvements
3. Publishing GHG emission reduction plans from 2022 onwards for all their relevant financing and investment activities
4. Organizing an annual meeting with all stakeholders on the progress towards these commitments, as integral part of the wider Klimaatakkoord

More information: https://www.klimaatakkoord.nl

we make. This tangible progress will encourage financial institutions to take an extra step and will add to keeping us all accountable for this progress.

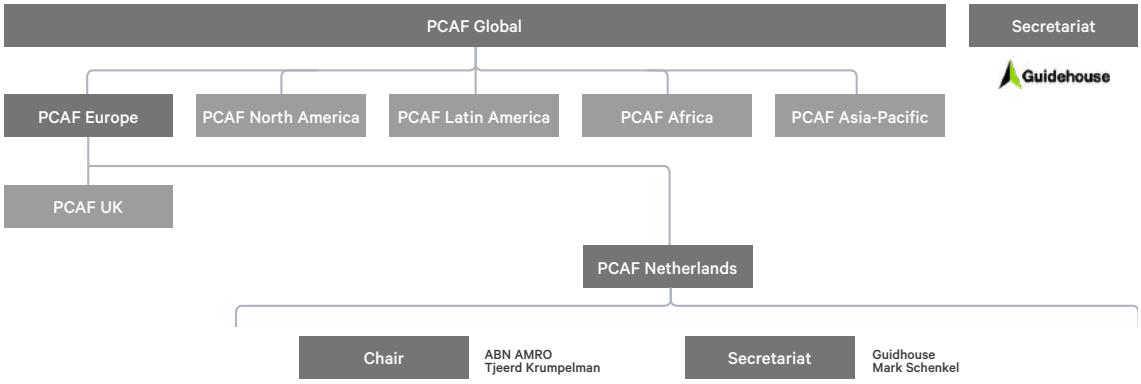
As David Attenborough states it in his recent impressive documentary 'A life on our planet', the living world is an unique and spectacular marvel. To preserve this marvel, we have to do the utmost and change our behaviour while it's still possible. We cannot underestimate the urgency for change. By working together we can do what is necessary.

Femke de Vries is chair of the Committee Climate Commitment Financial Sector

PCAF Governance

With the globalization of PCAF, a formal governance structure for the partnership has been created. PCAF Global addresses banks and investors around the world and sees regional platforms as well as country-specific organisations such as PCAF Netherlands that focus on implementing the Global Standard in the local context.

Figure 1. Current governance structure of PCAF



Organization	Author	Working Groups								
		Sovereign Bonds	Listed Equity	Mortgages / Real Estate	Corporate Debt	Corporate / SME loans	Indirect Investments	Project Finance	Public Loans	Science-based Targets	Stakeholder Engagement
ABN AMRO	Catalina Hemmink			Co-lead							
ABN AMRO	Tjeerd Krumpelman										
ABN AMRO	Mark Prins					Contributor					
ABN AMRO	Jan Raes									Lead	
ACTIAM	Kees Ouboter	Contributor			Contributor					Contributor	
Achmea Investment Management	Thierry Oeljee				Lead					Contributor	
ASN Bank	Freek Geurts	Lead		Contributor						Contributor	
ASN Bank	Jeroen Loots										Contributor
ASN Bank	Paul van der Weijden							Contributor			
a.s.r. asset management	Jos Gijsbers		Contributor	Contributor			Lead				
a.s.r. asset management	Marjolein Meulensteen									Contributor	
BNG Bank	Jan Klaassens								Co-lead		
De Volksbank	Sharon Bloemendal						Contributor				
FMO	Sam Nierop					Contributor	Contributor	Lead		Contributor	
ING	Sandra Schoonhoven			Contributor							
MN	Tim Balemans		Lead		Contributor					Contributor	
NIBC	Robin Willings			Contributor							
NN	Natalie van Toren			Contributor						Contributor	
NWB Bank	Marc-Jan Kroes								Co-lead	Contributor	
Rabobank	Alexandra Dumitru					Lead					
Rabobank	Theo Harms			Co-Lead							
Rabobank	Bouke de Vries									Contributor	Lead
Robeco	Sylvia van Waveren		Contributor							Contributor	
Triodos Bank	Michel van Delft							Contributor			
Triodos Bank	Roeland Tso		Contributor								
Van Lanschot Kempen	Danny Dekker			Contributor			Contributor			Contributor	Contributor

This report is from the Dutch participants; PCAF Netherlands is chaired by Tjeerd Krumpelman from ABN AMRO. PCAF Netherlands consists of 10 working groups, chaired by different financial institutions.

PCAF Netherlands is part of the Dutch Sustainable Finance Platform, chaired by the Dutch Central Bank, DNB. The Sustainable Finance Platform is a cooperative venture of DNB (chair), the Dutch Banking Association, the Dutch Association of Insurers, the Federation of the Dutch Pension Funds, the Dutch Fund and Asset Management Association, the Netherlands Authority for the Financial Markets, the Ministry of Finance, the Ministry of Infrastructure and the Environment, and the Sustainable Finance Lab. The aim of this platform, set up by DNB in 2016, is to promote and encourage a dialogue on sustainable finance in the financial sector.

A selection of the PCAF Netherlands group. Due to COVID-19, the traditional annual group photo is replaced by a screenshot of one of our online meetings.

1. Updates from the Dutch working groups

With some notable exceptions, the Dutch PCAF activities moved from establishing accounting methodologies to refinement in implementing them. This is due two developments:

- The advanced stage of the methodologies for most asset classes – meaning not much has changed compared to previous years for several asset classes
- A shift in working out methodologies from a local or regional level to a truly global level

These developments allowed much of the Dutch work to focus on refinement in implementation: sharing best practices in the local context (e.g. where to retrieve what sort of data) and collectively working on unlocking more data of higher quality – allowing to track and steer on investment-related GHG emissions more accurately.

This is why this Chapter, unlike previous years, does not present each and every GHG accounting methodology per asset class. It provides an update on implementation work as covered by the working groups and demonstrates how this works in practice through providing real life case studies per asset class. For a complete description of methodologies used, please refer to the Global Standard.[3] For the asset classes that are not yet covered by the Standard, please refer to the 2019 report of PCAF Netherlands.[4]

This Chapter provides updates from the following Working Groups:

1. Mortgages and Commercial Real Estate
2. Project finance
3. Listed Equity
4. Corporate debt
5. Indirect Investments
6. Corporate/SME loans
7. Public Loans
8. Target Setting
9. Stakeholder Engagement

3 See https://carbonaccountingfinancials.com/standard for more details

4 PCAF Netherlands, Accounting GHG emissions and taking action: harmonised approach for the financial sector in the Netherlands, December 2019

1.1 Mortgages and commercial real estate

The working group members have been applying the PCAF Mortgages and Commercial Real Estate methodologies for some years now and remain actively involved in the working group. In 2020, the focus of the working group has been on increasing data quality. Our current carbon emission calculations are mainly based on higher level estimates of energy usage by our clients. To be able to steer on decreasing the carbon emissions of our real estate portfolio, we wish to obtain actual electricity and natural gas usage of the buildings in our portfolio.

In May 2020, the Dutch Central Bureau of Statistics (CBS) published a report[5] on the carbon emissions of mortgage portfolios in the Netherlands in 2015 and 2016. The scope included the portfolios of seven Dutch banks. The results were based on data on real energy use of the houses in our residential mortgages portfolio. The results did not deviate significantly from our own calculations as performed over 2015 and 2016, which were based on estimated energy use. The collaboration with CBS was a step closer in obtaining actual emissions data and would lead to an increased data quality according to the data quality table as listed in the methodology. We strive to receive more recent data in future iterations.

The strength of the working group lies within the common objective to obtain recent, detailed and actual energy usage data to increase the data quality of our calculations and steer towards carbon emission reductions. By joining forces through PCAF, we can collaborate with data providers in order to meet this goal.

