



GHG-Emissions of BNG Bank Loan Portfolio

Reporting year 2020



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Official Partner
Tilburg University

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Executive summary

Since the 2015 Paris Climate Conference, the banking sector has been involved in contributing to the realization of the ambitions of the Paris Agreement. Banks play a crucial role. Given the scale of the climate challenge and the crucial role of the banking industry, and the financial sector in general, in facilitating the net zero carbon transition, the Partnership for Carbon Accounting Financials (PCAF) was created.

The first method for carbon accounting for Dutch financials was launched in November 2017 followed by updates in 2018 and in 2019. Measuring and disclosing the GHG emissions associated with the lending and investment activities of financial institutions is the foundation to create transparency **and** accountability. But PCAF is not only about measuring the carbon footprint of a financial institutions portfolio. It's also about setting targets, developing strategies, and taking action by these institutions to align their portfolio with the Paris Climate Agreement and by monitoring on an annual basis if organizations are making progress towards achieving the science based targets set by themselves.

BNG Bank committed itself to PCAF in May 2019. In 2018, preparing itself for joining the PCAF initiative, BNG Bank asked Het PON & Telos, official partner of Tilburg University, to measure the GHG emission associated with the bank's public loan portfolio, using the PCAF methodology.

BNG Bank and the other Dutch promotional bank, NWB bank, have expressed that they want to continue on the PCAF path. So the calculations were repeated for both banks for the annual report of 2020. At the same time both banks also have expressed that they want to investigate if and where quality improvements of the adapted PCAF methodology are possible. The desired quality improvements of the PCAF methodology can be seen as a further contribution from BNG Bank and NWB Bank to the development of the PCAF methodology. Therefore they have asked Het PON & Telos to explore the possibilities for improvement. The results of this exploration are presented in a new methodology approach report, released in October 2020¹.

Current report contains the climate impact of the loan portfolio of BNG Bank. The climate impact has been (re)calculated based on the newly adapted PCAF methodology. The approach is in line with the harmonised approach for the financial sector in the Netherlands 2019².

Available data on CO₂-equivalent emissions (representing the targeted Greenhouse Gasses-GHG), or estimated emissions by using impact data and appropriate emission factors, were used to calculate the impact of different sectors of BNG Bank's loan portfolio. The impact data includes direct (scope 1) as well as indirect emissions (scope 2 and 3 if available).

¹ Mulder, R., Roover, I. van, Dagevos, J., Verhoeven, L., Wentink C. (2020), Loan Portfolio Climate Impact of BNG Bank & NWB Bank, Methodological approach report 2020

² Accounting GHG emissions and taking action: harmonised approach for the financial sector in the Netherlands PCAF The Netherlands, report 2019

Besides the calculation of the GHG emissions, a ratio between outstanding loan portfolio per client and the total balance sheet of the respective client was used for the attribution of BNG Bank loans to the total assets of GHG emitting clients. This results in the attributed GHG emissions for BNG Bank's loans.

Current report contains the GHG emissions of two time periods: reporting year 2019 and 2020. That makes it possible for the bank to monitor the development of the GHG emissions over time. For reporting year 2019, the loan portfolio of 31-12-2018 was used and for reporting year 2020, the loan portfolio of 31-12-2019 was used. For the calculation of GHG emissions the most recent available data was used, see the methodology approach report, released in October 2020³.

At this time, it is practically impossible for banks to measure the GHG-emissions for the whole loan portfolio, due to a lack of sufficient data. When 60-70% of the loan portfolio is included in the PCAF analysis a major achievement is reached. For BNG Bank it has been possible, because of its unique position in the market, to cover 89% of its portfolio in this GHG emission reporting, as illustrated in Table S1. The coverage rate increased with 1% between reporting year 2019 and 2020. An overview of total CO₂ equivalent emissions for the loan portfolio of BNG Bank for reporting year 2019 and 2020 is given in Table S2.

As can be seen in Table S2, the BNG Bank loan portfolio of reporting year 2020 has a total emission of 3,005 kiloton CO₂-equivalent. This is 118 kiloton less than the total emissions of last year. This decrease was mainly due to a reduction of GHG emissions for the social housing sector (-82 kiloton CO₂-equivalent) and for the local governments (-55 kiloton CO₂-equivalent). The social housing sector improved the energy labels of rental homes. Indirect emissions (scope 3) of the local governments reduced, but what exactly caused this reduction in scope 3 is unknown.

The reduction of 118 kiloton CO₂-equivalent is a great accomplishment, because the part of the loan portfolio covered by the GHG footprint calculation has grown from 82 to 84 billion euro. The emission intensity (ton CO₂-eq/million euro) has decreased from 43.5 to 40.2 ton per million euro.

Table S1. Total outstanding loans of BNG Bank and part covered in the GHG assessment for reporting year 2019 and 2020⁴

| Market segment | Sector | Loan portfolio (million EUR) | Part covered with GHG footprint (million EUR) | Coverage rate (%) | Loan portfolio (million EUR) | Part covered with GHG footprint (million EUR) | Coverage rate (%) |
|----------------|----------------|------------------------------|---|-------------------|------------------------------|---|-------------------|
| | | 2020 | 2020 | 2020 | 2019 | 2019 | 2019 |
| Public sector | | | | | | | |
| | Municipalities | 27,015 | 26,938 | 100% | 26,033 | 25,973 | 100% |
| | Provinces | 268 | 268 | 100% | 137 | 137 | 100% |

³ Mulder, R., Rovert, I. van, Dagevos, J., Verhoeven, L., Wentink C. (2020), Loan Portfolio Climate Impact of BNG Bank & NWB Bank, Methodological approach report 2020

⁴ Reference dates for reporting year: 2020 is 31-12-2019 and reference date for reporting year 2019 is 31-12-2018

| Market segment | Sector | Loan portfolio (million EUR) | Part covered with GHG footprint (million EUR) | Coverage rate (%) | Loan portfolio (million EUR) | Part covered with GHG footprint (million EUR) | Coverage rate (%) |
|------------------------|-----------------------------|------------------------------|---|-------------------|------------------------------|---|-------------------|
| | Water authorities | 202 | 202 | 100% | 233 | 233 | 100% |
| | Others | 3,367 | - | 0% | 3,304 | - | 0% |
| Energy | | | | | | | |
| | Energy | 693 | - | 0% | 541 | - | 0% |
| Environment | | | | | | | |
| | Environment | 710 | - | 0% | 696 | - | 0% |
| Mobility | | | | | | | |
| | Mobility | 1,515 | 1,071 | 71% | 1,512 | 885 | 59% |
| Networks | | | | | | | |
| | Drinking water utilities | 789 | 691 | 88% | 811 | 712 | 88% |
| | Others | 448 | - | 0% | 435 | - | 0% |
| Social housing | | | | | | | |
| | Social housing associations | 40,350 | 39,764 | 99% | 38,739 | 38,351 | 99% |
| | Others | 8 | - | 0% | 9 | - | 0% |
| Healthcare | | | | | | | |
| | Healthcare | 7,243 | 5,234 | 72% | 6,973 | 4,946 | 71% |
| Others | | | | | | | |
| | Others | 170 | 30 | 18% | 183 | - | 0% |
| Education | | | | | | | |
| | WO | 202 | 200 | 99% | 210 | 207 | 99% |
| | HBO | 66 | 66 | 100% | 92 | 92 | 100% |
| | MBO | 221 | 220 | 100% | 217 | 216 | 100% |
| | VO | 160 | 99 | 62% | 141 | 90 | 64% |
| | PO | 3 | 3 | 100% | 3 | 3 | 100% |
| | Others | 287 | 5 | 2% | 292 | 5 | 2% |
| Financial institutions | | | | | | | |
| | Financial institutions | 184 | - | 0% | 157 | - | 0% |
| Remaining | | | | | | | |
| | Others | 285 | - | 0% | 911 | - | 0% |
| Total | | 84,184 | 74,791 | 89% | 81,628 | 71,850 | 88% |

Table S2. Emission intensities for reporting year 2019 and 2020

| Market segment | Sector | Part covered with GHG footprint (million EUR) | Attributed emissions (ton CO ₂ -eq) | Emission intensity (ton CO ₂ -eq / million EUR) | Part covered with GHG footprint (million EUR) | Attributed emissions (ton CO ₂ -eq) | Emission intensity (ton CO ₂ -eq / million EUR) | Data quality (score 1-5) |
|----------------|----------------|---|--|--|---|--|--|--------------------------|
| | | 2020 | 2020 | 2020 | 2019 | 2019 | 2019 | |
| Public sector | | | | | | | | |
| | Municipalities | 26,938 | 1,635,658 | 60.7 | 25,973 | 1,690,390 | 65.1 | 3 |
| | Provinces | 268 | 8,597 | 32.1 | 137 | 3,742 | 27.4 | 3 |

| | | | | | | | | |
|----------------|-----------------------------|--------|-----------|------|--------|-----------|------|------|
| | Water authorities | 202 | 9,323 | 46.1 | 233 | 16,548 | 71.0 | 2 |
| Mobility | | | | | | | | |
| | Mobility | 1,071 | 21,252 | 19.8 | 885 | 14,017 | 15.8 | 4 |
| Networks | | | | | | | | |
| | Drinking water utilities | 691 | 4,616 | 6.7 | 712 | 4,725 | 6.6 | 2 |
| Social housing | | | | | | | | |
| | Social housing associations | 39,764 | 997,565 | 25.1 | 38,351 | 1,079,670 | 28.2 | 2.5 |
| Healthcare | | | | | | | | |
| | Healthcare | 5,234 | 300,418 | 57.4 | 4,946 | 284,683 | 57.6 | 2.5 |
| Others | | | | | | | | |
| | Others | 30 | 265 | 8.8 | - | | | 4 |
| Education | | | | | | | | |
| | Total | 592 | 27,674 | 46.7 | 613 | 29,848 | 48.7 | 1.75 |
| Total | | 74,791 | 3,005,368 | 40.2 | 71,850 | 3,123,622 | 43.5 | |

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1 Introduction

Since the 2015 Paris Climate Conference, the banking sector has been involved in contributing to the realization of the ambitions of the Paris Agreement. Banks play a crucial role. Not only because they represent most of the available capital globally, but also because the largest banks are still investing heavily into the fossil fuel sector, since the Paris Climate Agreement nearly \$2 trillion. This is equivalent to \$2.4 billion for every working day since the end of 2015, with no downward trend and no assessment of the carbon impact of that finance.⁵

1.1 A Partnership for Carbon Accounting Financials: PCAF⁶

Given the scale of the climate challenge and the crucial role of the banking industry, and the financial sector in general, in facilitating the net zero carbon transition, the Partnership for Carbon Accounting Financials (PCAF) was created. Initially a Dutch initiative of eleven, later fourteen Dutch financial institutions under the leadership of ASN Bank. The initiative was launched via a Dutch Carbon Pledge calling on the negotiators at the Paris Climate Summit in 2015 to take ambitious steps while the committed financial institutions take their share in delivering an essential shift to a low carbon economy, starting with measuring and disclosing the Greenhouse Gas Emissions (GHG) emissions of their loans and investments.

“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.”¹

The November 28th 2015 original Dutch Carbon pledge of ABN-AMRO, MN, APG, ASN Bank, ACTIAM, FMO, PME, PMT, PGGM, SNS and Triodos Bank ⁷

⁵ <https://carbonaccountingfinancials.com/about>

⁶ Based on <https://carbonaccountingfinancials.com/about>

⁷ cited in PCAF Netherlands, Accounting for and steering carbon: harmonised approach for the financial sector, This report was commissioned by PCAF Netherlands and compiled, edited and reviewed by Navigant Version December 6, 2019 5:01 PM

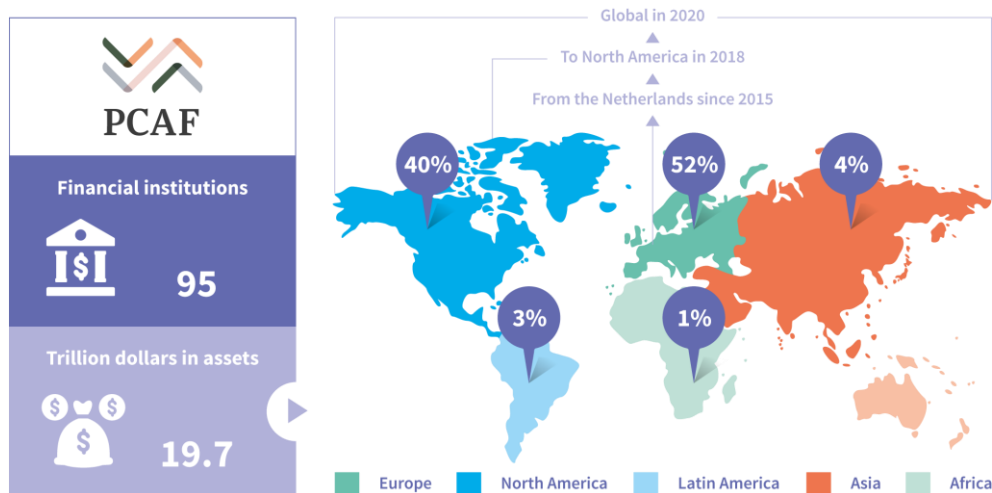
Since then, more financial institutions from the Netherlands have joined forces to develop and implement open-source methodologies to measure the GHG emissions of all asset classes within their loans and investments portfolios. At the beginning of 2019, BNG Bank formally committed themselves to the initiative.

As mentioned above the first step on “this long and windy road” was set in 2015 when the Dutch PCAF was launched aiming to develop a methodology for the different types of asset classes within financial institutions. A first method for carbon accounting for financials was launched in November 2017. Updates were published in 2018 and in 2019.⁸

In 2018, PCAF expanded to North America. Led by Amalgamated Bank, 12 financial institutions have adapted the PCAF carbon accounting methodologies to the North American context. And on 4th of March 2019, leaders of 28 banks of the Global Alliance for Banking on Values (GABV) decided to assess and disclose the GHG emissions of their loans and investments by using the PCAF approach.

Due to the increasing interest of financial institutions worldwide in transparent and harmonised assessment of the GHG emissions of their loans and investments, ABN AMRO, Amalgamated Bank, ASN Bank, Global Alliance for Banking on Values (GABV) and Triodos Bank decided to launch the global initiative. The globalization of PCAF addresses banks and investors across the world.

