Green Bond Impact Report

Nationale-Nederlanden Bank N.V.

Financial Year 2023

NN Bank Green Bond Impact Reporting

As a mortgage loan provider, NN Bank wants to contribute to the reduction of greenhouse gas emission in houses NN Bank finances. We encourage our customers to reduce emissions by making their homes more sustainable. NN Bank believes that Green Bonds are an effective tool to channel financing to projects that have demonstrated clear environmental or climate benefits and contribute to the achievement of the Sustainable Development Goals.

Metrics regarding projects' environmental impacts:

Portfolio based green bond report in accordance with the ICMA Handbook template for Impact Reporting in accordance with the portfolio approach[1]. Calculation of CO2-emissions are in line with the recommendations of the Partnership for Carbon Accounting Financials (PCAF).

31 December 2023

Eligible Project Category	SBP/GBP	Number of units	Eligible portfolio (EURm)	Share of Total Financing	Eligibility for Green Bonds	Annual energy consumption (KWh/m2)	Annual reduced and/or avoided emissions of CO2 (tons)
a/	b/		c/	d/	e/	f/	f/
Green Buildings	GBP	20,001	5,842	100%	100%	88.8	29,733
Total			**5,842**	**100%**	**100%**	**88.8**	**29,733**

a/ Eligible category

b/ Whether bond falls under social or green bond principles

c/ Signed/budgeted amount committed by the issuer for the portfolio or portfolio components eligible for Green Bond financing

d/ This is the share of the total budget financing

e/ This the share of the total portfolio costs that is Green Bond Eligible

f/ Impact indicators

[1] https://www.icmagroup.org/assets/documents/Sustainable-finance/2023-updates/Handbook-Harmonised-framework-for-impact-reporting-June-2023-220623.pdf

nationale nederlanden

Impact assessment Eligible Green Loan Portfolio NN Bank

Project: Impact Assessment Eligible Green Loan Portfolio NN Bank

Subject: Reduced CO_2-emission calculation

Date: April 2024

CFP Green Buildings has been asked to compare the greenhouse gas emissions[1] of a specific, energy-efficient group of residential real estate (in this document indicated as Eligible Green Loan Portfolio[2,3]) to that of a comparable group of residential real estate with an average energy efficiency (indicated as "Reference" or "Reference Group"[4]). The objective of this analysis is to report the positive impact of the sustainable residential real estate of NN Bank. The sustainable residential real estate portfolio of NN Bank complies with the criteria of the EU Taxonomy Delegated Regulation from June 2021. This document outlines the results of this analysis.

Preface

Nationale-Nederlanden Bank N.V. ("NN Bank") is a 100 per cent subsidiary of NN Group and is a Dutch retail bank, offering various banking products and services to private individuals. Core products are mortgages, savings and investments.

NN Group N.V. ("NN Group" or "the Group") is a financial services company, operating in 11 countries with a strong presence in Europe and Japan. NN Group has approximately 19 million customers, is listed on Euronext Amsterdam and employs more than 16,000 people.

Climate change represents an urgent and potentially irreversible threat to livelihoods and the well-being of society. To mitigate the worst effects, we must transition to a low-carbon economy, limiting the global temperature to 1.5°C as part of the 2015 Paris Agreement. The latest science shows that emissions will need to reach net-zero around 2050 to meet this goal and prevent the worst impacts of climate change. As a financial institution, NN Group recognizes that we have an important role to play in promoting the low-carbon transition especially through our investments. This recognition of responsibility is also reflected in our support of various pledges and commitments. NN Group's commitment is to strive for a net-zero greenhouse gas emissions portfolio by 2050. This is a key initiative under the strategic commitment Society: we contribute to the well-being of people and the planet. The Group's climate change strategy broadly consists of decarbonizing the portfolio in line with trajectories consistent with the Paris goals and increasing allocations to green investments.

NN Bank aims to be a sustainable business leader in the markets in which it operates. That includes creating long-term value for our

[1] Greenhouse gas emissions are calculated in CO_2-equivalent, which will be referred to as CO_2 throughout this document.
[2] When referring to the Eligible Green Loan Portfolio in this document, we refer to Dutch Residential Green Buildings only.
[3] The Eligible Green Loan Portfolio consists of 20,001 objects. The Eligible Green Loan Portfolio represents 26% of the total outstanding amount of the total amount of the Nationale – Nederlanden bank N.V. mortgage loan portfolio.
[4] The Reference Group represents the average CO_2-emissions of residential buildings in the Netherlands, taking the floor area of the eligible assets into account.

customers, colleagues and society. This offers us an opportunity to fulfil our purpose of helping people care for what matters most to them, now and in the future.

Our values care, clear, commit, and our brand promise, You matter, guide our actions. Our strategic commitments, focus on promoting the well-being of people and the planet. We do business with the future in mind and aim to contribute to a world in which people can thrive for generations to come.

We are incorporating climate action across NN Bank's business. We believe this approach will not only benefit the environment, but also create sustainable long-term value for all our stakeholders. The risks associated with climate change present significant challenges, which the financial sector can help address. At the same time, those risks also present opportunities for innovation, growth and positive impact to help accelerate the transition to a low-carbon economy.

NN Bank has identified five areas of action in which to contribute to sustainability:

- Engage with customers and steer our investment portfolio to reduce greenhouse gas (GHG) emissions
- Develop new propositions and services
- Leverage NN Bank's Green Bond Framework
- Evaluate and adjust all products to help customers in their sustainability journey
- Contribute to (sector-) specific initiatives and partnerships

The Eligible Green Loan portfolio

A total of 20,001 assets have been selected as eligible for the NN Bank Eligible Loan Portfolio. Assets In the NN Bank Eligible Loan Portfolio either have a registered energy label A, belong to the top 15% of the national or regional building stock expressed as operational Primary Energy Demand, as required by the EU taxonomy or meet the requirements for a PED lower than 10% threshold set for a Nearly Zero Energy Building (NZEB).