Catalina Hemmink is Sustainability Reporting Specialist – Group Sustainability at ABN AMRO Bank

1.1.1 Case study NIBC: matching mortgages to energy label data

Robin Willing, Senior Sustainability Officer at NIBC: "NIBC is a mid-sized bank based in the Hague which offer online direct retail savings, mortgages, and buy-to-let mortgages in the Netherlands and Germany and corporate banking products and services to mid-sized and family owned companies in Northwestern Europe. NIBC was founded in 1945 to finance the visionary entrepreneurs who helped rebuild the Netherlands after the Second World War. NIBC is strongly rooted in its obligations towards society."

NIBC retail real estate

NIBC provides over 67,000 retail mortgages in the Netherlands and Germany through the following labels: Hypinvest, NIBC Direct (incl. Extra), NIBC Direct Investeringshypotheek, NIBC Buy to Let and Lot Hypotheken. Lot Hypotheken is a new mortgage label which was launched by NIBC in 2020 with the ambition of making mortgages simple, affordable and sustainable.

Data sources

NIBC matched the mortgages in its portfolio with the RVO (Netherlands Enterprise Agency) energy label database. This allowed NIBC to determine the energy label related to the collateral

5 See Ralph Meijers, Inzicht in CO2-uitstoot van particuliere hypotheekportefeuilles, CBS 2020. Available at https://www.cbs.nl/nl-nl/longread/diversen/2020/inzicht-in-co2-uitstoot-van-particuliere-hypotheekportefeuilles

of the mortgage, whether the label is definitive or preliminary. The Dutch CO_2 database, www.co2emissiefactoren.nl, provided emission factors for electricity of undefined fuel source and natural gas. Energiemodule WoON provided the average natural gas and electricity consumption for Dutch households by energy label.

2019 Result

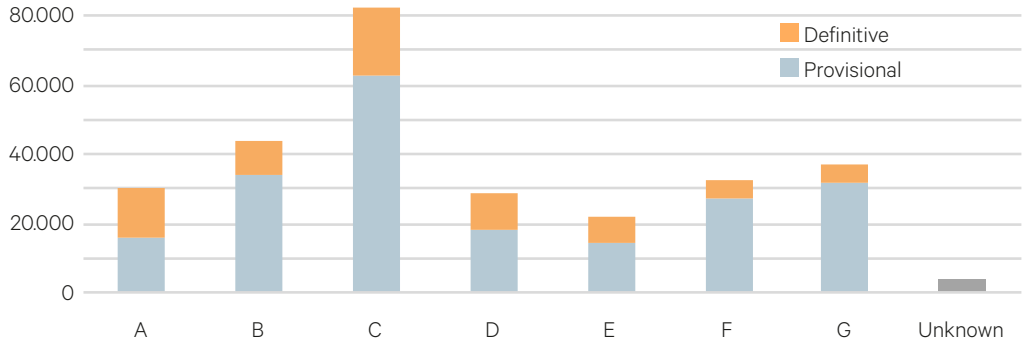
At yearend 2019, retail real estate including mortgages and buy to let mortgages comprise EUR 9.8 bln of NIBC's total client exposures. 56% of NIBC's retail mortgage portfolio (including Buy-to Let) had an energy label of A, B or C. 38% of the portfolio had an energy label D, E, F or G, and 6% remained unknown. According to the RVO energy label database, the majority of energy labels in our retail mortgage portfolio were preliminary, 40% were definitive while 54% were preliminary.

1.1.2 Case Study Volksbank: matching mortgages to energy label data

De Volksbank provides about 280 thousand mortgages, primarily in the Netherlands, through its brands ASN Bank, BLG, Regiobank and SNS. The mortgage portfolio comprises about 47 billion euro of assets on de Volksbank balance sheet, which is about 80% of assets under management.

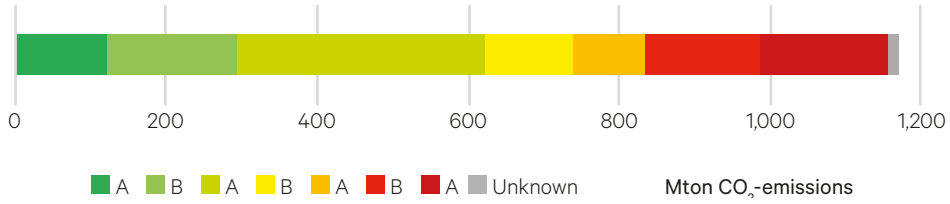
On a quarterly basis, the RVO energy label database is matched to the mortgage portfolio of de Volksbank. About 30% of matched addresses has a definitive energy label. If no definitive energy label is present, the provisional label is linked to a house. There is a small portion of the mortgage portfolio for which no energy label exists, or the match could not be made due to differences in suffix notation in addresses. For this small portion, the same composition of energy labels is assumed as for the rest of the mortgage portfolio.

Figure 2. Volksbank distribution of energy labels



The average gas and electricity consumption per energy label were researched in the WoON2012 report and published in 'Cijfers over wonen en bouwen 2013', a report by Rijksoverheid summarizing the state of housing in the Netherlands. The average consumption per energy label can be converted to CO_2-emissions by multiplying with emission factors from www.co2emissiefactoren.nl. This is 1,785 kg CO_2/m^3 for natural gas and 0,405 kg CO_2/kWh for electricity of unknown origin (both TTW value).

Figure 3. CO_2-emissions per energy label



As mortgages comprise about three thirds of the total financed emissions of de Volksbank, de Volksbank is focusing on helping customers to improve the energy efficiency of their homes. Many customers are aware of the need to make their homes more energy efficient but fail to make the necessary steps because of the complexity of the whole process.

Freek Geurts, Climate Impact Adviser at de Volksbank: “Because of this de Volksbank has developed the website Woningverbeteraars where interested homeowners can see which energy efficiency measures work best for their houses. The website generates a tailormade roadmap based on the house and the preferences of the homeowner. It also offers the possibility to give technical advice and financial assistance if needed.“

1.2 Project Finance

In 2020 the Project Finance Working Group, comprising of FMO, ASN and Triodos, focused on two topics:

1. Clarifying the distinction between PCAF and the accounting methods from the IFI Technical Working Group[6] on GHG Accounting: the Project Finance WG focused on clarifying the distinction between portfolio accounting in PCAF, which aims to calculate the emissions contained in the outstanding financing on the balance sheet, and the accounting approach used in the IFI Technical Working Group framework and methodologies, which focuses on the expected (avoided) emissions contained in newly signed contracts. The Working Group specifically aimed to clarify how default emission factors from the IFI methodology could be used in a PCAF context.
2. Analysing the definition of outstanding amount for attribution: the Project Finance WG analysed the advantages and disadvantages of different attribution approaches, in particular whether book values or market/fair values should be used to determine the outstanding amount in the numerator of the attribution factor.

The results of this work are not separately mentioned here because they were fed into the process of the development of the Global PCAF Standard. FMO participates in both the Dutch Project Finance as well as the Global Project Finance Working groups. Separate work by Dutch WG members is shown in the following two case studies.

Sam Nierop is Impact Officer at FMO

1.2.1 Case study FMO: the FoRESt Carbon Sequestration (FRESCOS) Tool

FMO has been working with three other European development finance institutions (CDC, Finnfund and Swedfund) and Finnish forestry experts Simosol to build an online tool to estimate the amount of carbon sequestered through plantation and agroforestry operations, called the FoRESt Carbon Sequestration (FRESCOS) Tool. The tool is built upon the IPCC Guidelines for National GHG Inventories and can be used as a basis for calculating financed sequestered emissions according to the PCAF standard. One of the aims of the FRESCOS tool is to support financial institutions to align with the Paris agreement, as sequestered emissions can play an important role to achieve portfolio alignment with a 1.5° pathway.

The tool is being developed in two stages. The first stage involved developing the methodology for calculating carbon sequestered through (agro)forestry projects, resulting in a written methodology document. The second stage to build the tool online is expected to be finished early 2021. The FRESCOS tool will be open for other investors and interested parties to use.