At the end of 2020, 95 institutions are partners within PCAF with over 19 trillion dollars in assets. More than half of it concentrated in Europe and 40% in North-America.⁹

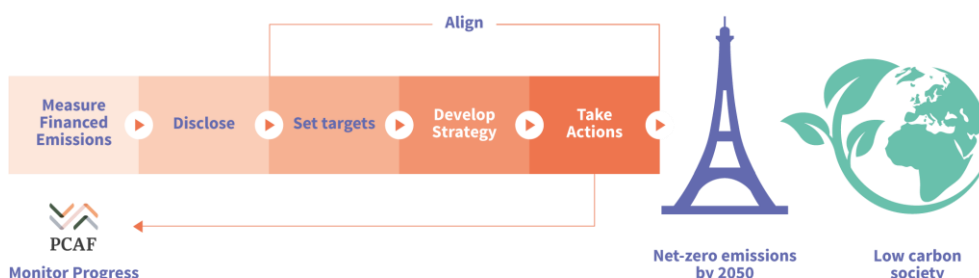


⁸ Accounting GHG emissions and taking action: harmonised approach for the financial sector in the Netherlands PCAF The Netherlands, report 2019

⁹ See <https://carbonaccountingfinancials.com/financial-institutions-taking-action#overview-of-institutions> for an overview of all the following financial institutions that have committed and disclosed the greenhouse gas emissions associated with their portfolio of loans and investments.

1.2 From CO₂ equivalent footprint to action

Given the key role financial institutions play in the global economy, the partners in PCAF also see a role for themselves in facilitating the transition of this global economy in line with the Paris Climate Agreement. A first step in this direction was developing a system of harmonised and transparent carbon accounting.



The first method for carbon accounting for Dutch financials was launched in November 2017 followed by updates in 2018 and in 2019. Measuring and disclosing the GHG emissions associated with the lending and investment activities of financial institutions is the foundation to create transparency and accountability. But PCAF is not only about measuring the carbon footprint of a financial institutions portfolio. It's also about setting targets, developing strategies, and taking action by these institutions to align their portfolio with the Paris Climate Agreement and by monitoring on an annual basis if one is making progress towards achieving the science based targets set by themselves.

In a recent report¹⁰ the Science Based Targets initiative (SBTi) has outlined a pilot version of an approach how to align the investment and lending activities of Financial Institutions with the Paris Climate Agreement by target setting in these areas. The SBTi has adopted an asset class-specific approach to enable robust and meaningful targets and has selected three methods that link financial institutions' investment and lending portfolios with climate stabilization pathways, each of which can be used for one or more asset classes:

- *Sectoral Decarbonization Approach (SDA)*: Emissions-based physical intensity targets are set for real estate and mortgage-related investments and loans, as well as for the power generation, cement, pulp and paper, transport, iron and steel, and buildings sectors within corporate instruments.
- *SBTi Portfolio Coverage Approach*: Engagement targets are set by financial institutions to have a portion of their investees set their own SBTi-approved science-based targets such that the financial institution is on a linear path to 100 percent portfolio coverage by 2040.
- *The Temperature Rating Approach*: Financial institutions can use this approach to determine the current temperature rating of their portfolios and take actions to align their portfolios to ambitious long-term temperature goals by engaging with portfolio companies to set ambitious targets.

¹⁰ SBT (2020), Financial Sector Science-Based Targets Guidance. Pilot Version

The report of the SBTi can be seen as a first, necessary step to develop a system for financial institutions to setting (ambitious) targets for their investment and lending activities. This should be combined with setting targets for reducing the emissions of their operations (scope 1 and 2) and for the scope 3 categories as well.

By setting targets financial institutions are expressing their own ambitions how to contribute to the realization of the Paris Climate Agreement. This should be followed by a clear and transparent strategy how to realize these targets combined with a monitoring system that has two crucial functions. In the first place by showing progress in achieving the targets set by the financial institution but also by acting as a kind of mirror of reflection by showing which strategies and actions are successful in reducing GHG emissions and which are not. This could be part of a learning strategy not only for PCAF partners for others in the world as well.

1.3 BNG Bank and PCAF

As mentioned above, BNG Bank committed itself to PCAF in May 2019. In 2018, preparing itself for joining the PCAF initiative, BNG Bank asked Het PON & Telos, official partner of Tilburg University, to measure the GHG emission associated with the bank's public loan portfolio, using the PCAF methodology. The necessary activities have been executed in 2019 in two steps. First a scoping study was carried out to test how well the portfolio of BNG Bank was covered by the PCAF Asset Classes¹¹. The results of this scoping study showed that particularly the municipal loan portfolio of BNG Bank (the public sector loans) was not covered by the PCAF approach at that time. Therefore a new methodology for this specific sector had to be developed.

In the first half of 2019 this methodology was developed and the results have been discussed with the chairman of the Dutch PCAF group. In line with the open source nature of PCAF, this new methodology has been made publicly available by adding it to the 2019 PCAF Harmonised approach for the financial sectors in the Netherlands.¹² A second element of the scoping study was exploring whether the other loan categories of BNG Bank could be provided with a GHG-emission estimate as well.

During the second half of 2019 the necessary data were collected and the calculations were made using the PCAF methodology. The results were presented at the beginning of 2020¹³ and were included in the BNG Bank Annual report of 2019.¹⁴

¹¹ Zoeteman, B., & Wentink, C. (2019). Rapport Scoping Studie CO2 footprint BNG Bank portefeuille volgens PCAF methode. Tilburg, Telos.

¹² PCAF, The Netherlands., (2019). Accounting GHG emissions and taking action: Harmonised approach for the financial sector in the Netherlands. Navigant, 2019. p90-91.

¹³ Zoeteman, B. Mulder, R. Daemen, M. Wentink, C. (2020), GHG Emissions (PCAF Method) of BNG Bank, Reporting year 2019.

¹⁴

<https://www.bngbank.nl/Documents/Over%20BNG%20Bank/Jaarverslag%202019/BNG%20Bank%20Annual%20Report%202019.pdf>, page 12 and 41.

In the same period Het Pon & Telos also has prepared a similar PCAF report for NWB Bank. The results were presented in the first quarter of 2020¹⁵ and were also included in the annual report of NWB Bank.¹⁶

BNG bank and the other promotional bank, NWB bank, have expressed the wish to continue their participation in PCAF. So the 2020 version of the annual reports of both banks contains more accurate calculations of the GHG emissions based on the PCAF methodology. The more accurate calculation is the result of the wish of both banks to investigate if quality improvements of the applied PCAF methodology are possible. Het PON & Telos has been asked to explore these possibilities. The results of this exploration leading to a more accurate calculation, have been presented in a separate methodology approach report, released in October 2020¹⁷. The investment in further quality improvements of the methodology can be seen as a next, extended contribution from BNG Bank and NWB bank to the development of the PCAF methodology.

In this report the Loan Portfolio climate impact of BNG Bank has been (re)calculated based on the newly adapted PCAF methodology. The approach is in line with the harmonised approach for the financial sector in the Netherlands 2019¹⁸.

¹⁵ Mulder, R. & Dagevos, J. (2020). GHG-Emissions (PCAF method) of the Loan Portfolio of NWB Bank: Reporting year 2019. Tilburg, Telos / Het PON

¹⁶ See NWB (2020), Annual report 2019, page 7 and 9.

¹⁷ Mulder, R., Roover, I. van, Dagevos, J., Verhoeven, L., Wentink C. (2020), Loan Portfolio Climate Impact of BNG Bank & NWB Bank, Methodological approach report 2020

¹⁸ PCAF, The Netherlands., (2019). Accounting GHG emissions and taking action: Harmonised approach for the financial sector in the Netherlands.

2 Applying PCAF methodology for BNG Bank

This report describes the outcome of the Greenhouse Gas emissions assessment of the BNG Bank loan portfolio. The total coverage in the 2020 PCAF reporting includes the vast majority of loans in BNG Bank's portfolio. Impact data have been calculated per sector and client.

Compared to the 2019 PCAF report for BNG Bank, a few approaches have been improved. The approaches for the municipalities, water authorities, and education sectors have for example been revised, resulting in more trustworthy estimates and outcomes. In addition, a new approach has been developed for the drinking water utilities.

Another addition compared to the 2019 BNG Bank PCAF report, is that this 2020 report contains the GHG emissions of two time periods: reporting year 2019 and 2020. That makes it possible for the bank to monitor the development of the GHG emissions over time. For reporting year 2019, the loan portfolio of 31-12-2018 was used and for reporting year 2020, the loan portfolio of 31-12-2019 was used. For the calculation of GHG emissions the most recent available data was used to take the most recent developments in climate action into consideration.

The data used in this study have a high level of reliability. They come from trustworthy governmentally provided sources like the Dutch national statistics office (CBS) and RIVM. Other sources are several umbrella organizations such as DUO (education), Aedes (housing associations) and Vewin (drinking water utilities).

For a detailed description of the methodology and data used to calculate the CO₂ equivalent footprint following the Dutch PCAF Principles, see the methodology approach report, released in October 2020¹⁹.

2.1 PCAF methodology

The methodology used in this study, is based on the GHG Protocol and the harmonised approach for the financial sector in the Netherlands²⁰ (PCAF The Netherlands, report 2019). The report has four overall reporting guidelines:

- Purpose: Meet the specific carbon footprint goals of 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;
- Frequency: At least disclose annually, in line with the financial reporting cycle;
- Form of reporting: In publicly available reports such as (semi) annual reports, website;

¹⁹ Mulder, R., Roovert, I. van, Dagevos, J., Verhoeven, L., Wentink C. (2020), Loan Portfolio Climate Impact of BNG Bank & NWB Bank, Methodological approach report 2020

²⁰ <https://carbonaccountingfinancials.com/regional-implementation-team/pcaf-europe>

- Past performance: Disclose the carbon footprint of multiple comparable time periods (e.g., years).

2.2 Scopes

The GHG Protocol is the basis for carbon accounting. In line with PCAF and the GHG Protocol, the methodology used in this report is respecting basic accounting principles of Completeness, Consistency, Transparency, Prudence, Balance and Accuracy. The GHG protocol defines three different scopes all entities may report about separately (see Figure 1). In the present report these scopes are defined from the perspective of the reporting financial institution i.c. BNG Bank and focusses on all the direct and indirect greenhouse gas emissions BNG Bank is responsible for outside of its own walls by financing different type of organizations. In the PCAF methodology scope 1, 2, and 3 refer to the scopes from the viewpoint of the investee, project, company, or government.

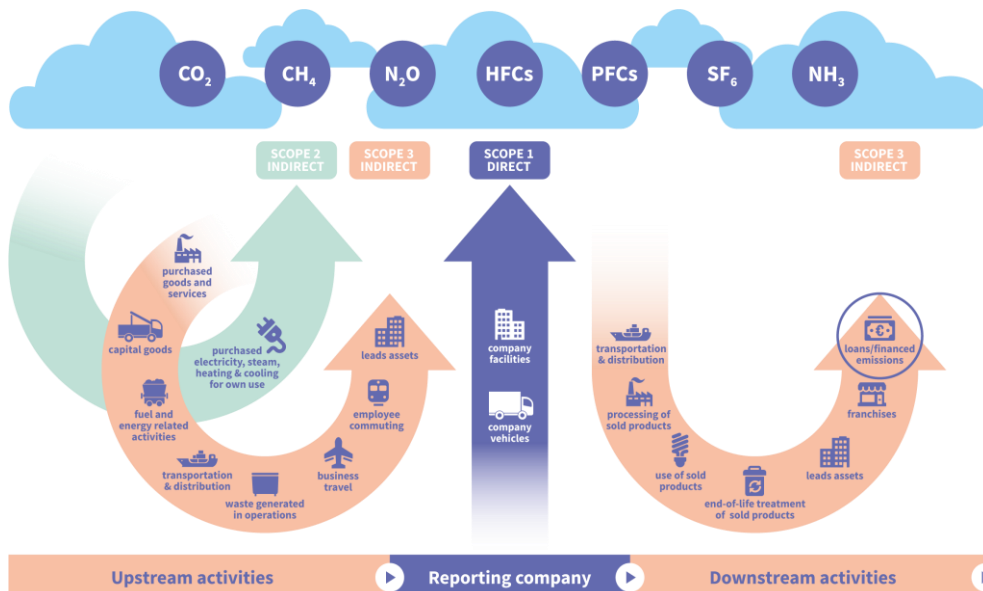


Figure 1. The scope definitions from the GHG Protocol (Image created from GHG Protocol).

According to the GHG Protocol Corporate Value Chain Accounting and Reporting Standard, the carbon footprint of any financial institution should include:

- Scope 1: All direct GHG emissions, such as natural gas use, and fuel for company vehicles of the investee, project, company, or government.
- Scope 2: Indirect emissions from the consumption of purchased electricity, heat or steam of the investee, project, company, or government.
- Scope 3 covers other indirect emissions such as the extraction and production of purchased materials and fuels, outsourced activities, business travel, waste disposal, etc. of the investee, project, company, or government.

Disclosure of total generated emissions data is mandatory for scope 1 and 2. Disclosure of emissions intensity data (ton CO₂ eq per million EUR) for scope 1 and 2 is voluntary. For

scope 3 emissions, disclosure of total generated data is mandatory when relevant and available (i.e., recommended by the methodology). Disclosure of scope 3 emissions intensity data (ton CO₂ eq per million EUR) is voluntary. Institutions should explain why they are not able to provide this.

2.3 BNG Bank loan portfolio

The BNG Bank loan portfolio consists of different market segments. These segments can cover multiple sectors or sub-sectors. An overview of these sectors is given in Table 2.1.