6 See https://unfccc.int/climate-action/sectoral-engagement/ifis-harmonization-of-standards-for-ghg-accounting

1.2.2 Case study Triodos Bank: measuring avoided emissions of a loan to a solar plant

In 2017, Triodos Groenfonds provided a senior loan of EUR 8 mln to fund the construction of the Avri Solar Plant. The plant is located in Geldermalsen, The Netherlands, on top of a former waste landfill covering an area of 12 hectares. It is sponsored by Avri, a government organization that collects waste in a sustainable manner. In order to involve the local community, Avri launched a crowdfunding to finance the development of its solar project. Avri collected EUR 1 mln from 340 participants and gave local residents priority in providing the funding. This means that the financial returns of the project are shared with the local community.

Michel van Delft, Triodos Investment Management, explains: "The solar plant, consisting of 34,368 solar PV panels with a total capacity of 9.3 MWp, is now completed and operational. Special construction measures were put in place to prevent damage to the foil covering the waste. As the plant is situated next to a highway, the panels have been placed in such a way to prevent disturbing the sight of drivers."

In 2019, the park produced a total of 10,077,000 kWh of renewable energy. The emissions factors for avoided CO_2 emissions are defined as amount of CO_2 avoided per kWh of electricity produced. The factor is based on the mix of electricity produced from fossil sources per country, where it is assumed that per kWh produced from a renewable source, the production of a unit of energy from a fossil source is avoided. Country emissions factors can be obtained for example from the International Energy Agency. For this case, the emissions factor is based on the grey WTW ("well-to-wheel") energy mix for the Netherlands of 0.556 kg CO_2 / kWh[7]. Based on the amount of energy produced and the emissions factor, Avri has and contributed to the avoidance of 5,603 tonnes of CO_2 emissions.

At the end of 2019, the total balance sheet of Avri amounted to EUR 10 mln, of which EUR 1 mln related to equity and subordinated debt, EUR 1 mln to the crowdfunding loan[8]. The Triodos' senior loan amounted to EUR 8 mln . In line with the PCAF method, Triodos Groenfonds attributed 80% of the avoided CO_2 emissions to its financing of the Avri's solar plant, being 4,482 tonnes.

7 as provided by www.co2emissiefactoren.nl.

8 Figures have been adjusted for case purposes

1.3 Listed Equity

In 2020 the Working Group (WG) Listed Equity worked on following topics:

1. Alignment of listed equity and corporate bonds
2. Scope 3 data quality
3. Improvement data quality from data providers

On the first topic the working group received input from the global working group. In our contribution last year, the difficulties of aligning equity and bonds measurements were emphasized by outlining the complications when using the denominator enterprise value (EV):

- Absence of a uniform definition of EV
- Missing data
- The possibility of having a negative EV
- The possibility of having attributions above 100% in the case where EV is less than the invested value

This year, following input from the global WG, Enterprise Value Including Cash (EVIC) is proposed to be used for emission attribution for the asset classes listed equity and corporate bonds. The use of EVIC tackles all the problems we defined above. EVIC is offering the uniform definition that is needed and is aligned with the benchmark regulation for the EU as proposed by the EU TEG. Missing EV data will occur less often, as data providers are expected to include this in their service offering as a result of the EU TEG/Benchmark. When allocating emissions, cash subtraction leads to imperfect allocation and might even lead to a negative enterprise value. When cash is not deducted however, the problem of a negative EV does not occur. Including cash also prevents attributions above 100%. Therefore, using EVIC is now part of the Global Standard proposed and defined as:

EVIC=Market cap+Market value of preferred shares oustanding+Book value of debt[9]
+Book value of minority interest

An important limitation of EVIC is the possibility of high year-on-year variations, caused by a changing debt-to-equity ratio. The ratio of equity and debt might change due to market value fluctuation on the equity side. Emission allocation between equity and debt therefore might change as well. The effect results in a change in the footprint from the investor without any real-world emission change regarding the investee company or companies. This volatility needs to be considered when an investor discloses the carbon measurements results.

Regarding the second topic, the WG plans to invite data providers to discuss scope 3 data calculation methods. The goal of these engagements will not be to recommend a specific company, but rather to gain insights in scope 3 data quality developments and how calculations from data providers can be aligned to PCAF. This way, investors looking to implement PCAF can make better use of data providers' services.

9 The book value of debt considers only interest-bearing debt, both long-term and short-term.

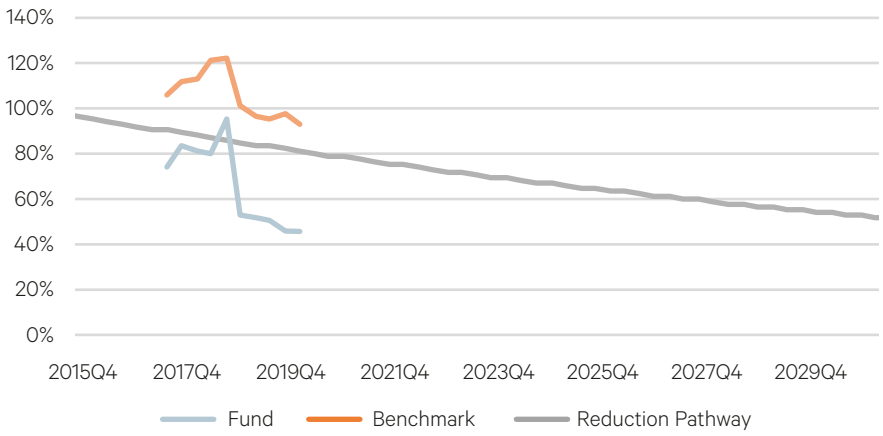
Finally, on the third topic in 2020 PCAF members continued to engage with data providers on data quality of their emissions data. Investors crosscheck the data they receive from providers with other sources, such as companies' public reporting and challenge their providers on discrepancies. This way, data quality increases.

Tim Balemans is Advisor Responsible Investment at MN

1.3.1 Case study a.s.r.: using carbon data to map trend against decarbonization pathway

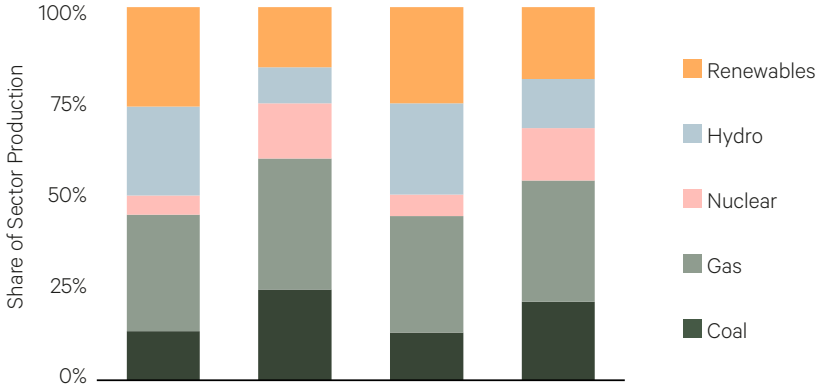
Jos Gijsbers, Senior Portfolio Manager at a.s.r.: "Climate change and Energy transition were added to the a.s.r. strategic investment policy in 2016, followed by specific exclusions, ESG integration, engagement and impact investments. Available carbon data shows a downwards trend for a.s.r. European Equities and the MSCI Europe over the last years." See figure 4.

figure 4. a.s.r. ESG European Equities



a.s.r. participated with this product in PCAF SBT road testing in 2019 for a 2°C scenario analysis focusing on the fossil fuel, power, automotive, aviation, shipping, cement and steel sectors. This provided valuable insights for the a.s.r. decarbonization pathway in the Sustainable Development Scenario transitioning towards 2023, see figure 5 for a Power sector example. a.s.r. decided in 2020 as a next step to set a 50% reduction target in 2030 compared to 2015 carbon emissions for the proprietary equity portfolio, see figure 4.

figure 5. Power Capacity



1.4 Corporate debt

The working group on Corporate Debt has identified areas of improvement. Looking ahead, the working group aims to further explore and describe how avoided emissions could play a role in calculating a carbon footprint in green bonds. External experts will be asked for input to further improve the methodology.

1.4.1 Case Study: Achmea Investment Management

Achmea Investment Management is the fiduciary manager of Achmea. In addition, it has several other fiduciary clients, mainly Dutch pension funds and manages its own investment funds as well. In its role of supporting fiduciary clients, Achmea Investment Management provides advisory services such as ESG analysis, development of policy and instruments, reporting and related. For the investments funds, Achmea Investment Management plays a more leading role where it can much more directly steer at new or improved (ESG) policies and reporting.

Generally speaking, active ownership is always an important part of the mix. Achmea Investment Management believes in an active approach of speaking to companies to address current risks and opportunities but also to look at and discuss longer term objectives and challenge the strategies that companies have to achieve those. For investors that are tied to diversified equities or credits portfolios, engagement is an instrument that can make an impact on society. This is also where carbon footprint and emissions data are being used. Carbon emissions and intensity figures, alongside other relevant metrics, help us better understand the companies that we invest in and their historical performance. The carbon emissions data and other climate related information inform our dialogue with companies.

Ultimately, we expect clarity from companies in our portfolios on their Paris alignment. To what extent are their strategies on par with the ambitions to keep the average global temperature increase within 1.5 degrees Celsius? If we want to be able to monitor and report about the alignment of our investments at the portfolio level, we can only urge our holdings to be as transparent as they can. That is why carbon accounting matters to us and our clients. As an example of our carbon footprint analysis, we looked at the details of the holdings in the Achmea IM Euro Investment Grade Credits fund. The fund has issuers in the categories supranationals, sub-sovereigns and securitised in addition to 223 unique corporate issuers and 516 securities. The total assets of corporate issuers is 298 mn. The relative carbon footprint of the corporate issuers: 86 tCO_2/mn. The carbon footprint data on Scope 1 and 2 is provided by MSCI.

Thierry Oeljee is Engagement Specialist at Achmea Investment Manager

1.5 Indirect investments

After last years' report we received feedback from various stakeholders, which prompted us to provide additional input or clarifications. One of the take-aways is about Exchange traded Funds (ETF): a physical versus synthetic replication. There's no significant difference in the carbon exposure for an ETF with physical or synthetic replication, both passively targeting the same index. Following PCAF methodology: an investment in a synthetic ETF equals an indirect investment in the long leg of a total return swap (TRS), which is an indirect investment in the physical underlying assets. The counterparty of this ETF, being short in the TRS and long in the underlying assets, has a net zero carbon exposure under the assumption of a perfect hedge. There can be a small difference in the carbon data of the physical ETF compared with the index due to mismatches, e.g. because of sampling or optimization.

We also witnessed many very positive external developments and progress in line with the PCAF methodology for indirect investments:

- Strong increase of asset managers disclosing the carbon footprint of their funds, including non-PCAF market participants
- Dutch asset managers committed to the Dutch Climate Accord to carbon emission reporting
- Asset owners engaging asset managers to disclose the carbon footprint of their funds
- Third party data providers analysis and disclosure of carbon data for investments funds, like Morningstar and MSCI
- EU Sustainable Finance Disclosure Regulation (SFDR) including carbon related indicators

At the start of this working group for Indirect Investments we didn't expect that carbon footprint reporting for investment funds would accelerate this fast. PCAF methodology and best practices supported this growth by standardization and global outreach.

Jos Gijsbers, a.s.r. Senior Portfolio Manager

1.5.1 Case study Van Lanschot Kempen: using carbon metrics as the basis for net-zero commitment

"We have measured the carbon intensity for several years. In 2019, we went a step further and we assessed the carbon footprint of our assets under management. This helps clients and other stakeholders to compare the carbon footprints of different investment options and gives investors a baseline from which carbon measures can be taken. In 2020, we have updated our climate change policy and have committed ourselves to be a net zero investor by 2050. We will use the carbon intensity and the pathway of the EU Benchmarks as the basis for our climate commitment," says Danny Dekker, Senior Responsible Investment Advisor for Van Lanschot Kempen.

For the Kempen funds the carbon emissions were calculated per fund via two metrics. Both can be found in the table below.

1. Carbon emissions per EUR million invested
2. Carbon footprint per EUR million revenues (weighted average carbon intensity)

Table 1. Carbon emissions per Kempen fund

	Carbon emissions (tCO_2e) per EUR million invested	Intensity compared to benchmark	Weighted average carbon intensity (tCO_2e/ EUR million Revenues)	Intensity compared to benchmark
Kempen (Lux) Euro Credit Fund	114	Lower	194	Lower
Kempen (Lux) Euro Credit Fund Plus	135	Lower	230	Higher
Kempen (Lux) Euro Sustainable Credit Fund	126	Lower	209	Lower
Kempen (Lux) Euro High Yield Fund	263	Higher	312	Higher
Kempen (Lux) Euro Government Fund	37	Lower	35	Lower
Kempen European High Dividend Fund	199	Higher	308	Higher
Kempen (Lux) European High Dividend Fund	202	Higher	310	Higher
Kempen Global High Dividend Fund	219	Higher	380	Higher
Kempen (Lux) Global High Dividend Fund	223	Higher	387	Higher
Kempen (Lux) Global Small-cap Fund	104	Higher	130	Lower
Kempen (Lux) European Small-cap Fund	47	Lower	82	Lower
Kempen Orange Fund	118	Higher	347	Higher
Kempen Oranje Participaties	57	Lower	69	Lower
Kempen Global Sustainable Equity Fund	22	Lower	45	Lower
Kempen European Sustainable Value Creation	32	Lower	54	Lower
Kempen (Lux) Global Sustainable Value Creation	24	Lower	40	Lower
Kempen Global Property Fund	7	Lower	73	Lower
Kempen European Property Fund	4	Lower	74	Higher
Kempen (Lux) Global Infrastructure Fund	199	Lower	1,086	Lower

Source: ISS ESG, Kempen

1.6 Corporate loans

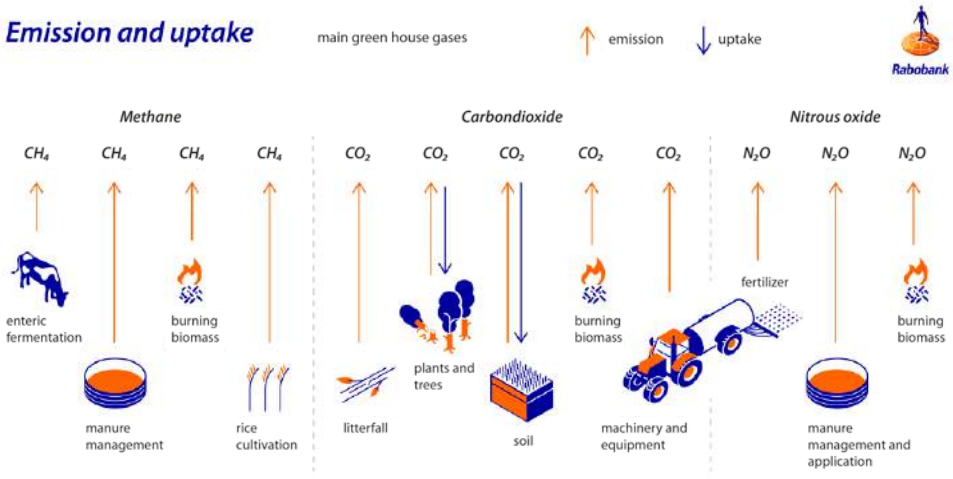
In 2020 the working group Corporate Loans consisted of Rabobank and FMO. Both organisations focused on getting more and better emissions data. The two case studies submitted here reflect some of the work carried out by each this year.