Table 2.1. Overview of BNG Bank loan portfolio for reporting year 2019 and 2020²¹

| Market segment | Sector | Loan portfolio | Percentage | Loan portfolio | Percentage |
|----------------|-----------------------------|----------------|--------------|----------------|--------------|
| | | (million EUR) | of all loans | (million EUR) | of all loans |
| | | 2020 | 2020 | 2019 | 2019 |
| Public sector | | | | | |
| | Municipalities | 27,015 | 32.1% | 26,033 | 31.9% |
| | Provinces | 268 | 0.3% | 137 | 0.2% |
| | Water authorities | 202 | 0.2% | 233 | 0.3% |
| | Others | 3,367 | 4.0% | 3,304 | 4.0% |
| Energy | | | | | |
| | Energy | 693 | 0.8% | 541 | 0.7% |
| Environment | | | | | |
| | Environment | 710 | 0.8% | 696 | 0.9% |
| Mobility | | | | | |
| | Mobility | 1,515 | 1.8% | 1,512 | 1.9% |
| Networks | | | | | |
| | Drinking water utilities | 789 | 0.9% | 811 | 1.0% |
| | Others | 448 | 0.5% | 435 | 0.5% |
| Social housing | | | | | |
| | Social housing associations | 40,350 | 47.9% | 38,739 | 47.5% |
| | Others | 8 | 0.0% | 9 | 0.0% |
| Healthcare | | | | | |
| | Healthcare | 7,243 | 8.6% | 6,973 | 8.5% |
| Others | | | | | |
| | Others | 170 | 0.2% | 183 | 0.2% |
| Education | | | | | |
| | WO | 202 | 0.2% | 210 | 0.3% |
| | HBO | 66 | 0.1% | 92 | 0.1% |
| | MBO | 221 | 0.3% | 217 | 0.3% |
| | VO | 160 | 0.2% | 141 | 0.2% |
| | PO | 3 | 0.0% | 3 | 0.0% |
| | Others | 287 | 0.3% | 292 | 0.4% |

²¹ Reference dates for reporting year: 2020 is 31-12-2019 and reference date for reporting year 2019 is 31-12-2018

| | | | | | |
|------------------------|------------------------|--------|------|--------|------|
| Financial institutions | | | | | |
| | Financial institutions | 184 | 0.2% | 157 | 0.2% |
| Remaining | | | | | |
| | Others | 285 | 0.3% | 911 | 1.1% |
| Total | | 84,184 | 100% | 81,628 | 100% |

As seen in table 2.1, the social housing associations and municipalities are the largest sectors in the BNG Bank loan portfolio

2.4 Attribution

The footprint of the BNG Bank is calculated based on the emissions of individual organizations. The emissions of an individual organization are multiplied by the proportional share of the outstanding loan amount with BNG Bank in the total balance sheet of the client. In the end, all individual organizations are aggregated, using the following formula:

$$\sum CO_2eq \times \frac{\text{Outstanding loan}}{\text{Total balance sheet}}$$

2.5 Emission factors

For the development of the CO₂ equivalent footprint of clients from BNG Bank, CO₂ emission factors were used to transform energy into kilograms CO₂ equivalent. The emission factors used in this publication are published at www.CO2emissiefactoren.nl. The list of emission factors is prepared by a collaboration of Milieu Centraal, Stimular, SKAO, Connekt and The National Government of The Netherlands. The aim of this list is to present the emission factors on a scientific, and uniform matter. PCAF The Netherlands has embraced this list of widely accepted grid emission factors, and recommends using this for the Dutch context.

www.CO2emissiefactoren.nl gives three different options for every emission factor. Well-to-wheel (WTT), Tank to Wheel (TTW), and Well to Tank (WTT). PCAF has chosen to use the grid emission factor related to direct emissions, expressed under column TTW. These are only the emissions produced by the end user. It does not include the emissions caused by the energy production phase (WTT).

For more information about the used emission factors, please consult the methodology approach report, released in October 2020²².

²² Mulder, R., Roovert, I. van, Dagevos, J., Verhoeven, L., Wentink C. (2020), Loan Portfolio Climate Impact of BNG Bank & NWB Bank, Methodological approach report 2020

2.6 Data quality²³

An important element of carbon accounting is the quality of data on emissions of loans and investments. Different asset classes present unique challenges and opportunities with respect to emissions data. This section provides some overarching principles about the quality and preferred hierarchy of emissions data, with more detailed guidance provided on specific asset classes in the next chapters.

High quality emissions data is defined as follows:

- Emissions data is consistent, both across entities and across time;
- Emissions data reflects the underlying emissions generating activities of the entity and are not impacted by unrelated factors;
- Emissions data is accompanied by a relevant level of assurance.

It is possible that emissions data does not meet all the criteria listed above, and that this is dependent on the specific properties of the loan and investment, such as: type of loan/investment, the sector or market best practice. To comply with PCAF's reporting guidance, participating institutions are asked to publish the existing PCAF hierarchy of data quality table below. The table is a guide to disclose data quality scores in total and per asset class.

The following data scoring is used to score and improve data quality of the network sector. The data quality presented in each chapter is valid for both calculated years.

Table 2.2 Data quality definitions for the quality score estimates

| Data quality (highest to lowest) | Description |
|----------------------------------|--|
| 1 | Actual energy consumption, converted to CO ₂ eq-emissions using verified emission factors and detailed activity data specific to the type of energy consumed |
| 2 | Actual energy consumption, converted to CO ₂ eq-emissions using emissions factors for energy from undefined fuel source |
| 3 | Modeled regional activity data based on robust assumptions, converted to CO ₂ eq-emissions using emissions factors for energy from undefined fuel source |
| 4 | Modeled activity data in a country, converted to CO ₂ eq-emissions using emissions factors for energy from undefined fuel source |
| 5 | Highly modeled activity or uncertain activity data in a country, converted to CO ₂ eq-emissions using default emissions factors for energy from undefined fuel source |

²³ Text from: Accounting GHG emissions and taking action: harmonised approach for the financial sector in the Netherlands PCAF The Netherlands, report 2019.

3 Social housing sector

The social housing sector is the largest sector within the loan portfolio of the BNG Bank. The sector is accountable for 47.9% of the total loan portfolio of the BNG Bank. Within this sector, 98.5% of the outstanding loans is related to social housing associations. Only 1.5% of the loans is provided to other organizations, related to social housing associations. These organizations can be active in management of real estate or real estate development.

3.1 Coverage

It was possible to calculate the CO₂ equivalent footprint for 98.5% of the loan portfolio within the social housing sector. Emissions were based on scope 1 and 2 activities. An overview of the housing sector is given in Tables 3.1 and 3.2.

Table 3.1 Coverage rate for the housing sector for reporting year 2020

| Housing sector | Loan portfolio (million EUR) | Percentage of sector | Percentage of all loans | Coverage rate (loan portfolio) |
|-----------------------------|------------------------------|----------------------|-------------------------|--------------------------------|
| Social housing associations | 39,764 | 98.5% | 47.2% | 100% |
| Others | 594 | 1.5% | 0.7% | 0% |
| Total | 40,358 | 100.0% | 47.9% | 98.5% |

Table 3.2 Coverage rate for the housing sector for reporting year 2019

| Housing sector | Loan portfolio (million EUR) | Percentage of sector | Percentage of all loans | Coverage rate (loan portfolio) |
|-----------------------------|------------------------------|----------------------|-------------------------|--------------------------------|
| Social housing associations | 38,351 | 99.0% | 47.0% | 100% |
| Others | 397 | 1.0% | 0.5% | 0% |
| Total | 38,748 | 100.0% | 47.5% | 99.0% |

The coverage rate has decreased by 0.5% over the past year. This is due to the fact that there are a few more organizations in the BNG Bank's portfolio of reporting year 2020 that do not qualify as a social housing association than of reporting year 2019. For these organizations, no adequate data is available.

3.2 Methodology and data used

For an elaborated description of the methodology and data used to calculate the CO₂ equivalent footprint following the Dutch PCAF Principles, please consult the methodology approach report, released in October 2020²⁴.

²⁴ Mulder, R., Roovert, I. van, Dagevos, J., Verhoeven, L., Wentink C. (2020), Loan Portfolio Climate Impact of BNG Bank & NWB Bank, Methodological approach report 2020

3.2.1 Attribution

The CO₂ equivalent footprint of the BNG Bank for the social housing sector is calculated based on the emissions of individual social housing associations. The individual emissions of a certain housing type are multiplied by the proportional share of the outstanding loan amount with BNG Bank in the total balance sheet of that client. In the end, all emissions of social housing associations are aggregated for each housing type and subsequently for all housing types together, using the following formula:

$$\sum CO_2eq \times \frac{\text{Outstanding loan}}{\text{Total balance sheet}}$$

As a basic attribution principle, the lender accounts for a portion of the GHG emissions of the financed company determined by the ratio between the lender's exposure and the enterprise value of the company (in this asset class total balance sheet of the company). For this, the actual outstanding exposure is used. This means adjusting the numerator of the attribution factor annually (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).

Different methods were used to calculate different components of the covered emissions. The coverage per scope is described below, based on the different scopes defined by PCAF. For a more detailed methodology description, see the Methodological approach report, 2020²⁵.

3.2.2 Scopes covered

Emissions for energy use of financed rental homes (scope 1 and 2) are covered in the approach for this sector. This is in line with the commercial real estate and residential mortgages approach in the PCAF methodology. There are plans within the PCAF Platform to explore the possibilities of adding scope 3 to this approach, but these are not finalized yet, and therefore not been taken into account in this study.

Scope 1: Natural gas use

The exact use of natural gas per social housing association is unknown. Therefore, an estimation had to be made. To make this estimation as accurate as possible, multiple calculation factors were used. CO₂ equivalent emissions caused by natural gas use have been estimated by the energy-labels of the rental homes, the type of rental home, the geographic location, and the floor surface of the rental home.

Scope 2: District heating

No exact district heating statistics per social housing association are known. To make a reliable estimation, multiple calculation factors were used. CO₂ equivalent emissions caused by district heating per social housing association have been estimated by the energy-labels of the rental homes, the type of rental home, the geographic location, the floor surface of the rental home, and the percentage of district heating houses per municipality.

²⁵ Mulder, R., Roovert, I. van, Dagevos, J., Verhoeven, L., Wentink C. (2020), Loan Portfolio Climate Impact of BNG Bank & NWB Bank, Methodological approach report 2020

Scope 2: Electricity use

The exact use of electricity per social housing association is unknown. Estimations have been made using multiple calculation factors. CO₂ equivalent emissions caused by electricity use per social housing association have been estimated by the type of rental home, the geographic location, the floor surface of the rental home, the estimated number of residents per rental home, and the electricity use per type of rental home.

3.3 Data quality

The CO₂ equivalent emissions per rental home are ideally calculated using energy consumption data per client account. When this is not available, other methods were used. This of course will increase the need to use estimations, and the uncertainty level of the calculations.

The method in this study uses energy labels, number of residents, and floor area per type of social house, converted to CO₂ equivalent emissions using emission factors for energy from undefined fuel source (except for gas use, where the energy source is natural gas). This is in compliance with data quality level 3. However, instead of country level averages, municipal averages were used. This makes the calculation more precise, because of the geographical differences in the Netherlands in energy use. In addition, we were able to subtract an estimate of energy used within district heating. Therefore, the natural gas use estimate is even more precise.

Table 3.3 Data quality definitions for the housing sector

| SCORE | DESCRIPTION |
|---------|---|
| Score 1 | Actual energy consumption, converted to CO ₂ eq-emissions using verified emissions factors specific to the type of energy consumed |
| Score 2 | Actual energy consumption, converted to CO ₂ eq-emissions using emissions factors for energy from undefined fuel source |
| Score 3 | Estimated energy consumption based on energy performance/energy label and floor area per type of social house in a country, converted to CO ₂ eq-emissions using emissions factors for energy from undefined fuel source |
| Score 4 | Estimated energy consumption per type of social house in a country and floor area, converted to CO ₂ eq-emissions using emissions factors for energy from undefined fuel source |
| Score 5 | Average energy consumption per social house in a country, converted to CO ₂ eq-emissions using emissions factors for energy from undefined fuel source |

Given the considerations above, the data quality score is estimated at 2.5. It is not as precise as data quality level 2, but it is better than data quality level 3.

3.4 Results

The results of the CO₂ equivalent footprint of the outstanding BNG Bank loans to the social housing sector for reporting year 2019 and 2020 are shown in Table 3.4.

Table 3.4 GHG emissions of the BNG Bank housing sector

| Source of emissions | Scope | CO ₂ EQ. (total) | | CO ₂ EQ. (relative) | CO ₂ EQ. (total) | | CO ₂ EQ. (relative) | Data quality score |
|--|---------|-----------------------------|-------------|--------------------------------|-----------------------------|-------------|--------------------------------|--------------------|
| | | Ton/year | % | Ton/million EUR | Ton/year | % | Ton/million EUR | |
| | | 2020 | 2020 | 2020 | 2019 | 2019 | 2019 | |
| Direct CO ₂ -emissions | | | | | | | | |
| Natural gas use | Scope 1 | 672,199 | 67.4% | 16.9 | 727,284 | 67.4% | 19.0 | 2.5 |
| Indirect CO ₂ emissions by energy use | | | | | | | | |
| Electricity use | Scope 2 | 300,934 | 30.2% | 7.6 | 325,880 | 30.2% | 8.5 | 2.5 |
| District heating | Scope 2 | 24,432 | 2.4% | 0.6 | 26,506 | 2.5% | 0.7 | 2.5 |
| Total | | 997,565 | 100% | 25.1 | 1,079,670 | 100% | 28.2 | 2.5 |

Table 3.5 Percentage of the outstanding loans compared to the total balance sheet of the housing sector for reporting year 2019 and 2020

| Housing sector | Loan portfolio / Total balance sheet (%) | |
|-----------------------------|--|-------|
| | 2020 | 2019 |
| Social housing associations | 12.1% | 13.1% |

Between reporting year 2019 and 2020 the CO₂ equivalent expressed as ton per year decreased for all scopes. The total CO₂ equivalent expressed as ton per year decreased with 82,105 ton. This is a large decrease mainly caused by a decrease in scope 1 natural gas use, which decreased with 55,085 ton. Natural gas use decreased because the percentage of houses with a more energy efficient energy label increased. It is also possible that natural gas use decreased because the number of houses without a gas connection increased. The total CO₂ equivalent expressed as ton per million euro decreased with 3.1 ton per million euro. In conclusion, absolute and relative GHG emissions decreased for the social housing sector between reporting year 2019 and 2020.

The percentage of the outstanding social housing loans at the BNG Bank compared to the total balance sheet of the social housing sector decreased by 1% (Table 3.5).

4 Public sector: Municipalities

The municipality sector covers 31.8% and 32.0% of the total loan portfolio of the BNG Bank in reporting year 2019 and 2020, respectively. This means that the Municipality sector is the second largest sector within the total loan portfolio of the BNG Bank.

4.1 Coverage

It was possible to provide 100% of the loan portfolio within the municipality sector with a CO₂ equivalent footprint. An overview is shown in Tables 4.1 and 4.2.

Table 4.1 Coverage rate of BNG Bank municipality sector for reporting year 2020

| Municipality sector | Loan portfolio (x million EUR) | Percentage of sector | Percentage of all loans | Coverage rate (loan portfolio) |
|---------------------|--------------------------------|----------------------|-------------------------|--------------------------------|
| Municipalities | 26,938 | 99.7% | 32.0% | 100% |
| Others | 77 | 0.3% | 0.1% | 0% |
| Total | 27,015 | 100.0% | 32.1% | 99.7% |

Table 4.2 Coverage rate of BNG Bank municipality sector for reporting year 2019

| Municipality sector | Loan portfolio (x million EUR) | Percentage of sector | Percentage of all loans | Coverage rate (loan portfolio) |
|---------------------|--------------------------------|----------------------|-------------------------|--------------------------------|
| Municipalities | 25,973 | 99.8% | 31.8% | 100% |
| Others | 60 | 0.2% | 0.1% | 0% |
| Total | 26,033 | 100.0% | 31.9% | 99.8% |

The municipality loan portfolio increased with 982 million euro between reporting year 2019 and 2020.

4.2 Methodology and data used

The methodology and data used to calculate the CO₂ equivalent footprint following the Dutch PCAF Principles are described in the Methodology approach report, 2020.²⁶

4.2.1 Attribution

The footprint of the BNG Bank for the municipality sector is calculated based on the emissions of individual municipalities. The emissions of an individual municipality are multiplied by the proportional share of the outstanding loan amount with BNG Bank in the total balance sheet of that client. In the end, all emissions of the individual municipalities are aggregated, using the following formula:

$$\sum CO_2eq \times \frac{\text{Outstanding loan}}{\text{Total balance sheet}}$$

²⁶ Mulder, R., Roovert, I. van, Dagevos, J., Verhoeven, L., Wentink C. (2020), Loan Portfolio Climate Impact of BNG Bank & NWB Bank, Methodological approach report 2020

Different methods were used to calculate different components of the covered emissions. The coverage per scope is described below, based on the different scopes defined by PCAF. For a more detailed methodology description, see the Methodology approach report, released in October 2020²⁷.

4.2.2 Scopes covered

In this methodology, scope 1, 2, and 3 are covered.

Scope 1: Natural gas use and fossil fuel use by cars

Scope 1 emissions are the direct GHG emissions of the organization. For the municipalities, these emissions result from the use of natural gas for heating of buildings and the use of fossil fuel use by cars. Unfortunately, the exact figures for these sources are unknown per municipality, therefore some estimations had to be made using multiple calculation factors to achieve the best result possible. See for description of the calculations and used data the methodology approach report, 2020²⁸.

Scope 2: Electricity use

Scope 2 emissions include the indirect GHG emissions from consumption of purchased electricity, heat or steam. Because the heat and steam use per municipality is unknown, scope 2 only contains the use of purchased electricity. Unfortunately, the exact figures per municipality are unknown, therefore some estimations had to be made using multiple calculation factors to achieve the best result possible. See for description of the calculations and used data the methodology approach report, 2020²⁹.

Scope 3: Purchased goods and services

Scope 3 covers all other indirect emissions. Some examples of scope 3 activities prominent in government activities include emissions from employee commuting, business travel, and outsourced contractor activities. Unfortunately, the scope 3 emissions per municipality are unknown, but they can be estimated by the annual spending of municipalities (IV3/COFOG). See for description of the calculations and used data the methodology approach report, 2020³⁰.

4.3 Data quality

The following data scoring is used to score and improve data quality of the municipality sector.

²⁷ Mulder, R., Roover, I. van, Dagevos, J., Verhoeven, L., Wentink C. (2020), Loan Portfolio Climate Impact of BNG Bank & NWB Bank, Methodological approach report 2020

²⁸ Mulder, R., Roover, I. van, Dagevos, J., Verhoeven, L., Wentink C. (2020), Loan Portfolio Climate Impact of BNG Bank & NWB Bank, Methodological approach report 2020

²⁹ Mulder, R., Roover, I. van, Dagevos, J., Verhoeven, L., Wentink C. (2020), Loan Portfolio Climate Impact of BNG Bank & NWB Bank, Methodological approach report 2020

³⁰ Mulder, R., Roover, I. van, Dagevos, J., Verhoeven, L., Wentink C. (2020), Loan Portfolio Climate Impact of BNG Bank & NWB Bank, Methodological approach report 2020

Table 4.3 Data quality definitions for the public sector

| Data quality (highest to lowest) | Description |
|----------------------------------|--|
| 1 | Actual energy consumption, converted to CO ₂ eq-emissions using verified emission factors and detailed activity data specific to the type of energy consumed |
| 2 | Actual energy consumption, converted to CO ₂ eq-emissions using emissions factors for energy from undefined fuel source |
| 3 | Modeled regional activity data based on robust assumptions, converted to CO ₂ eq-emissions using emissions factors for energy from undefined fuel source |
| 4 | Modeled activity data in a country, converted to CO ₂ eq-emissions using emissions factors for energy from undefined fuel source |
| 5 | Highly modeled activity or uncertain activity data in a country, converted to CO ₂ eq-emissions using default emissions factors for energy from undefined fuel source |

In this study, the method used for municipalities is based on robust estimations of electricity and natural gas use, converted to CO₂ equivalent emissions using emission factors. For natural gas use, this is a known specific type of energy, but for electricity use, energy comes from undefined sources. This is in compliance with data quality level 3. The scope 3 calculations are based on local actual expenses, and national averages on CO₂ equivalent emissions. Therefore, this is in compliance with data quality level 3.

4.4 Results

The results of the CO₂ equivalent footprint of the outstanding BNG Bank loans to Dutch municipalities for reporting year 2019 and 2020 is shown in Table 4.4.

Table 4.4 GHG emissions of the BNG Bank municipality sector

| Source of emissions | Scope | CO ₂ EQ. (total) | | CO ₂ EQ. (relative) | | CO ₂ EQ. (relative) | | Data quality score |
|--|---------|-----------------------------|---------------|--------------------------------|------------------|--------------------------------|-----------------|--------------------|
| | | Ton/year | % | Ton/million EUR | Ton/year | % | Ton/million EUR | |
| Direct CO ₂ -emissions | | 2020 | 2020 | 2020 | 2019 | 2019 | 2019 | |
| Natural gas use | Scope 1 | 47,751 | 2.9% | 1.8 | 48,784 | 2.9% | 1.9 | 3 |
| Fossil fuel use (cars) | Scope 1 | 4,469 | 0.3% | 0.2 | 4,386 | 0.3% | 0.2 | 4 |
| Indirect CO ₂ emissions by energy use | | | | | | | | |
| Electricity use | Scope 2 | 142,330 | 8.7% | 5.3 | 132,830 | 7.9% | 5.1 | 3 |
| Other indirect CO ₂ emissions | | | | | | | | |
| Purchased goods and services | Scope 3 | 1,441,107 | 88.1% | 53.5 | 1,504,390 | 89.0% | 57.9 | 3 |
| Total | | 1,635,658 | 100.0% | 60.7 | 1,690,390 | 100.0% | 65.1 | 3 |

Table 4.5 Percentage of the outstanding loans compared to the total balance sheet of the municipalities for reporting year 2019 and 2020

| Municipality sector | Loan portfolio / Total balance sheet (%) | |
|---------------------|--|-------|
| | 2020 | 2019 |
| Municipalities | 30.2% | 29.8% |

Between reporting year 2019 and 2020 the CO₂ equivalent expressed as ton per year decreased for scope 1 natural gas use and scope 3 (Table 4.4). For scope 1 fossil fuel use by cars and scope 2 electricity use the CO₂ equivalent expressed as ton per year increased. However, this increase in ton per year did not increase the CO₂ equivalent expressed as ton per million euro for scope 1 fossil fuel use by cars and only with 0.2 ton per million for scope 2 electricity use. A large decrease of the CO₂ equivalent expressed as ton/million euro was seen for scope 3. This reduced with 4.4 ton per million euro. This also resulted in a total decrease of the CO₂ equivalent expressed as ton/million euro with 4.4 ton per million euro. In conclusion, the total absolute and relative GHG emissions of the municipality sector decreased between reporting year 2019 and 2020.

The percentage of the outstanding municipality loans at the BNG Bank compared to the total balance sheet of the municipalities slightly increased by 0.4% between reporting year 2019 and 2020 (Table 4.5).

5 Public sector: Provinces

Dutch provinces account for 0.17% and 0.32% of the total loan portfolio of the BNG Bank in reporting year 2019 and 2020, respectively.

5.1 Coverage

It was possible to provide all provinces with a CO₂ equivalent footprint. Therefore, the coverage rate of this sector is 100%. An overview is shown in Table 5.1.

Table 5.1 Coverage rate of the provinces sector for reporting year 2019 and 2020

| Provinces sector | Loan portfolio (x million EUR) | Percentage of all loans | Coverage rate (loan portfolio) |
|------------------|--------------------------------|-------------------------|--------------------------------|
| 2020 | 268 | 0.32% | 100% |
| 2019 | 137 | 0.17% | 100% |

The province loan portfolio increased with 131 million euro between reporting year 2019 and 2020. This sector remains a relatively small part of the BNG Bank loan portfolio with 0.32% of all loans.

5.2 Methodology and data used

The methodology and data used to calculate the CO₂ equivalent footprint following the Dutch PCAF Principles are described in the Methodology approach report, 2020³¹.

5.2.1 Attribution

The footprint of BNG Bank for the province sector is calculated based on the emissions of individual provinces. The emissions of individual provinces are multiplied by the proportional share of the outstanding loan amount with BNG Bank in the total balance sheet of that client. In the end, all emissions of the individual provinces are aggregated, using the following formula:

$$\sum CO_2eq \times \frac{\text{Outstanding loan}}{\text{Total balance sheet}}$$

Different methods were used to calculate different components of the covered emissions. The coverage per scope is described below, based on the different scopes defined by PCAF. For a more detailed methodology description, see the Methodology approach report, 2020³².

³¹ Mulder, R., Rovert, I. van, Dagevos, J., Verhoeven, L., Wentink C. (2020), Loan Portfolio Climate Impact of BNG Bank & NWB Bank, Methodological approach report 2020

³² Mulder, R., Rovert, I. van, Dagevos, J., Verhoeven, L., Wentink C. (2020), Loan Portfolio Climate Impact of BNG Bank & NWB Bank, Methodological approach report 2020

5.2.2 Scopes covered

In this methodology, scope 1, 2, and 3 are covered.

Scope 1: Natural gas use and fossil fuel use by cars

Scope 1 emissions are the direct GHG emissions of the organization. For the Provinces, these emissions result from the use of natural gas for heating of buildings and the use of fossil fuel use by cars. Unfortunately, the exact figures for these sources are unknown per province, therefore some estimations had to be made using multiple calculation factors to achieve the best result possible. See for description of the calculations and used data the methodology approach report, 2020³³.

Scope 2: Electricity use

Scope 2 emissions include the indirect GHG emissions from consumption of purchased electricity, heat or steam. Because the heat and steam use per province is unknown, scope 2 only contains the use of purchased electricity. Unfortunately, the exact figures per province are unknown, therefore some estimations had to be made using multiple calculation factors to arrive at as exact data as possible. See for description of the calculations and used data the methodology approach report, 2020³⁴.

Scope 3: Purchased goods and services

Scope 3 covers all other indirect emissions. Some examples of scope 3 activities prominent in government activities include emissions from employee commuting, business travel, and outsourced contractor activities. The scope 3 emissions per province are unknown, but they can be estimated by the annual spending of provinces (IV3/COFOG). See for description of the calculations and used data the methodology approach report, 2020³⁵.

5.3 Data quality

The following data scoring is used to score and improve data quality of the provinces sector.

Table 6.2 Data quality definitions for the public sector

| Data quality (highest to lowest) | Description |
|----------------------------------|---|
| 1 | Actual energy consumption, converted to CO ₂ eq-emissions using verified emission factors and detailed activity data specific to the type of energy consumed |
| 2 | Actual energy consumption, converted to CO ₂ eq-emissions using emissions factors for energy from undefined fuel source |
| 3 | Modeled regional activity data based on robust assumptions, converted to CO ₂ eq-emissions using emissions factors for energy from undefined fuel source |

³³ Mulder, R., Roover, I. van, Dagevos, J., Verhoeven, L., Wentink C. (2020), Loan Portfolio Climate Impact of BNG Bank & NWB Bank, Methodological approach report 2020

³⁴ Mulder, R., Roover, I. van, Dagevos, J., Verhoeven, L., Wentink C. (2020), Loan Portfolio Climate Impact of BNG Bank & NWB Bank, Methodological approach report 2020

³⁵ Mulder, R., Roover, I. van, Dagevos, J., Verhoeven, L., Wentink C. (2020), Loan Portfolio Climate Impact of BNG Bank & NWB Bank, Methodological approach report 2020

| | |
|---|--|
| 4 | Modeled activity data in a country, converted to CO ₂ eq-emissions using emissions factors for energy from undefined fuel source |
| 5 | Highly modeled activity or uncertain activity data in a country, converted to CO ₂ eq-emissions using default emissions factors for energy from undefined fuel source |

In this study, the method used for provinces is based on robust estimations of electricity and natural gas use, converted to CO₂ equivalent emissions using emission factors. For natural gas use, this is a known specific type of energy, but for electricity use, energy comes from undefined sources. This is in compliance with data quality level 3. The scope 3 calculations are based on local actual expenses, and national averages on CO₂ equivalent emissions. Therefore, this is in compliance with data quality level 3.

5.4 Results

The results of the CO₂ equivalent footprint of the outstanding BNG Bank loans to Dutch provinces for reporting year 2019 and 2020 is shown in Table 5.3.

Table 5.3 GHG emissions of the BNG Bank provinces sector

| Source of emissions | Scope | CO ₂ EQ. (total) | | CO ₂ EQ. (relative) | CO ₂ EQ. (total) | | CO ₂ EQ. (relative) | Data quality score |
|--|---------|-----------------------------|---------------|--------------------------------|-----------------------------|---------------|--------------------------------|--------------------|
| | | Ton/year | % | Ton/million EUR | Ton/year | % | Ton/million EUR | |
| Direct CO ₂ -emissions | | 2020 | 2020 | 2020 | 2019 | 2019 | 2019 | |
| Natural gas use | Scope 1 | 157 | 1.8% | 0.6 | 87 | 2.3% | 0.6 | 3 |
| Fossil fuel use (cars) | Scope 1 | 22 | 0.3% | 0.1 | 11 | 0.3% | 0.1 | 4 |
| Indirect CO ₂ emissions by energy use | | | | | | | | |
| Electricity use | Scope 2 | 638 | 7.4% | 2.4 | 325 | 8.7% | 2.4 | 3 |
| Other indirect CO ₂ emissions | | | | | | | | |
| Purchased goods and services | Scope 3 | 7,780 | 90.5% | 29.0 | 3,318 | 88.7% | 24.3 | 3 |
| Total | | 8,597 | 100.0% | 32.1 | 3,741 | 100.0% | 27.4 | 3 |

Table 5.4 Percentage of the outstanding loans compared to the total balance sheet of the provinces for reporting year 2019 and 2020

| Province sector | Loan portfolio / Total balance sheet (%) | |
|-----------------|--|------|
| | 2020 | 2019 |
| Provinces | 3.2% | 1.6% |

Between reporting year 2019 and 2020 the CO₂ equivalent expressed as ton per year increased for all scopes of the province sector with a factor 1.8 (scope 1) till 2.3 (scope 3; Table 5.3). This increase in CO₂ equivalent can partly be explained by an increase in the outstanding loan amount with a factor 1.9 (Table 5.1). However, this increase in the outstanding loan amount does not completely explain the total increase in the CO₂ equivalent expressed as ton per year.