1.6.1 Case study Rabobank: *One data source and approach does not fit all*

Rabobank published its first Climate Change report in September 2020 and on page 14 we provided an update of the proxy for the carbon footprint of the Dutch corporate loans portfolio published in the 2019 PCAF report.[10] We continued to use the top-down proxy recommended by the second approach for corporate loans and the same drawbacks apply (see page 80 of the PCAF 2019 report for more details). This time we tried to include exposure to large corporates in the Netherlands. However, we discovered that as large corporates have cross-border activities it is not possible to link them to national emissions. Hence, the top-down approach will not work for this type of companies. Rabobank is currently looking into acquiring proprietary company level data to apply the first approach.

Applying both approach 1 (bottom-up) and approach 2 (top-down) is challenging in the agriculture sector due to the large data gaps. This year we focused on the data gaps for approach 2, as that kind of data is also needed for target setting. Estimating emissions in agriculture is complex (see Figure 6) due to the many products and processes involved; it is a very heterogeneous and fragmented sector. The main issue in agriculture is the lack of a database that simultaneously covers all involved processes and sub-sectors/ products, while also providing a sufficiently granular breakdown (e.g. beef dairy instead of livestock) into sub-industries in a commonly accepted economic sector classification (e.g. ISIC, NACE).

Figure 6. Processes leading to emissions in agriculture



Source: Rabobank

Rabobank has already made progress in this area. In the Netherlands, Rabobank created a consortium of banks under PCAF and contracted RIVM to provide a more detailed level of emissions, though these emissions exclude land use. In the case of agriculture, the granularity

10 Find Rabobank's Climate Change report here: https://www.rabobank.com/en/images/rcc-11-ver12.pdf

improved markedly for livestock and to a lesser extent for crops (see Table 2). For international coverage we have paid access to GTAP and we found a combination of FAO and GTAP data to provide the best available quality for now. However, the granularity of the data needs further improvement. Rabobank is working on setting up a working group that convenes international banks with a large exposure to agriculture, academics and experts under the coordination of WBCSD and with the endorsement of UNEP FI in order to amongst others address this issue (see Banking for Impact on Climate in Agriculture on page 11 of Rabobank's climate report).

Table 2. Overview of higher granularity sector emissions received through RIVM

SBI code	SBI sector	2017 GHG Emissions kt CO_2e
A	Agriculture, forestry and fishing	27,153
01.1-01.3	Burning of natural gas in greenhouse horticulture	8,044
01	Agriculture and related service activities	3,526
01.1	Growing of non-perennial crops	43
01.13	Growing of vegetables, roots and tubers	43
01.2	Growing of perennial crops	no data
01.3	Growing of bulbs and plants trees for ornamental purposes	no data
01.4	Animal production	15,388
01.41	Raising of dairy cattle	9,852
01.41.1	Farming of dairy cattle	7,848
01.41.2	Rearing of young cattle for dairy farming	2,004
C	Manufacturing	44,183
19	Manufacture of coke and refined petroleum products	10,542
19.2	Manufacture of refined petroleum products	10,542
19.20	Manufacture of refined petroleum products	10,542
19.20.1	Refining of petroleum	10,542

Source: RIVM. Note: underscored data is publicly available at CBS Statline, while regular font illustrated the additional granularity provided by the RIVM to the consortium of banks that contracted them; the data is a first draft and might be subject to further revisions. Also, there are several ways to aggregate sector emissions at national level so the actual numbers might differ from those online at CBS
Alexandra Dumitru, senior climate change economist at Rabobank: "All in all, we reckon that agriculture is a sector that requires a different approach to address the data gaps. However, we are pleased to book progress and hope to step up to the challenge in the future."

1.6.2 Case study FMO: the Joint Impact Model

Together with other development banks and impact investors FMO has been working on a harmonized model to estimate jobs and emissions: the Joint Impact Model (JIM).[11] The JIM can be used to calculate economic activity-based emissions, where emissions are estimated based on economic activity data (for example economic output or revenues) in combination with appropriate emission factors (e.g. tCO_2e/EUR of output). This can help financial institutions fill data gaps in their portfolio emissions where no direct emissions data from customers is available, which is especially useful for FMO since data availability is a challenge in developing countries. The JIM can also provide insights in the wider impact of investments as it includes both direct and supply chain impacts, as well as the impacts through financial intermediaries. In addition, the JIM has an attribution module to allocate the calculated emissions to the investor using an attribution factor.

11 Joint Impact Model website: https://jointimpactmodel.com/

The emissions data in the JIM is estimated based on environmentally extended input-output tables from the Global Trade Analysis Project (GTAP).[12] The JIM uses emission intensities for 65 sectors, 75 individual countries and 17 regions with 2014 as base year, and has information on both CO_2 and non-CO_2 emissions. Sam Nierop, Impact Officer at FMO: "The extensive geographic coverage is important for FMO since we invest in a wide range of countries."

The Joint Impact Model is expected to be open access for impact investors by the end of 2020. It continues to be developed further to, for example, add new types of impact and to seek full alignment with other impact standards, such as the PCAF Global Carbon Accounting Standard for the financial industry. The methodology for JIM version 1.1 can be found on the FMO website.[13]

12 GTAP 10 Database: https://www.gtap.agecon.purdue.edu/databases/v10/index.aspx

13 Joint Impact Model: Methodology paper JIM 1.1, June 2020. Retrieved at: https://www.fmo.nl/l/en/library/download/urn:uuid:88635b7a-c1f9-4842-9213-dc4ba161e485/jim+methodology+-+jim+1.1.pdf

1.7 Public Loans

The working group members of the asset class public loans worked out three specific topics in 2020:
In 2020 further research has been performed to explore the possibilities to obtain better data. One of the possibilities to improve the data quality is to use microdata collected by of the Dutch National Statistics office (CBS) on energy use instead of more abstract energy costs of sector averages. The VIVET project is a collaboration between CBS, the Ministry of Infrastructure and Water Management (Rijkswaterstaat), the Netherlands Enterprise Agency (RvO), the Netherlands Environmental Assessment Agency (PBL), and Kadaster. The main goal of this collaboration is to improve the current information and data supply for the energy transition. The aim is to acquire and disclose the necessary data in a more structured way. The inventory phase of this project has been finalized, and the multi-annual program now has started. The VIVET project might help to make this information more accessible soon.

A second topic was to get a better estimation of the Scope 3 emissions of municipalities. Per sectoral production category the total CO_2 equivalent emissions are known (CBS, 2017/2018). Per sectoral production category the total monetary value for all produced goods and services are known as well. Per subfunction and category the total monetary value was calculated according to the distribution over the sectoral production categories and the same method was used for the total CO_2 equivalent emissions. The monetary value of subfunction and category were summed and also the total CO_2 equivalent emissions were summed. Then, the sum of total CO_2 equivalent emissions was divided by the sum of the total monetary value and this value was multiplied by the costs for that particular subfunction x category for the municipality to result in kg CO_2 equivalent emissions per subfunction x category per municipality. Finally, kg and tonnes of CO_2 equivalent emissions was calculated per municipality.

Finally, in the Netherlands, there are ten drinking water utilities that produce and distribute water to consumers and companies within their own geographical area. We developed an approach in line with the public loans asset class in order to acquire a carbon footprint for all ten water utilities. To enable the drinking water utilities to calculate their carbon footprint in a uniform way, the Watercycle Research Institute developed a new method tailored towards this sector (Snip & Oesterholt, 2019). It describes all the activities included in the process of winning ground and surface water and turning it in to drinking water for the end consumers (e.g. households and companies). The method is described elaborately and is based on the same GHG Protocol (Word Resources Institute, 2015), on which the PCAF methodology is based, making it very suitable for us.

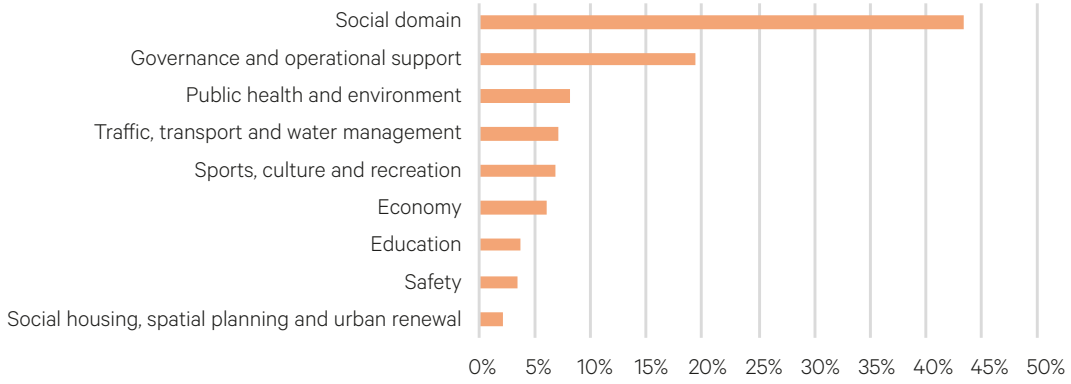
Alex Holten is Senior Controller at NWB Bank.

1.7.1 Case Study BNG Bank: calculating the footprint of the Roosendaal municipality

In this case study is explained how scope 1 natural gas use and fossil fuel use by company vehicles, scope 2 electricity use, and scope 3 purchased good and services are calculated for the municipality of Roosendaal. Roosendaal is a city in the province Noord-Brabant of the Netherlands and had 77,032 inhabitants in 2019. The total balance sheet of the municipality of Roosendaal is around € 242 mln.

"A municipality has a specific set of tasks within the Dutch governmental structure. They are responsible for executing tasks that directly affect local residents, such as providing social benefits, infrastructure maintenance such as streets, parks and cycle paths, and carrying out the Social Support Act (WMO)," says Jan Klaassens, strategic analyst at BNG Bank. An overview of what this means in terms of expenses for Roosendaal can be seen in Figure 7.

Figure 7: Breakdown of expenses in the municipality of Roosendaal



Scope 1 natural gas use and scope 2 electricity use

CBS[14] provides data on electricity and natural gas supply to governmental organizations (including municipalities) per region ("nuts 3") in the Netherlands. A model-based disaggregation method with employee statistics was used to attribute the regional data to the municipality of Roosendaal. This resulted in an annual energy supply of 442,697 m^3 natural gas, and 5,748.051 kWh electricity to the municipality of Roosendaal. Using the emission factors of 1.791 kg CO_2/m^3, and 0.405 kg CO_2/kWh, the municipality of Roosendaal was accountable for 793 tonne CO_2e for natural gas combustion, and 2,328 tonne CO_2e for electricity use in 2019.

Scope 1 fossil fuel use by company vehicles

In the previous PCAF NL report (2019) the limitations paragraph described that data from the car fleet of the municipality did not allow us to estimate associated emissions. In this case study, a method is presented that makes it possible to estimate emission for scope 1 fossil fuel use by company vehicles. CBS provides data on the number of company cars in the sector public administration and government services. The same employee-based disaggregation model as above was used to attribute the regional data to the municipality of Roosendaal. Combining this data with the average annual kilometers of a company car (data from CBS), and the emission factor of 0.181 kg CO_2 equivalent/km (unknown weight and fuel) allows estimating the CO_2e

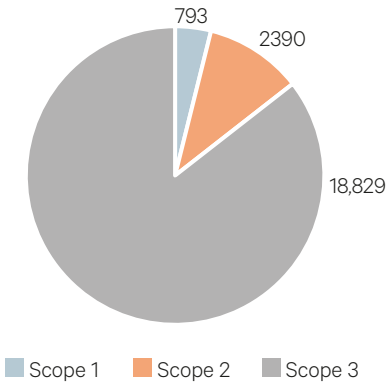
14 Dutch national statistics office (Centraal Bureau voor de Statistiek)

footprint of operating the organization's vehicles. For the municipality of Roosendaal scope 1 fossil fuel use by company vehicles was 62 tonne CO_2e in 2019.

Scope 3 purchased goods and services

The multi-annual budget of the municipality of Roosendaal is used to link the sub-functions to the NACE[15] (SBI) classification and to determine the share of the public sector. After that, the carbon intensity of the NACE classifications (e.g. sub-function traffic and transport) is linked to four NACE sectors: industry, construction industry, business services, and government. According to the multi-annual budget of the municipality of Roosendaal it is calculated that the expenses within the sub-function traffic and transport are divided over the four NACE sectors as follows: 0% Industry, 42% construction industry, 31% business services, and 27% government. This method was employed for all expense sub-functions in the annual budget. For the categories 3.1 (expenses on the purchase or sale of areal possessions), 3.2 (purchases of sustainable goods and services), 3.5 (insourced employees), and 3.8 (other goods and services) the same method was used. For the municipality of Roosendaal, this resulted in a scope 3 emission of 22,012 tonne CO_2e in 2019. After subtracting scope 1 and 2 to correct for double counting, scope 3 was 18,829 tonne CO_2e.

Figure 8. CO2 emissions muncipality of Roosendaal 2019 (tonne)

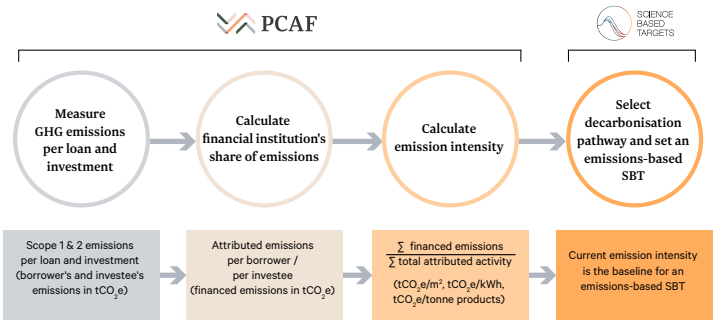


15 The Statistical Classification of Economic Activities in the European Community

1.8 Target Setting

Carbon accounting of investments serves multiple purposes. It supports climate-related risk assessment and disclosure and it supports setting targets to reduce emissions. A sizeable subset of Dutch PCAF members explored what methodologies are available to set greenhouse gas reduction targets on their portfolio and how target setting connects to their ongoing work in carbon accounting. In the Netherlands, over 50 financial institutions signed a Climate Commitment as part of the Dutch Climate Agreement, as explained at greater detail in Section 1.4. The exploratory work done in this Working Group informs the action plans to reduce financed emissions that this Commitment describes.

Figure 9. The Paris alignment value chain for financial institutions, taken from the Global Standard



This group supported the Science-based Targets for Financials Framework development and several in our working group conducted road tests of methodologies under development. The group explored target setting methods inside, as well as outside the SBTi framework, see Table 3. The methods tested prescribe various ways to allocate emissions of investees to investors or bring (part of) a portfolio on a pathway to a 'Paris-aligned' carbon intensity. For more information on the indicators, allocation rules and alignment approaches used, we urge you to read more detailed documentation provided by SBTi or PACTA.[16,17]

Table 3. Target setting methods tested in The Netherlands

Available target setting method	Type of Indicator	Allocation Rule	'Paris' Alignment Approach
Sectoral Decarbonisation Approach SDA method	Emission Intensity Volume of Output Technology Mix	Attribution approach based on PCAF	Convergence Approach
PACTA	Emission Intensity Volume of Output Technology Mix	Portfolio Weighted Approach Ownership based approach	Convergence Approach Rate of Change Approach
Portfolio Coverage Tool & Finance Temperature Scoring Tool	Emission Intensity Economic Intensity Absolute GHG Emissions	Portfolio Weighted Approach Historical Emissions Various Ownership approaches	Annual % reduction in temperature scoring
Sources: SBTi, PACTA			