The CO₂ equivalent expressed as ton per million euro of scope 3 increased with 4.7 ton per million euro between reporting year 2019 and 2020. Between reporting year 2019 and 2020, the expenses of the 3 provinces in the task fields and categories that belong to scope 3 increased on average with approximately 45 million euros per province, this explains the increase in CO₂ equivalent expressed as ton per million euro.

The total CO₂ equivalent expressed as ton per million euro also increased with 4.7 ton per million euro between reporting year 2019 and 2020. This is equal to the increase for scope 3. In conclusion, the total absolute and relative GHG emissions of the province sector increased between reporting year 2019 and 2020 due to increased expenses in scope 3.

In Table 5.4 it is shown that the percentage of the outstanding loans at the BNG Bank compared to the total balance sheet of the provinces increased between reporting year 2019 and 2020. This is in agreement with the results shown in Table 5.1. The loan portfolio increased between reporting year 2019 and 2020. This increase in loan portfolio is one of the explanations for the increase in the total CO₂ equivalent footprint of the provinces expressed as ton per year as was discussed in this result section.

6 Public sector: Water authorities

The Water Authorities sector covers 0.24% of the total loan portfolio of the BNG Bank.

6.1 Coverage

It was possible to provide 100% of the loan portfolio within the water authorities sector with a CO₂ footprint. Emissions are based on scope 1, 2 and 3 activities mapped by Arcadis in the climate monitor water authorities 2019³⁶. An overview of the water authorities sector is given in tables 6.1.

Table 6.1 Coverage rate for the water authority sector for reporting year 2019 and 2020

| Water authorities | Loan portfolio (million EUR) | Percentage of sector | Percentage of all loans | Coverage rate (loan portfolio) |
|-------------------|------------------------------|----------------------|-------------------------|--------------------------------|
| 2020 | 202 | 100% | 0.2% | 100% |
| 2019 | 233 | 100% | 0.3% | 100% |

The water authorities loan portfolio decreased by 21 million Euro between reporting year 2019 and 2020. This sector remains a relatively small part of the BNG Bank loan portfolio, with 0.2% of all loans.

6.2 Methodology and data used

Data was used from the climate monitor water authorities¹ (Arcadis, 2020). This monitor is developed by Arcadis for the Union of Water Authorities (Unie van Waterschappen) and the NWB Bank. This monitor describes the emissions in the three scopes in detail, and per individual water authority.

The 'klimaatmonitor waterschappen' (Arcadis, 2020) uses the emission factors from www.CO2emissiefactoren.nl, as advised by PCAF. The only difference is that the monitor uses the well to wheel (WTW) factors, and not the tank to wheel factors (TTW). The PCAF harmonised approach prescribes to use the TTW values. Therefore, the CO₂ equivalent emissions are recalculated, based on the raw values of the fuel, warmth, and electricity use in the report.

There are a few exceptions to be made due to a lack of information on certain emission factors as provided in the monitor. For a elaborated description of the methodology and data used to calculate the CO₂ equivalent footprint following the Dutch PCAF Principles, please consult the methodology approach report, released in October 2020³⁷.

³⁶ Arcadis (2020). Klimaatmonitor Waterschappen: verslagjaar 2019.

³⁷ Mulder, R., Roovert, I. van, Dagevos, J., Verhoeven, L., Wentink C. (2020), Loan Portfolio Climate Impact of BNG Bank & NWB Bank, Methodological approach report 2020

6.2.1 Attribution

The footprint of the BNG Bank for the water authorities sector is calculated based on the emissions of individual organizations. The emissions of the individual organizations are multiplied by the proportional share of the outstanding loan amount with BNG Bank in the total balance sheet of that client. In the end, all emissions of the individual water authorities are aggregated, using the following formula:

$$\sum CO_2eq \times \frac{\text{Outstanding loan}}{\text{Total balance sheet}}$$

Different methods were used to calculate different components of the covered emissions. The coverage per scope is described below, based on the different scopes defined by PCAF. For a more detailed methodology description, see the Methodology approach report, 2020³⁸.

6.2.2 Scopes Covered

The ‘klimaatmonitor waterschappen’ covers all three scopes in detail. Table 6.2 shows the underlying themes of the scopes. For a more elaborate overview of scopes and coverage, see the ‘klimaatmonitor waterschappen’ (Arcadis, 2020).

Table 6.2 covered scopes

| Emission | Scope |
|---|---------|
| Natural gas installations and buildings | Scope 1 |
| Diesel installations and buildings | Scope 1 |
| Other fuels installations and buildings | Scope 1 |
| Fuel company vehicles | Scope 1 |
| Fuel freight transport | Scope 1 |
| Process emissions drainage biogas | Scope 1 |
| Electricity installations and buildings | Scope 2 |
| Warmth installations and buildings | Scope 2 |
| Fuel private cars | Scope 3 |
| Fuel commuter traffic | Scope 3 |
| Public transport | Scope 3 |
| Fuel business flights | Scope 3 |
| Diesel outsourced sewage sludge transport | Scope 3 |
| Diesel outsourced maintenance water systems | Scope 3 |
| Diesel outsourced freight transport | Scope 3 |
| Purchase of metal salts | Scope 3 |
| Purchase of polymer | Scope 3 |

Source: Arcadis 2020³⁹

³⁸ Mulder, R., Roover, I. van, Dagevos, J., Verhoeven, L., Wentink C. (2020), Loan Portfolio Climate Impact of BNG Bank & NWB Bank, Methodological approach report 2020

³⁹ <https://www.uvw.nl/waterschappen-bereiken-energie-en-klimaatambities-2020/>

6.3 Data quality

The method for water authorities is scaled into data quality level 2, because of the detailed underlying information provided in the Arcadis (2020) study. The data is however not audited. Especially the data on energy consumption is of high liability. The transport data is more model based and is therefore scaled as quality level 2.5.

Table 6.3 Data quality definitions for the public sector

| Data quality | Description |
|--------------|--|
| 1 | Actual energy consumption, converted to CO ₂ eq-emissions using verified emission factors and detailed activity data specific to the type of energy consumed |
| 2 | Actual energy consumption, converted to CO ₂ eq-emissions using emissions factors for energy from undefined fuel source |
| 3 | Modeled regional activity data based on robust assumptions, converted to CO ₂ eq-emissions using emissions factors for energy from undefined fuel source |
| 4 | Modeled activity data in a country, converted to CO ₂ eq-emissions using emissions factors for energy from undefined fuel source |
| 5 | Highly modeled activity or uncertain activity data in a country, converted to CO ₂ eq-emissions using default emissions factors for energy from undefined fuel source |

6.4 Results

The results of the CO₂ equivalent footprint of the outstanding BNG Bank loans to water authorities for reporting year 2019 and 2020 are shown in Table 6.4.

Table 6.4 GHG emissions of the BNG Bank water authority sector

| Source of emissions | Scope | CO ₂ EQ. (total) | | CO ₂ EQ. (relative) | CO ₂ EQ. (total) | | CO ₂ EQ. (relative) | Data quality score |
|--|---------|-----------------------------|-------------|--------------------------------|-----------------------------|---------------|--------------------------------|--------------------|
| | | Ton/year | % | Ton/million EUR | Ton/year | % | Ton/million EUR | |
| | | 2020 | 2020 | 2020 | 2019 | 2019 | 2019 | |
| Direct CO ₂ -emissions | | | | | | | | |
| Fuel for water treatment management | Scope 1 | 134 | 1.4% | 0.7 | 161 | 1.0% | 0.7 | 2 |
| Fuel for water systems | Scope 1 | 91 | 1.0% | 0.4 | 140 | 0.8% | 0.6 | 2 |
| Other fuel use | Scope 1 | 40 | 0.4% | 0.2 | 50 | 0.3% | 0.2 | 2 |
| Transport fuel | Scope 1 | 429 | 4.6% | 2.1 | 502 | 3.0% | 2.2 | 2.5 |
| Biogas discharge | Scope 1 | 7 | 0.1% | 0.0 | 10 | 0.1% | 0.0 | 2 |
| Indirect CO ₂ emissions by energy use | | | | | | | | |
| Electricity use | Scope 2 | 5,684 | 61.0% | 28.1 | 12,291 | 74.3% | 52.7 | 2 |
| Warmth | Scope 2 | 54 | 0.6% | 0.3 | 70 | 0.4% | 0.3 | 2 |
| Other indirect CO ₂ emissions | | | | | | | | |
| Fuel commuting, maintenance and transport | Scope 3 | 1,623 | 17.4% | 8.0 | 1,861 | 11.2% | 8.0 | 2.5 |
| Purchase of metal salts and polymer | Scope 3 | 1,261 | 13.5% | 6.2 | 1,462 | 8.8% | 6.3 | 2 |
| Total | | 9,323 | 100% | 46.1 | 16,548 | 100.0% | 71.0 | 2 |

Table 6.5 Percentage of the outstanding loans compared to the total balance sheet of the water authorities for reporting year 2019 and 2020

| Water authorities | Loan portfolio / Total balance sheet (%) | |
|-------------------|--|------|
| | 2020 | 2019 |
| Water authorities | 3.9% | 4.6% |

Between reporting year 2019 and 2020 the CO₂ equivalent expressed as ton per year decreased for all scopes. In total the decrease was 7,225 ton. This large decrease was mainly due to a decrease of 6,607 ton for scope 2 electricity use. It seems that this sector has invested in renewable energy in the Netherlands. The CO₂ equivalent expressed as ton per million euro decreased with 24.9 ton per million euro which is a large decrease. In conclusion, the absolute and relative GHG emissions decreased between reporting year 2019 and 2020.

The percentage of the outstanding loans at the BNG Bank compared with the total balance sheet of the water authorities decreased by 0.7% (Table 6.5).

7 Healthcare sector

The Healthcare sector covers 8.6% of the total outstanding capital of BNG Bank. This sector is divided into several subsectors, such as hospitals, mental care institutions, and academic hospitals. In the reporting year 2020, the BNG Bank loan portfolio of the healthcare institutions had a total value of 7.2 Billion euro.

7.1 Coverage

As shown in Table 7.1, 72.3% of the organizations in the healthcare sector has been provided with a CO₂ equivalent footprint. This means that 27.7% is not covered in the analysis. The main reason for this is lack of adequate data on energy usage, as the Ministry of Health, Welfare, and Sport does not cover all the organizations in its financial statements.

The coverage rate has improved by 1.4% between reporting year 2019 and 2020. This is however related to shifts in clients and loans within BNG Bank's portfolio. The data availability for this sector did not improve.

The healthcare sector loan portfolio increased by 270 million euro between reporting year 2019 and 2020.

Table 7.1 Coverage rate for the healthcare sector for reporting year 2020

| Healthcare sector | Loan portfolio (million EUR) | Percentage of sector | Percentage of all loans | Coverage rate (loan portfolio) |
|--------------------------------|------------------------------|----------------------|-------------------------|--------------------------------|
| Other Hospitals | 2,592 | 35.8% | 3.1% | 76.4% |
| Academic hospitals | 1,390 | 19.2% | 1.7% | 99.9% |
| Other care institutions | 1,133 | 15.6% | 1.3% | 44.6% |
| Care centers and nursing homes | 969 | 13.4% | 1.2% | 73.6% |
| Services for the disabled | 698 | 9.6% | 0.8% | 62.7% |
| Mental healthcare | 451 | 6.2% | 0.5% | 44.2% |
| General hospitals | 10 | 0.1% | 0.0% | 100.0% |
| Total | 7,243 | 100% | 8.6% | 72.3% |

Table 7.2 Coverage rate for the healthcare sector for reporting year 2019

| Healthcare sector | Loan portfolio (million EUR) | Percentage of sector | Percentage of all loans | Coverage rate (loan portfolio) |
|--------------------------------|------------------------------|----------------------|-------------------------|--------------------------------|
| Other Hospitals | 2,633 | 37.8% | 3.2% | 75.3% |
| Academic hospitals | 1,102 | 15.8% | 1.4% | 99.8% |
| Other care institutions | 1,081 | 15.5% | 1.3% | 43.2% |
| Care centers and nursing homes | 978 | 14.0% | 1.2% | 74.4% |
| Services for the disabled | 706 | 10.1% | 0.9% | 64.6% |
| Mental healthcare | 472 | 6.8% | 0.6% | 44.6% |
| General hospitals | 1 | 0.0% | 0.0% | 100.0% |
| Total | 6,973 | 100.0% | 8.5% | 70.9% |

7.2 Methodology and data used

For a detailed description of the methodology and data used to calculate the CO₂ equivalent footprint following the Dutch PCAF Principles, see the methodology approach report, 2020⁴⁰.

7.2.1 Attribution

The footprint of the BNG Bank for the healthcare sector is calculated based on the emissions of individual organizations. The emissions of the individual organizations are multiplied by the proportional share of the outstanding loan amount with BNG Bank in the total balance sheet of that client. In the end, all emissions of the individual healthcare organizations are aggregated, using the following formula:

$$\sum CO_2eq \times \frac{\text{Outstanding loan}}{\text{Total balance sheet}}$$

Different methods were used to calculate different components of the covered emissions. The coverage per scope is described below, based on the different scopes defined by PCAF. For a more detailed methodology description, see the methodology approach report, 2020⁴¹.

7.2.2 Scopes Covered

In this methodology, scope 1, 2 and parts of scope 3 are covered.

Scope 1

Scope 1 emissions are the direct GHG emissions of the organizations. For healthcare organizations, these emissions come from the use of natural gas for heating of buildings, or for disinfection of medical tools. The actual natural gas use per organization is unknown, but the costs of natural gas consumption are mentioned in the financial statements collected by the Ministry of Health, Welfare and Sport. This means that some estimations had to be made to come to the actual CO₂ equivalent emissions, but the estimations were done using an accurate reliable data base.