16 Science-based targets, SBTI. More information available at https://sciencebasedtargets.org/sda/ and https://sciencebasedtargets.org/wp-content/uploads/2020/10/Financial-Sector-Science-Based-Targets-Guidance-Pilot-Version.pdf

17 PACTA for Banks methodology, PACTA. More information available at https://www.transitionmonitor.com/pacta-for-banks-2020/methodology-and-supporting-materials/

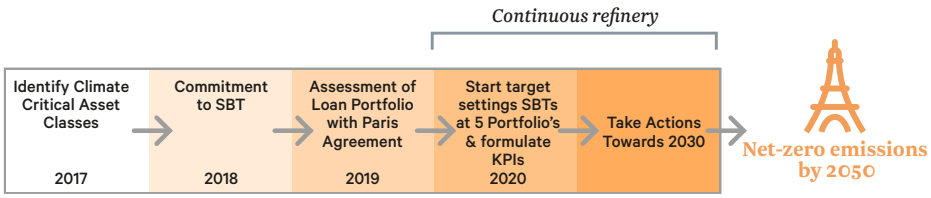
The workstream target setting for financial institutions operates at the crossroads of climate science, finance and data science. It is this growing body of scientific evidence and data that allows investment portfolio managers and individual investors to take action. This community continues to gather better evidence and actionable data for investors, distinguishing different economic sectors. The current state of climate-related sectoral data allows us to start acting on the transition from a high-carbon investments to low-carbon investments.

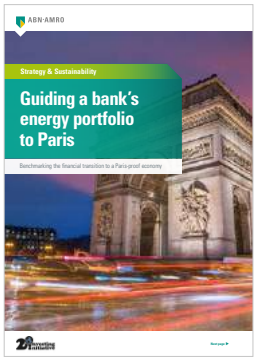
Jan Raes is Global Sustainability Advisor at ABN AMRO Bank

1.8.1 Case study: How ABN AMRO started their target setting journey

"ABN AMRO was amongst the first banks to work on carbon accounting and started reporting on financed emissions since 2017. We are heavily involved with the globalization of PCAF and continue to shape methodologies and share best practices in several working groups. This head start in carbon accounting gave us early insight in the climate critical assets classes of our loan book; notably in mortgages and in the energy sector. This allowed us to focus our next efforts in target setting. Today, after a first assessment of our loan portfolio, we work on setting targets and formulating KPI's derived from those targets. This will allow us to take critical climate action over the next decade, in line with 'Paris'," says Jan Raes, global sustainability advisor.

Figure 10. Science Based Targets Roadmap ABN AMRO





We published our sectoral deep dive on Power Generation using the Paris Agreement Capital Transition Assessment (PACTA) method. We applied this method to our energy portfolio as we understood this part of our portfolio to be highly material in terms of climate-related impact and associated risks.[18]

The tool we applied was road-tested by seventeen international banks from Europe and the Americas, including ABN AMRO.[19] What follows is a technical overview of our approach, results and implication for short to midterm climate targets on this part of our portfolio.

18 This deep dive report can be found at the following URL: https://www.abnamro.com/nl/images/Documents/040_Duurzaamheid/080_Reporting/2020/ABN_AMRO_Guiding_Energy_Portfolio_to_Paris_2020.pdf

19 Methodology, data, and software are available at: https://www.transitionmonitor.com/pacta-for-banks-2020/

Figure 11. Linking production capacity to financial loans

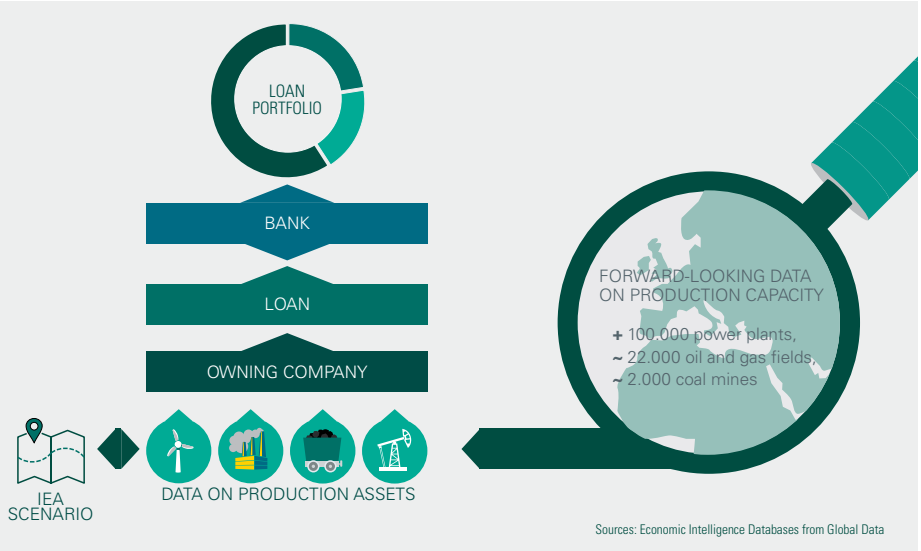
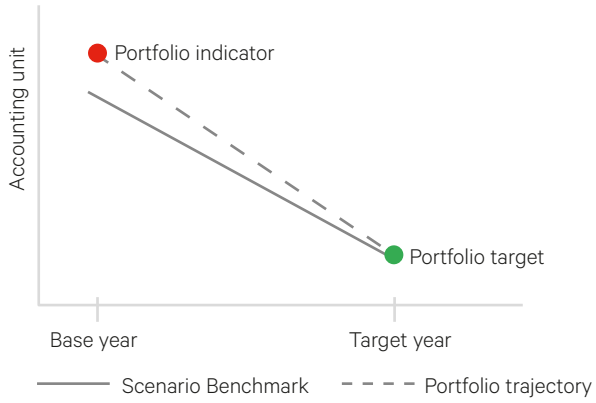


Table 4. Details of applied SBT methodology

Type of indicator	Technology Mix of ABN AMRO's Energy Portfolio split across high carbon (coal, gas, oil) and low carbon technologies (Renewables, Hydro and Nuclear)
Allocation Rule	Portfolio Weighted Allocation rule, i.e.; how much money goes into each technology
Alignment Approach	Convergence approach

Our portfolio intensity pathway converges on IEA's Sustainable Development Scenario. The principle of convergence is indicated in the figure below.

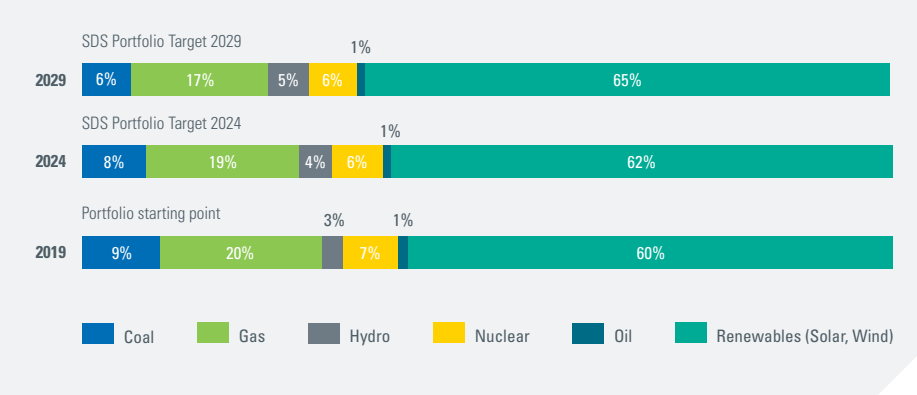
Figure 12. The principle of convergence



Source: Generic example of the convergence approach from KB's Application of the PACTA Methodology for Credit Portfolio Alignment, 2020.

The analysis outcomes are forward-looking from our starting point of 2019 towards 2024 and 2029. The outcomes show how ABN AMRO's financial exposure should evolve in order to be aligned with the SDS over the next 10 years, by the end of 2029. The convergence pathway allowed us to calculate an intermediate target at 2024.

Figure 13. Technologies weighted for size of ABN AMRO's loan book exposure per power generation client



Projected outcomes by 2029:

- Financial allocation to renewables power generation should increase by an additional 5% in the loan portfolio, from 60% to 65%.
- Financial allocation to oil power should decrease to below 1%
- The fact that nuclear capacity decreases in the financial allocation from 7% to 6%, does not mean that there are no capacity additions planned for this technology. Since the capacity build out of nuclear capacity takes more time, it increases at a slower rate than renewables do, for example. Hence nuclear's share in the financial allocation decreases by 1 percentage point.
- Hydro capacity buildout should be sufficient to increase the share of hydro power by 1% in the weightings of the loan portfolio.
- Financial allocation to coal and gas power should each drop 3% in the weighting of the loan portfolio by 2029.

The above alignment can be achieved by ending the relationship with some clients (exclusion) or by letting loans expire without renewal. Although exclusion of economic activities by banks can have a great impact, this is not ABN AMRO's goal. For alignment and convergence with the Paris Agreement, the addition of clean production capacity and/ or future decommissioning of less clean capacity is what matters most. Engagement with existing clients on energy transition is an essential part of the science-based target effort of financial institutions.

1.9 Stakeholder Engagement

Key takeaways on engagement with stakeholders:

- PCAF members contributed to Dutch financial sector Climate Commitment progress report
- Half yearly Climate Conference organized by DUFAS about progress with Climate Commitment
- PCAF members interacted with the Dutch Banking Association, supervisors, accountants and other stakeholders about the PCAF method, further establishing it as one of the ways to get insight in financed carbon emissions
- Cooperation with CBS about linking real energy use to mortgage portfolios
- Cooperation with SBR Nexus to facilitate the inflow and use of non-financial data into FI's systems
- International outreach has been increased considerably

PCAF members contributed to Dutch financial sector Climate Commitment progress report
End of October this year the Financial Sector Committee, led by Femke de Vries, sent a Climate Commitment progress report of the financial sector to the Minister of Finance. PCAF members have contributed to this. All financial institutions in the Netherlands yearly estimate the CO_2 footprint of their portfolios. This starts at the latest in the financial year 2020. Ultimately in 2022 Dutch financial institutions will also announce their climate goals and strategies to help their clients to reduce their footprint. Several PCAF members already report before this deadline. Others are in the process of doing so. Financial institutions may choose on which part of their portfolio they concentrate first and which methods they use. Besides PCAF, this can for example also be PACTA or SBTi.

Half-yearly Climate Conference organized by DUFAS about progress on Climate Commitment
In 2020 PCAF participants participated in the half-yearly climate risk work conference organized by the Dutch financial sector. The June 2020 edition was organized by the Asset management association DUFAS and focused on the progress with implementation of the Dutch Financial Sector Climate Commitment.[20]

PCAF members interacted with the Dutch Banking Association, supervisors, accountants, MEP's and other stakeholders about the PCAF method.
Members of the PCAF network have discussed the GHG accounting approach in further detail with Dutch and international stakeholders, such as with the Dutch Banking Association, Dutch Association of Pension Funds, Insurers and the European banking associations. Several members also discussed PCAF developments with the national professional association of accountants (NBA). Supervisor DNB is informed and there is information exchange with for example the DNB's Sustainable Financing Platform. It is also worth mentioning that in the meeting of MEP's about the Dutch Parliamentary sustainable finance initiative "Van oliedom naar gezond verstand: verduurzaming van de financiele sector" the PCAF approach has been referred to as one of the key carbon footprint methods for financial institutions.

20 A video report of the event ca be found here: https://www.dufas.nl/nieuws/nieuwsoverzicht/klimaatwebinar-verslag-en-videos/

Cooperation with CBS linking real energy use to mortgage portfolios

PCAF requested CBS to provide a validated picture of the CO_2 emissions of the private mortgage portfolios of seven large Dutch mortgage lenders, using real energy use data. Until now, figures had to be based on estimates of energy consumption, derived from the energy label of homes. However, many (provisional) energy labels do not properly reflect the energy consumption of a home, and energy consumption can vary greatly within an energy label. It was therefore not clear how good the estimates made so far in fact are. The CBS database includes comprehensive information about Dutch mortgages and energy supplies to connections to the public grid in the Netherlands. The aim of this project was to investigate whether this can be used to estimate the CO_2 emissions of the private mortgage portfolios of financial institutions. The outcome is affirmative but needs further process improvement in order to provide more up to date reporting that allows for steering. An important point is that no privacy-sensitive information was exchanged, but that only data that CBS already had at its disposal was used.

Cooperation with SBR Nexus to facilitate the inflow and use of non-financial data into FI's systems

PCAF, SBR Nexus and Logius are developing an improved model for the inflow and use of non-financial data in financial institutions systems. With better data and reporting possibilities financial institutions can make better choices to help clients reduce GHG emissions, and thereby contribute to achieving the climate goals.

To apply such a standard, up-to-date data on carbon emissions from households, companies and other institutions is key. To collect such data, PCAF, SBR Nexus and Logius will improve data definitions and dataflows, map access to data sources and stimulate the use of source data. They will determine the necessary data infrastructure and test a new data exchange concept.

Bouke de Vries is Lead of the Rabobank Climate Program

2. Glossary

Absolute emissions	Emissions attributed to a financial institution's lending and investing activity. Expressed in tonnes CO_2e.
Avoided emissions	Emission reductions that the financed project produces versus what would have been emitted in the absence of the project (the baseline emissions). In the context of the Standard, avoided emissions are only from renewable energy and energy efficiency projects.
CO_2-equivalent (CO_2e)	The amount of CO_2 that would cause the same integrated radiative forcing (a measure for the strength of climate change drivers) over a given time horizon as an emitted amount of another GHG or mixture of GHGs. Conversion factors vary based on the underlying assumptions and as the science advances. As a baseline, PCAF recommends using 100-year Global Warming Potentials without climate-carbon feedback from the most recent IPCC Assessment report.
Commercial Real Estate	On-balance-sheet loans for the purchase, refinance, construction, or rehabilitation of commercial real estate (CRE). This definition implies that the property is used for commercial purposes.
Corporate debt	Money that is owed by companies rather than by governments or individual people.
Direct emissions	Emissions from sources that are owned or controlled by the reporting entity and/or the borrower or investee.
Double counting	Occurs when GHG emissions (generated, avoided or removed) are counted more than once in a GHG inventory or toward attaining mitigation pledges or financial pledges for the purpose of mitigating climate change.
Enterprise Value Including Cash (EVIC)	The sum of the market capitalization of ordinary shares at fiscal year end, the market capitalization of preferred shares at fiscal year-end, and the book values of total debt and minorities' interests. No deductions of cash or cash equivalents are made to avoid the possibility of negative enterprise values.
Sovereign bond	A debt security issued by a government to support government spending.
Government debt	The debt owed by a central government.

Indirect emissions	Emissions that are a consequence of the activities of the reporting entity but occur at sources owned or controlled by another entity.
Investment	The term investment (unless explicitly stated otherwise) is used in the broad sense: "Putting money into activities or organizations' with the expectation of making a profit." 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, among other risks.
Mortgage	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.
Project finance	On-balance sheet loan 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.
Science-based reduction targets (SBTs)	Targets adopted by companies to reduce greenhouse gas (GHG) emissions 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—to limit global warming to well-below 2°C above pre-industrial levels and pursue efforts to limit warming to 1.5°C.
Sequestered emissions	Refers to atmospheric carbon dioxide (CO_2) emissions that are captured and stored in solid or liquid form, thereby removing their harmful global warming effect.
Relative emissions: per invested value	Emissions attributed to an investor (absolute emissions) normalised for the amount invested. Expressed in tons CO_2e / M€ invested.

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