Natural gas use is estimated by the expenditure on natural gas and the average yearly price index of natural gas. Because natural gas gets cheaper per m³ if one consumes more, averages had to be used to come to estimates. CBS provides these numbers, making it possible to come to reliable estimations.

Subsequently, the emission factor for natural gas has been used to determine the CO₂ equivalent emission of natural gas used in healthcare organizations.

⁴⁰ Mulder, R., Roover, I. van, Dagevos, J., Verhoeven, L., Wentink C. (2020), Loan Portfolio Climate Impact of BNG Bank & NWB Bank, Methodological approach report 2020

⁴¹ Mulder, R., Roover, I. van, Dagevos, J., Verhoeven, L., Wentink C. (2020), Loan Portfolio Climate Impact of BNG Bank & NWB Bank, Methodological approach report 2020

Scope 2

Scope 2 emissions include the indirect GHG emissions from consumption of purchased electricity, heat or steam. Because the heat and steam use per healthcare organization is unknown, scope 2 will be based on the use of purchased electricity.

Electricity use is estimated in roughly the same way as natural gas use. The actual electricity use per organization is unknown, but the costs of electricity consumption are mentioned in the financial statements collected by the Ministry of Health, Welfare and Sport. This means that some estimations had to be made to come to the actual CO₂ equivalent emissions, but the estimations were done using a reliable database.

Furthermore, electricity use is estimated by the expenditure on electricity and the average yearly price index of electricity. Because natural gas prices decrease per kWh if one consumes more, averages had to be used to come to a reliable estimation. CBS provides these numbers, making it possible to come to reliable estimations.

The emission factor for electricity consumption (source undefined) has been used to determine the CO₂ equivalent emission for the healthcare organizations.

Scope 3

Scope 3 covers all other indirect emissions. Some examples of scope 3 activities in healthcare include emissions from employee commuting and business travel. No exact data was available, so estimations had to be made.

Estimations were made on the basis of regional commuting and business travel statistics from CBS, and the number of employees per organization. On average, Dutch employees are traveling 7,905 km per year commuting from and to work (CBS, 2019), but these numbers vary geographically. For other corporate business trips, employees travel on average 2844 kilometer a year (CBS, 2019).

From these trips, 73.4% of the distance travelled is done by car, either as driver or passenger. 10% of the distance travelled is done by train, 5.1% per bicycle, 1.9% by bus/tram/metro and 1.6% walking. The rest of the distance covered is done in other ways. Using the location of the healthcare organization, the above mentioned statistics, the emissions factors for mobility, and the total number of employees per organization (in FTE), an estimation was made of the CO₂ equivalent footprint of commuting and business travel.

7.3 Data quality

The GHG emissions per healthcare organization are ideally calculated using actual and audited energy consumption data per client account. When this is not available, other methods were used. This of course will increase the uncertainty level of the calculations. The method used for healthcare organizations in this study is based on robust estimations of electricity and natural gas. These estimations can be made based on actual expenditure on gas and electricity consumption per client. For natural gas use, this is a known specific type of energy, but for electricity use, energy comes from undefined sources. That is why scope 1 has a data quality value of 1.5, and scope 2 has a data quality estimate of 2. Scope 3 level data was estimated based on national averages. Therefore, this method has a data quality score of 4.

Table 7.3 Data quality definitions for the healthcare sector

| SCORE | DESCRIPTION |
|---------|--|
| Score 1 | Actual energy consumption, converted to CO ₂ eq-emissions using verified emission factors and detailed activity data specific to the type of energy consumed |
| Score 2 | Actual energy consumption, converted to CO ₂ eq-emissions using emissions factors for energy from undefined fuel source |
| Score 3 | Modeled regional activity data based on robust assumptions, converted to CO ₂ eq-emissions using emissions factors for energy from undefined fuel source |
| Score 4 | Modeled activity data in a country, converted to CO ₂ eq-emissions using emissions factors for energy from undefined fuel source |
| Score 5 | Highly modeled activity or uncertain activity data in a country, converted to CO ₂ eq-emissions using default emissions factors for energy from undefined fuel source |

7.4 Results

The results of the CO₂ equivalent footprint of the outstanding BNG Bank loans to healthcare organizations for reporting year 2019 and 2020 are shown in Table 7.4.

Table 7.4 GHG emissions of the BNG Bank healthcare sector

| Source of emissions | Scope | CO ₂ EQ. (total) | | CO ₂ EQ. (relative) | CO ₂ EQ. (total) | | CO ₂ EQ. (relative) | Data quality score |
|--|---------|-----------------------------|-------------|--------------------------------|-----------------------------|-------------|--------------------------------|--------------------|
| | | Ton/year | % | Ton/million EUR | Ton/year | % | Ton/million EUR | |
| | | 2020 | 2020 | 2020 | 2019 | 2019 | 2019 | |
| Direct CO ₂ -emissions | | | | | | | | |
| Natural gas use | Scope 1 | 121,961 | 40.6% | 23.3 | 120,714 | 42.4% | 24.4 | 1.5 |
| Indirect CO ₂ emissions by energy use | | | | | | | | |
| Electricity use | Scope 2 | 121,387 | 40.4% | 23.2 | 111,388 | 39.1% | 22.5 | 2 |
| Other indirect CO ₂ emissions | | | | | | | | |
| Commuting (car) | Scope 3 | 55,638 | 18.5% | 10.6 | 51,280 | 18.0% | 10.4 | 4 |
| Commuting (bus/tram/metro) | Scope 3 | 1,122 | 0.4% | 0.2 | 1,007 | 0.4% | 0.2 | 4 |
| Commuting (train) | Scope 3 | 310 | 0.1% | 0.1 | 294 | 0.1% | 0.1 | 4 |
| Total | | 300,418 | 100% | 57.4 | 284,683 | 100% | 57.6 | 2.5 |

Table 7.5 Percentage of the outstanding loans compared to the total balance sheet of the healthcare sector for reporting year 2019 and 2020

| Healthcare sector | Loan portfolio / Total balance sheet (%) | |
|--------------------------------|--|--------------|
| | 2020 | 2019 |
| Other Hospitals | 14.1% | 14.3% |
| Academic hospitals | 17.0% | 13.5% |
| Other care institutions | 16.2% | 15.3% |
| Care centers and nursing homes | 17.6% | 17.9% |
| Services for the disabled | 15.1% | 15.8% |
| Mental healthcare | 10.8% | 11.1% |
| General hospitals | 6.9% | 0.8% |
| Total | 15.3% | 14.5% |

Between reporting year 2019 and 2020 the CO₂ equivalent expressed as ton per year increased for all scopes. The total CO₂ equivalent increased with 15,735 ton, which is a large increase. This increase can be explained by an increase in the loan portfolio between reporting year 2019 and 2020 (Tables 7.1 and 7.2). This explanation is supported by the decrease of the total CO₂ equivalent expressed as ton per million euro. The CO₂ equivalent expressed as ton per million euro of scope 1 natural gas use decreased with 1.1 ton per million euro. For other indirect CO₂ emissions commuting (bus/tram/metro) and commuting (train) this relative CO₂ equivalent did not change.

For scope 2 electricity use and other indirect CO₂ emissions commuting (car) this relative CO₂ equivalent increased. However, the decrease of scope 1 natural gas use was large enough to reduce the total CO₂ equivalent expressed as ton per million euro with 0.2 ton. In conclusion, the absolute GHG emission increased, but the relative GHG emission decreased between reporting year 2019 and 2020.

The total percentage of the outstanding loans at the BNG Bank compared with the total balance sheet of the healthcare sector increased by 0.8% (Table 7.5).

8 Network sector: Drinking water utilities

The network sector is a relatively small sector within the loan portfolio of the BNG Bank. The sector covers 1.5% of the total loan portfolio of the BNG Bank. Within this sector, the largest sub category (63.8%) of the outstanding loans are the drinking water utilities. Therefore, Het PON & Telos was asked to develop a new approach in order to acquire a CO₂ equivalent footprint for all ten water utilities.

In the Netherlands, there are ten drinking water utilities that produce and distribute water to consumers and companies within their own geographical area. They do this by extracting groundwater or surface water, purifying the water, and distribute it via water distribution networks.

8.1 Coverage

It was possible to calculate the CO₂ equivalent footprint for 55.9% of the loan portfolio within the network sector. Emissions are based on scope 1 and 2 activities. An overview of the network sector is given in Tables 8.1 and 8.2.

Table 8.1 Coverage rate for the drinking water utilities for reporting year 2020

| Network sector | Loan portfolio (million EUR) | Percentage of sector | Percentage of all loans | Coverage rate (loan portfolio) |
|---------------------------|------------------------------|----------------------|-------------------------|--------------------------------|
| Drinking water utilities | 789 | 63.8% | 0.9% | 87.7% |
| Energy network companies | 332 | 26.9% | 0.4% | 0.0% |
| Heating network companies | 76 | 6.1% | 0.1% | 0.0% |
| Telecom network providers | 40 | 3.2% | 0.0% | 0.0% |
| Total | 1,236 | 100.0% | 1.5% | 55.9% |

Table 8.2 Coverage rate for the drinking water utilities for reporting year 2019

| network sector | Loan portfolio (million EUR) | Percentage of sector | Percentage of all loans | Coverage rate (loan portfolio) |
|---------------------------|------------------------------|----------------------|-------------------------|--------------------------------|
| Drinking water utilities | 811 | 65.1% | 1.0% | 87.8% |
| Energy network companies | 349 | 28.0% | 0.4% | 0.0% |
| Heating network companies | 77 | 6.1% | 0.1% | 0.0% |
| Telecom network providers | 10 | 0.8% | 0.0% | 0.0% |
| Total | 1,246 | 100.0% | 1.5% | 57.1% |

The coverage rate of the network sector has decreased by 1.2% between reporting year 2019 and 2020. This is due to the fact that there are a few more loans to telecom network providers, who are currently not in scope. For these organizations, no available approach is developed. The network sector loan portfolio decreased over the last year by 10 million euro.

8.2 Methodology and data used

For a elaborated description of the methodology and data used to calculate the CO₂ equivalent footprint following the Dutch PCAF Principles, see the Methodology approach report, 2020⁴².

8.2.1 Attribution

The footprint of the BNG Bank for the drinking water utilities sector is calculated based on the emissions of individual organizations. The individual emissions of an organization are multiplied by the proportional share of the outstanding loan amount with BNG Bank in the total balance sheet of that client. In the end, all individual emissions of network organizations are aggregated, using the following formula:

$$\sum CO_2eq \times \frac{\text{Outstanding loan}}{\text{Total balance sheet}}$$

Different methods were used to calculate different components of the covered emissions. The coverage per scope is described below, based on the different scopes defined by PCAF. For a more detailed methodology description, see the Methodological report, 2020¹.

8.2.2 Scopes Covered

Emissions for energy use of drinking water utilities (scope 1 and 2) are covered in the approach for this sector. The PCAF harmonised approach (2019) states for most sectors that scope 1 and scope 2 should be covered as a minimum requirement, and scope 3 if available and relevant. Unfortunately, no scope 3 emissions are available at the moment, due do data deficiencies.

Scope 1

Scope 1 emissions are the direct emissions of the drinking water utilities:

- CH₄ and CO₂ emitted during the winning and treating of groundwater, based on measurements in impurified and purified water;
- Carbon emissions from natural gas use;
- Emissions from diesel power units;
- Emissions from fuel use of company cars.

⁴² Mulder, R., Roovert, I. van, Dagevos, J., Verhoeven, L., Wentink C. (2020), Loan Portfolio Climate Impact of BNG Bank & NWB Bank, Methodological approach report 2020

Table 8.3 shows the different activities under the direct emissions of scope 1. Methane emissions from the degassing of groundwater are emitted during the process of winning groundwater. Therefore, they are part of scope 1. These emissions do not occur when water is won from surface water. Groundwater makes up for about 65% of all the water won in the Netherlands. The other emissions come from fuel consumption, such as natural gas and diesel/petroleum

Table 8.3 Scope 1 GHG emissions per activity of drinking water utilities

| Activity | Description | Greenhouse gas |
|--|---|-----------------------------------|
| Degassing of groundwater | A part of the Dutch drink water is obtained through the extraction and processing of ground water. Gasses dissolved in the water are released during this process, including methane. Shallow groundwater extraction for use in agriculture or on construction sites is not included in this document, as this water contains no methane. (Jansen et al., 2019) | Methane (CH ₄) |
| Collection, purification and distribution of water | Emissions of CO ₂ , from stationary combustion sources based on fuel consumption (fuel oil, Gas/diesel oil, lpg, natural gas & petroleum). (Honig et al., 2020) | Carbon dioxide (CO ₂) |
| Collection, purification and distribution of water | Emissions of CH ₄ , from stationary combustion sources based on fuel consumption (fuel oil, Gas/diesel oil, lpg, natural gas & petroleum). (Honig et al., 2020) | Methane (CH ₄) |

Scope 2

Scope 2 emissions are the indirect emissions of the drinking water utilities. These include the emissions of electricity use.

For the process of collection, purification, and distribution of drinking water a lot of electricity is used. In 2018, the average electricity use for production and distribution was 0.51 kWh/m³ drinking water (Vewin, 2020). This would mean that the whole sector uses 611 million kWh per year, which would result in a huge CO₂ equivalent footprint. However, Vewin reports that all the energy used by drinking water utilities is renewable. Based on tank to wheel (TTW) emission factors, this results in zero emissions for electricity use, and therefore scope 2 emissions do not exist⁴³.

⁴³ Wind power, solar power, water power and biomass all have a TTW emission factor of 0 kg CO₂/kWh

8.3 Data quality

The following data scoring is used to score and improve data quality for the drinking water utilities sector.

Table 8.4 Data quality definitions for the drinking water utilities sector

| Data quality (highest to lowest) | Description |
|----------------------------------|--|
| 1 | Actual energy consumption, converted to CO ₂ eq-emissions using verified emission factors and detailed activity data specific to the type of energy consumed |
| 2 | Actual energy consumption, converted to CO ₂ eq-emissions using emissions factors for energy from undefined fuel source |
| 3 | Modeled regional activity data based on robust assumptions, converted to CO ₂ eq-emissions using emissions factors for energy from undefined fuel source |
| 4 | Modeled activity data in a country, converted to CO ₂ eq-emissions using emissions factors for energy from undefined fuel source |
| 5 | Highly modeled activity or uncertain activity data in a country, converted to CO ₂ eq-emissions using default emissions factors for energy from undefined fuel source |

The data is acquired by the National Institute for Public Health and the Environment (RIVM), based on surveys, scientific models, and actual emission data. It gives information about national emissions, municipal emissions, and sector and company specific emissions (when available). This data is based on scientific models, and therefore very reliable. The data quality estimate for this method is 2.

8.4 Results

The results of the CO₂ equivalent footprint of the outstanding BNG Bank loans to the drinking water utilities for reporting year 2019 and 2020 are shown in Table 8.5.

Table 8.5 GHG emissions of the BNG Bank drinking water utilities sector

| Source of emissions | Scope | CO ₂ EQ. (total) | | CO ₂ EQ. (relative) | CO ₂ EQ. (total) | | CO ₂ EQ. (relative) | Data quality score |
|---|---------|-----------------------------|-------------|--------------------------------|-----------------------------|-------|--------------------------------|--------------------|
| | | Ton/year | % | Ton/million EUR | Ton/year | % | Ton/million EUR | |
| Direct CO ₂ -emissions | | 2020 | 2020 | 2020 | 2019 | 2019 | 2019 | |
| Collection, purification, degassing and distribution of groundwater | Scope 1 | 4,397 | 95.3% | 6.4 | 4,499 | 95.2% | 6.3 | 2 |
| Collection, purification and distribution of surface water | Scope 1 | 219 | 4.7% | 0.3 | 226 | 4.8% | 0.3 | 2 |
| Total | | 4,616 | 100% | 6.7 | 4,725 | | 6.6 | 2 |

Table 8.6 Percentage of the outstanding loans compared to the total balance sheet of the network sector for reporting year 2019 and 2020

| network sector | Loan portfolio / Total balance sheet (%) | |
|--------------------------|--|-------|
| | 2020 | 2019 |
| Drinking water utilities | 12.5% | 13.0% |

Between reporting year 2019 and 2020 the CO₂ equivalent expressed as ton per year for scope 1 decreased. The total CO₂ equivalent expressed as ton per year decreased with 109 ton. However the total CO₂ equivalent expressed as ton per million euro increased with 1 ton per million euro. The decrease in total absolute CO₂ equivalent can be explained by a decrease in the loan portfolio (Tables 8.1 and 8.2). In conclusion, the absolute GHG emissions decreased, but the relative GHG emissions increased.

The percentage of the outstanding loans at the BNG Bank compared to the total balance sheet of the network sector decreased by 0.5% between reporting year 2019 and 2020 (Table 8.6).

9 Education sector

9.1 Coverage

The education sector accounts for 1.2% and 1.1% of the total loan portfolio of the BNG Bank in reporting year 2019 and 2020, respectively. This sector consists of several subsectors, representing different levels of education. For the BNG Bank the MBO (Secondary vocational education) and WO (University education) sectors are the largest part of the loan portfolio. Each of them contain more than 20% of the education sector. Within the education sector, coverage rate of total loan portfolio is 69.4% for reporting year 2019 and 2020.

The relevant subsectors and outstanding capital of the BNG Bank within the education sector are given in Tables 9.1. and 9.2. The subsector 'Others' in the education sector was not provided with a CO₂ footprint. These organizations are mainly holdings or real estate companies in the education sector. The education loan portfolio decreased with 17 million euro over the past year.

Table 9.1 Educational subsectors, their outstanding capital and coverage of the GHG emission assessment for reporting year 2020

| Education sector | Loan portfolio (x million EUR) | Percentage of sector | Percentage of all loans | Coverage rate (loan portfolio) |
|------------------------|--------------------------------|----------------------|-------------------------|--------------------------------|
| WO | 202 | 21.5% | 0.24% | 99% |
| HBO | 66 | 7.0% | 0.08% | 100% |
| MBO | 221 | 23.5% | 0.26% | 100% |
| VO | 160 | 17.0% | 0.19% | 64% |
| PO | 3 | 0.3% | 0.004% | 100% |
| Others | 287 | 30.6% | 0.34% | 2% |
| Total education sector | 939 | 100.0% | 1.11% | 69.4% |

Table 9.2 Educational subsectors, their outstanding capital and coverage of the GHG emission assessment for reporting year 2019

| Education sector | Loan portfolio (x million EUR) | Percentage of sector | Percentage of all loans | Coverage rate (loan portfolio) |
|------------------------|--------------------------------|----------------------|-------------------------|--------------------------------|
| WO | 210 | 22.0% | 0.26% | 99% |
| HBO | 92 | 9.6% | 0.11% | 100% |
| MBO | 217 | 22.7% | 0.27% | 100% |
| VO | 141 | 14.7% | 0.17% | 64% |
| PO | 3 | 0.3% | 0.004% | 100% |
| Others | 293 | 30.6% | 0.36% | 2% |
| Total education sector | 956 | 100.0% | 1.17% | 69.4% |

9.2 Methodology and data used

Since the different subsectors in the education sector are similar, a general methodology was developed for the different subsectors. The methodology and data used to calculate the CO₂ footprint following the Dutch PCAF Principles are described in the methodology report, 2020¹.

9.2.1 Attribution

The footprint of the BNG Bank for the education sector is calculated based on the emissions of individual organizations. The individual emissions of an organization are multiplied by the proportional share of the outstanding loan amount with BNG Bank in the total balance sheet of that client. In the end, all individual emissions of educational organizations are aggregated, using the following formula:

$$\sum CO_2eq \times \frac{\text{Outstanding loan}}{\text{Total balance sheet}}$$

Different methods were used to calculate different components of the covered emissions. The coverage per scope is described below, based on the different scopes defined by PCAF. For a more detailed methodology description, see the Methodological report, 2020¹.

9.2.2 Scopes covered

In this methodology, scope 1 and 2 are covered.

Scope 1: Natural gas use

Scope 1 emissions are the direct GHG emissions of the different education sectors. These emissions result from the use of natural gas for heating buildings or other purposes.

Scope 2: Electricity use

Scope 2 emissions include the indirect GHG emissions from consumption of purchased electricity, heat or steam. Unfortunately, the heat and steam use per educational organization is unknown. Therefore scope 2 only contains the use of purchased electricity.

Scope 3: Purchased goods and services

Scope 3 covers all other indirect emissions. Some examples of scope 3 activities prominent in education include emissions from employee commuting, business travel, waste processing, and food processing. Unfortunately, insufficient data was available to make an estimation of scope 3 level emissions. A rough estimation is not desirable as well, because of the large differences between the educational subsectors. A university has a very different commuting workforce than for example a primary school, which operates on a far more local scale. Therefore, scope 3 level emission data was not included in the education sector.

9.3 Data quality

The following data scoring is used to score and improve data quality of the education sector.

Table 9.3 Data quality definitions for the education sector

| Data quality (highest to lowest) | Description |
|----------------------------------|--|
| 1 | Actual energy consumption, converted to CO ₂ eq-emissions using verified emission factors and detailed activity data specific to the type of energy consumed |
| 2 | Actual energy consumption, converted to CO ₂ eq-emissions using emissions factors for energy from undefined fuel source |
| 3 | Modeled regional activity data based on robust assumptions, converted to CO ₂ eq-emissions using emissions factors for energy from undefined fuel source |
| 4 | Modeled activity data in a country, converted to CO ₂ eq-emissions using emissions factors for energy from undefined fuel source |
| 5 | Highly modeled activity or uncertain activity data in a country, converted to CO ₂ eq-emissions using default emissions factors for energy from undefined fuel source |

In this study, the method used for educational organizations is based on robust estimations of electricity and natural gas, because estimations can be made based on actual expenditure on energy (gas and electricity consumption) per education organization. For natural gas use, this is a known specific type of energy, but for electricity use, energy comes from undefined sources. That is why scope 1 has a data quality value of 1.5, and scope 2 has a data quality estimate of 2. This results in a data quality score of 1.75 for the education sector.

9.4 Results

The results of the CO₂ equivalent footprint of the outstanding BNG Bank loans to the education sector for reporting year 2019 and 2020 is shown in Table 9.4.

Table 9.4 GHG emissions of the BNG Bank education sector

| Source of emissions | Scope | CO ₂ EQ. (total) | | CO ₂ EQ. (relative) | CO ₂ EQ. (total) | | CO ₂ EQ. (relative) | Data quality score |
|---------------------|---------|-----------------------------|---------------|--------------------------------|-----------------------------|---------------|--------------------------------|--------------------|
| | | Ton/year | % | Ton/million EUR | Ton/year | % | Ton/million EUR | |
| | | 2020 | 2020 | 2020 | 2019 | 2019 | 2019 | |
| WO | | 9,162 | 33.1% | 15.5 | 10,583 | 35.5% | 17.3 | 1.75 |
| Natural gas use | Scope 1 | 3,439 | 12.4% | 5.8 | 3,879 | 13.0% | 6.3 | 1.5 |
| Electricity use | Scope 2 | 5,722 | 20.7% | 9.7 | 6,704 | 22.5% | 10.9 | 2 |
| HBO | | 2,636 | 9.5% | 4.5 | 3,780 | 12.7% | 6.2 | 1.75 |
| Natural gas use | Scope 1 | 1,396 | 5.0% | 2.4 | 1,736 | 5.8% | 2.8 | 1.5 |
| Electricity use | Scope 2 | 1,241 | 4.5% | 2.1 | 2,044 | 6.8% | 3.3 | 2 |
| MBO | | 8,123 | 29.4% | 13.7 | 8,221 | 27.5% | 13.4 | 1.75 |
| Natural gas use | Scope 1 | 3,348 | 12.1% | 5.7 | 3,438 | 11.5% | 5.6 | 1.5 |
| Electricity use | Scope 2 | 4,775 | 17.3% | 8.1 | 4,784 | 16.0% | 7.8 | 2 |
| VO | | 7,637 | 27.6% | 12.9 | 7,135 | 23.9% | 11.6 | 1.75 |
| Natural gas use | Scope 1 | 3,986 | 14.4% | 6.7 | 3,751 | 12.6% | 6.1 | 1.5 |
| Electricity use | Scope 2 | 3,651 | 13.2% | 6.2 | 3,384 | 11.3% | 5.5 | 2 |
| PO | | 116 | 0.4% | 0.2 | 129 | 0.4% | 0.2 | 1.75 |
| Natural gas use | Scope 1 | 58 | 0.2% | 0.1 | 64 | 0.2% | 0.1 | 1.5 |
| Electricity use | Scope 2 | 58 | 0.2% | 0.1 | 65 | 0.2% | 0.1 | 2 |
| Total | | 27,674 | 100.0% | 46.7 | 29,848 | 100.0% | 48.7 | 1.75 |

Table 9.5 Percentage of the outstanding loans compared to the total balance sheet of the education sector for reporting year 2019 and 2020

| Education sector | Loan portfolio / Total balance sheet (%) | |
|------------------|--|-------|
| | 2020 | 2019 |
| WO | 6.9% | 7.4% |
| HBO | 10.0% | 10.3% |
| MBO | 19.2% | 18.6% |
| VO | 8.0% | 9.2% |
| PO | 19.6% | 19.9% |
| Total | 9.9% | 10.4% |

Between reporting year 2019 and 2020 the amount of CO₂ equivalent expressed as ton per year decreased for all scopes and subsectors. This results in a decrease of the CO₂ equivalent expressed as ton per year with 2,174 ton (Table 9.4). This can partly be explained by a decrease in the loan portfolio of the education sector between reporting year 2019 and 2020 (Tables 9.1 and 9.2). However, for the subsectors WO, HBO, and VO the CO₂ equivalent expressed as ton per million euro also decreased between reporting year 2019 and 2020, which shows a relative reduction in GHG emissions. For the subsector MBO the CO₂ equivalent expressed as ton per million euro slightly increased. For the subsector PO the CO₂ equivalent expressed as ton per million euro did not change between reporting year 2019 and 2020.

In total the CO₂ equivalent expressed as ton per million euro decreased with 2.0 ton per million euro between reporting year 2019 and 2020. In conclusion, the total absolute and relative GHG emissions of the education sector decreased between reporting year 2019 and 2020.

In Table 9.5 it is shown that the percentage of outstanding loans at the BNG Bank in comparison to total balance sheet overall decreased by 0.5% between reporting year 2019 and 2020.

10 Mobility, environment and other organizations

This chapter covers loans to organizations and projects in the mobility, environment, energy and other sectors. In opposite of many other sectors, there is no public database available with information about these organizations. Therefore, data is collected by hand, for a selection of the organizations in the loan portfolio.

Some organizations publish CO₂ equivalent emissions data in their annual reports, but unfortunately, for a large number of organizations data availability is inadequate. Some of the CO₂ equivalent footprints of those organizations can be estimated, but not all. The 5 market segments covered in this chapter make up for 3.9% of the total BNG Bank loan portfolio.

10.1 Coverage

Due to the variety in organizations within this sector, it is a challenge to find adequate data in order to map the CO₂ equivalent footprint of this sector. It was possible to calculate the CO₂ equivalent footprint for 3.7% of the loan portfolio within the sectors. An overview of the sector is given in Tables 10.1 and 10.2.

Table 10.1 Coverage rate for 5 different sectors for reporting year 2020

| Other sectors | Loan portfolio (million EUR) | Percentage of sector | Percentage of all loans | Coverage rate (loan portfolio) |
|------------------------|------------------------------|----------------------|-------------------------|--------------------------------|
| Energy | 693 | 21.2% | 0.8% | 0.0% |
| Environment | 710 | 21.7% | 0.8% | 0.0% |
| Mobility | 1,515 | 46.3% | 1.8% | 70.7% |
| Others | 170 | 5.2% | 0.2% | 17.8% |
| Financial institutions | 184 | 5.6% | 0.2% | 0.0% |
| Total | 3,270 | 100.0% | 3.9% | 33.7% |

Table 10.2 Coverage rate for 5 different sectors for reporting year 2019

| Other sectors | Loan portfolio (million EUR) | Percentage of sector | Percentage of all loans | Coverage rate (loan portfolio) |
|------------------------|------------------------------|----------------------|-------------------------|--------------------------------|
| Energy | 541 | 17.5% | 0.7% | 0.0% |
| Environment | 696 | 22.5% | 0.9% | 0.0% |
| Mobility | 1,512 | 48.9% | 1.9% | 58.8% |
| Others | 183 | 5.9% | 0.2% | 0.0% |
| Financial institutions | 157 | 5.1% | 0.2% | 0.0% |
| Total | 3,089 | 100.0% | 3.8% | 28.8% |

The coverage rate of these sectors has increased by 5.1% between reporting year 2019 and 2020. This is mainly due to renewed data acquisition in the mobility and others sectors. In 2019, adequate data was only found for 8 organizations, whereas in 2020, data was acquired for 21 organizations.

10.2 Methodology and data used

For a elaborated description of the methodology and data used to calculate the CO₂ equivalent footprint following the Dutch PCAF Principles, see the Methodology approach report, 2020⁴⁴.

10.2.1 Attribution

The footprint of BNG Bank for these 5 sectors is calculated based on the emissions of individual organizations. The individual emissions of an organization are multiplied by the proportional share of the outstanding loan amount of BNG Bank in the total balance sheet of that client. In the end, all individual emissions of these organizations are aggregated, using the following formula:

$$\sum CO_2eq \times \frac{\text{Outstanding loan}}{\text{Total balance sheet}}$$

Different methods were used to calculate different components of the covered emissions. The coverage per scope is described below, based on the different scopes defined by PCAF. For a more extensive methodology description, see the Methodology approach report, 2020⁴⁵.

10.2.2 Scopes Covered

Scope 1, 2, and 3 emissions of organizations classified as mobility, environmental, and others. However, the scopes are in most of the cases not presented individually in the organizations' annual reports. Therefore, the results of these sectors are not presented per scope, but as a total amount of CO₂ equivalent.

Scope 1 emissions are the direct GHG emissions of the different companies. These emissions result from the use of gas for heating buildings, manufacturing of different types of products, and the vehicle fleet.

Scope 2 emissions include the indirect GHG emissions from consumption of purchased electricity, heat, or steam. Not every company has a clear documentation of the scope 2 emissions.

Scope 3 emissions are other indirect emissions such as the extraction and production of purchased materials and fuels, outsourced activities, waste disposal etc.

10.2.3 Calculation steps

Some companies report their own CO₂ equivalent emissions, mostly in kilotons. We convert these emission outcomes from kilotons to kilograms in order to make further calculations.

⁴⁴ Mulder, R., Roovert, I. van, Dagevos, J., Verhoeven, L., Wentink C. (2020), Loan Portfolio Climate Impact of BNG Bank & NWB Bank, Methodological approach report 2020

⁴⁵ Mulder, R., Roovert, I. van, Dagevos, J., Verhoeven, L., Wentink C. (2020), Loan Portfolio Climate Impact of BNG Bank & NWB Bank, Methodological approach report 2020

CO₂ equivalent emissions for companies that do not self-report, are obtained via CBS statline by looking at CO₂ equivalent emissions based on the Standard Industrial Classifications (SBI). Every company is classified via SBI codes. For each SBI code a measure for total CO₂ equivalent emission is available. De total CO₂ equivalent emission for a particular SBI code are divided by the total net revenue for that SBI.

The average CO₂ equivalent emissions in kilograms per net revenue in millions per SBI code are known. The next step is to look at the total net revenue of the companies that do not self-report emissions. We multiply the average CO₂ equivalent emissions per net revenue by the total net revenue of each company. We now know the total CO₂ equivalent emissions based on SBI codes.

From the self-reported CO₂ equivalent emissions (when available) or the CO₂ equivalent emissions based on SBI code we continue to calculate which part of the total emissions can be attributed to the bank. This can be done by looking at the total loan distributed by the bank for each company and divide this by their total balance (equity + total debts). We then multiply this outcome by the total of CO₂ equivalent emissions for that company as found above

There is a growing trend for companies to report on their climate footprint in annual reports. For 33% of the covered organizations in reporting year 2020, a CO₂ equivalent footprint was acquired from annual reports. The CO₂ equivalent footprint of the other organizations were estimated with the SBI-code approach.

10.3 Data quality

The following data scoring is used to score and improve data quality of the network sector.

Table 10.3 Data quality definitions for other organizations

| Data quality (highest to lowest) | Description |
|----------------------------------|--|
| 1 | Actual energy consumption, converted to CO ₂ eq-emissions using verified emission factors and detailed activity data specific to the type of energy consumed |
| 2 | Actual energy consumption, converted to CO ₂ eq-emissions using emissions factors for energy from undefined fuel source |
| 3 | Modeled regional activity data based on robust assumptions, converted to CO ₂ eq-emissions using emissions factors for energy from undefined fuel source |
| 4 | Modeled activity data in a country, converted to CO ₂ eq-emissions using emissions factors for energy from undefined fuel source |
| 5 | Highly modeled activity or uncertain activity data in a country, converted to CO ₂ eq-emissions using default emissions factors for energy from undefined fuel source |

Most of the footprints are based on Proxy data on the basis of region or country, but some of the data is actual audited primary energy data. Therefore, the calculations in this chapter are marked with a data quality score of 4. For 33% of the organizations the score is 1 or 2, and the other 67% have a score of 5.

10.4 Results

The results of the CO₂ equivalent footprint of the outstanding BNG Bank loans to the 5 mentioned sectors for reporting year 2019 and 2020 are shown in Table 10.4. Due to the general character of the analysis it was not possible to express the CO₂ equivalent emissions for scope 1, 2 and 3. Table 10.4 shows the total of all scopes combined.

Table 10.4 GHG emissions of 5 different loan portfolio sectors

| Source of emissions | Scope | CO ₂ EQ. (total) | | CO ₂ EQ. (relative) | CO ₂ EQ. (total) | | CO ₂ EQ. (relative) | Data quality score |
|----------------------------|------------|-----------------------------|-------|--------------------------------|-----------------------------|------|--------------------------------|--------------------|
| | | Ton/year | % | Ton/million EUR | Ton/year | % | Ton/million EUR | |
| | | 2020 | 2020 | 2020 | 2019 | 2019 | 2019 | |
| CO ₂ -emissions | | | | | | | | |
| Energy | All scopes | - | - | - | - | - | - | - |
| Environment | All scopes | - | - | - | - | - | - | - |
| Mobility | All scopes | 21,252 | 98.8% | 19.8 | 14,017 | 100% | 15.8 | 4 |
| Others | All scopes | 265 | 1.2% | 8.8 | - | - | - | 4 |
| Financial institutions | All scopes | - | - | - | - | - | - | - |
| Total | All scopes | 21,517 | 100% | 19.5 | 14,017 | 100% | 15.8 | 4 |

Table 10.5 Percentage of the outstanding loans compared to the total balance sheet of the different loan portfolio sectors for reporting year 2019 and 2020

| Different sectors | Loan portfolio / Total balance sheet (%) | |
|-------------------|--|------|
| | 2020 | 2019 |
| Mobility | 4.3% | 4.1% |
| Others | 30.5% | - |

As Table 10.4 shows, the absolute and relative emissions increased. However, conclusions should be made with caution. Because the coverage rate, the portfolio, and the clients in scope of this sector changed a lot, it is not possible to compare data between reporting year 2019 and 2020.

11 Total GHG emissions of BNG Bank for reporting year 2019 and 2020

11.1 Coverage of the GHG emission assessment

In summary, Table 11.1 shows the overview of outstanding loans per sector and the subcategories and the part covered with GHG emission estimates.

Table 11.1 Total outstanding loans of BNG Bank and part covered in the GHG for reporting year 2019 and 2020

| Market segment | Sector | Loan portfolio (million EUR) | Part covered with GHG footprint (million EUR) | Coverage rate (%) | Loan portfolio (million EUR) | Part covered with GHG footprint (million EUR) | Coverage rate (%) |
|----------------|-----------------------------|------------------------------|---|-------------------|------------------------------|---|-------------------|
| | | 2020 | 2020 | 2020 | 2019 | 2019 | 2019 |
| Public sector | | | | | | | |
| | Municipalities | 27,015 | 26,938 | 100% | 26,033 | 25,973 | 100% |
| | Provinces | 268 | 268 | 100% | 137 | 137 | 100% |
| | Water authorities | 202 | 202 | 100% | 233 | 233 | 100% |
| | Others | 3,367 | - | 0% | 3,304 | - | 0% |
| Energy | | | | | | | |
| | Energy | 693 | - | 0% | 541 | - | 0% |
| Environment | | | | | | | |
| | Environment | 710 | - | 0% | 696 | - | 0% |
| Mobility | | | | | | | |
| | Mobility | 1,515 | 1,071 | 71% | 1,512 | 885 | 59% |
| Networks | | | | | | | |
| | Drinking water utilities | 789 | 691 | 88% | 811 | 712 | 88% |
| | Others | 448 | - | 0% | 435 | - | 0% |
| Social housing | | | | | | | |
| | Social housing associations | 40,350 | 39,764 | 99% | 38,739 | 38,351 | 99% |
| | Others | 8 | - | 0% | 9 | - | 0% |
| Healthcare | | | | | | | |
| | Healthcare | 7,243 | 5,234 | 72% | 6,973 | 4,946 | 71% |
| Others | | | | | | | |
| | Others | 170 | 30 | 18% | 183 | - | 0% |
| Education | | | | | | | |
| | WO | 202 | 200 | 99% | 210 | 207 | 99% |
| | HBO | 66 | 66 | 100% | 92 | 92 | 100% |
| | MBO | 221 | 220 | 100% | 217 | 216 | 100% |
| | VO | 160 | 99 | 62% | 141 | 90 | 64% |
| | PO | 3 | 3 | 100% | 3 | 3 | 100% |
| | Others | 287 | 5 | 2% | 292 | 5 | 2% |

| Market segment | Sector | Loan portfolio (million EUR) | Part covered with GHG footprint (million EUR) | Coverage rate (%) | Loan portfolio (million EUR) | Part covered with GHG footprint (million EUR) | Coverage rate (%) |
|------------------------|------------------------|------------------------------|---|-------------------|------------------------------|---|-------------------|
| Financial institutions | | | | | | | |
| | Financial institutions | 184 | - | 0% | 157 | - | 0% |
| Remaining | | | | | | | |
| | Others | 285 | - | 0% | 911 | - | 0% |
| Total | | 84,184 | 74,791 | 89% | 81,628 | 71,850 | 88% |

The GHG emission estimates according to the PCAF methodology are covering 89% of the BNG Bank loans portfolio. The coverage rate has improved by 1% between reporting year 2019 and 2020. This coverage rate is high compared to the outcomes of other financial institutions. The coverage rate can be further improved by enlarging the coverage in for example the public sector and healthcare sector.

11.2 Overall results of the BNG Bank GHG-emissions

Table 11.2. Emission intensities for reporting year 2019 and 2020

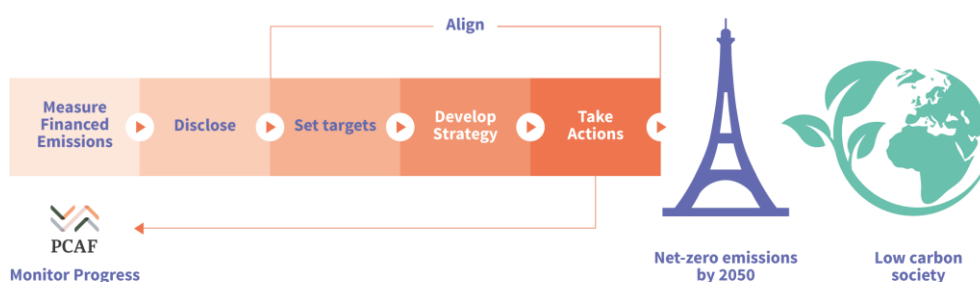
| Market segment | Sector | Part covered with GHG footprint (million EUR) | Attributed emissions (ton CO ₂ -eq) | Emission intensity (ton CO ₂ -eq / million EUR) | Part covered with GHG footprint (million EUR) | Attributed emissions (ton CO ₂ -eq) | Emission intensity (ton CO ₂ -eq / million EUR) | Data quality (score 1-5) |
|----------------|-----------------------------|---|--|--|---|--|--|--------------------------|
| | | 2020 | 2020 | 2020 | 2019 | 2019 | 2019 | |
| Public sector | | | | | | | | |
| | Municipalities | 26,938 | 1,635,658 | 60.7 | 25,973 | 1,690,390 | 65.1 | 3 |
| | Provinces | 268 | 8,597 | 32.1 | 137 | 3,742 | 27.4 | 3 |
| | Water authorities | 202 | 9,323 | 46.1 | 233 | 16,548 | 71.0 | 2 |
| Mobility | | | | | | | | |
| | Mobility | 1,071 | 21,252 | 19.8 | 885 | 14,017 | 15.8 | 4 |
| Networks | | | | | | | | |
| | Drinking water utilities | 691 | 4,616 | 6.7 | 712 | 4,725 | 6.6 | 2 |
| Social housing | | | | | | | | |
| | Social housing associations | 39,764 | 997,565 | 25.1 | 38,351 | 1,079,670 | 28.2 | 2.5 |
| Healthcare | | | | | | | | |
| | Healthcare | 5,234 | 300,418 | 57.4 | 4,946 | 284,683 | 57.6 | 2.5 |
| Others | | | | | | | | |
| | Others | 30 | 265 | 8.8 | - | | | 4 |
| Education | | | | | | | | |
| | Total | 592 | 27,674 | 46.7 | 613 | 29,848 | 48.7 | 1.75 |
| Total | | 74,791 | 3,005,368 | 40.2 | 71,850 | 3,123,622 | 43.5 | |

As can be seen in Table 11.2, the BNG Bank loan portfolio of reporting year 2020 has a total emission of 3,005 kiloton CO₂-equivalent. This is 118 kiloton less than the total emissions of last year. This decrease was mainly due to a reduction of GHG emissions for the social housing sector (-82 kiloton CO₂-equivalent) and for the local governments (-55 kiloton CO₂-equivalent). The social housing sector improved the energy labels of rental homes. Indirect emissions (scope 3) of the local governments reduced, but what exactly caused this reduction in scope 3 is unknown.

The reduction of 118 kiloton CO₂-equivalent is a great accomplishment, because the part of the loan portfolio covered by the GHG footprint calculation has grown from 82 to 84 billion euro. The emission intensity (ton CO₂-eq/million euro) has decreased from 43.5 to 40.2 ton per million euro.

11.3 From CO₂ equivalent footprint to action

These overall positive results can lay the basis for the development of ambitions and science based targets (SBTs). A growing loan portfolio on the one hand, and a decreasing CO₂ footprint on the other hand, is a great result. But these results are gaining relevance in the light of ambitious goals and SBTs. Then, the results can be seen as a progress on the road to goal achievement.



By setting targets financial institutions are expressing their own ambitions how to contribute to the realization of the Paris Climate Agreement. This should be followed by a clear and transparent strategy how to realize these targets combined with a monitoring system that has two crucial functions. In the first place by showing progress in achieving the targets set by the financial institution but also by acting as a kind of mirror of reflection by showing which strategies and actions are successful in reducing GHG emissions and which are not. This could be part of a learning strategy not only for PCAF partners for others in the world as well.



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