For the selection of the top 15% the year a new building code was introduced was used as a criterion, as described in the Green Residential Buildings Methodology Assessment Document of December 2023[5]. This is because the Dutch Building Regulation sets out energy efficiency requirements for different building types. As an example, the Dutch Building Code 2000 requires an EPC score of at least 1.0. Over time the Dutch Building Regulation becomes more stringent regarding energy-efficiency and sustainability requirements for new buildings. The year a new building code was introduced and therefore used as a selection criterion for the top 15% is 2006. Approximately 12.28% of the Dutch housing stock are residential buildings built between 2006 and year-end 2020. This way, the buildings in NN Bank's Eligible Green Loan Portfolio belong to the top 15% of most energy-efficient buildings of the Dutch residential real estate market.

Methodology

The CO_2-emissions of the 20,001 eligible objects, as selected by NN Bank are determined by using the calculated energy consumption of these objects. The energy

[5] Source: https://www.nn-group.com/article-display-on-page-no-index/nn-bank-green-residential-buildings-methodology-assessment-document-cfp-green-buildings.htm

usage is based on algorithms and benchmarks from the expert system of CFP Green Buildings. CFP's Expert system is a database consisting of actual energy data of buildings. A section of this anonymized data provides live energy data derived from CFP's Energy Monitoring projects. Moreover, public big data, for example yearly updated average energy usage of homes in the Netherlands provided by Statistics Netherlands (CBS), is used to improve and check the benchmarking model. In this study, the calculated energy consumption of the Reference Group was determined based on data from CBS, RVO, Kadaster and CFP[6].

The total energy consumption can be converted to CO_2-emissions by using standard conversion factors. The Dutch government created a widely accepted and uniform list with grid emission factors: http://www.co2emissiefactoren.nl. The grid emissions related to the direct emissions are used, also known as Tank-To-Wheel (TTW[7]). This is in accordance with the generally accepted PCAF[8] methodology. Whenever the electricity's origin is unknown, the emission factor for electricity from an undefined energy source should be used. The factor for electricity is updated regularly to reflect changes in the Dutch electricity mix. This leads to the following emission factors:

Applied GHG emission factors[9]		
Natural gas	1.779	kg CO_2e /m^3
Electricity	0.27	kg CO_2e /kWh

Table 1: Dutch CO_2-emission factors

In addition, table 2 shows the distribution of the assets in the NN Bank green residential building portfolio among eligibility criteria:

1. Residential buildings with an A-label.
2. Buildings in the top 15% of the national stock as described in the Green Residential Buildings Methodology Assessment Document of December 2023.
3. Buildings built since 2021 that meet a PED that is 10% lower than the NZEB requirements.

Criteria	Objects
Buildings with an A-label[10]	15,145
Buildings built between 2006-2020 (Top 15%)[11]	4,231
Buildings built since 2021 with PED of NZEB -10%	625

Table 2: Assets in the Green Building Portfolio

CFP green buildings continuously improves its calculation methods and algorithms when new data or insights become available. Over the last years, the algorithms have been improved so that energy labels play a more critical role in determining the energy usage. However, other input fields for example floor area, building year, and building type also influence the calculated energy usage.

This report shows the emissions of the Eligible Green Loan Portfolio for 2023 including a comparison with the 2022 figures. In order to make a good comparison, the CO_2-emissions and energy usage of the portfolio in 2022 have been recalculated with the renewed algorithms as well. The renewed outcomes of the 2022 analysis can be found in the appendix.

[6] The Reference group has the same floor area as the eligible objects. The CO_2-emissions are calculated by CFP algorithms taking into account the energy usage of all residential buildings in the Netherlands.
[7] Tank to Wheels (TTW) are the direct emissions of an activity. In this case, the direct emissions of the energy usage.
[8] PCAF is a global partnership of financial institutions that work together to develop and implement a harmonized approach to assess and disclose the greenhouse gas (GHG) emissions associated with their loans and investments.

[9] Source: https://www.co2emissiefactoren.nl using TTW emissions, retrieved 05-03-2024.
[10] This category includes buildings with building year after 2020. These however do have a building permit of before 2021.
[11] This category has no registered labels

All references made in this report about the emissions and energy consumption of 2022 refer to the numbers in the appendix.

Energy consumption

Table 3 shows the calculated energy consumption of the Eligible Green Loan Portfolio. The calculated annual energy consumption is approximately 79.2 million kWh of electricity and 18.3 million m^3 of natural gas. To calculate the total energy consumption in kWh, the natural gas consumption in m^3 needs to be converted to kWh. One m^3 of natural gas is equal to 9,769 kWh. So to convert the natural gas consumption to kWh, the consumption in m^3 (18.3 million) must be multiplied by 9,769 giving a gas consumption of 178.4 million kWh. The total calculated energy consumption is 88.8 kWh per m^2 (27.3 + 61.5 kWh per m^2)[12].

	#	m^2	Electricity consumption		Natural gas consumption	
			(x1,000 kWh)	(kWh/m^2)	(x1,000 m^3)	(kWh/m^2)
Buildings with an A-label	15.145	2,134,414	58,977	27.6	14,076	64.4
Buildings built between 2006-2020 (Top 15%)	4.231	680,123	17,767	26.1	4,166	59.8
Buildings built since 2021 with PED of NZEB -10%	625	86,742	2,416	27.9	15	1.7
Total Eligible portfolio	20,001	2,901,279	79,160	27.3	18,257	61.5

Table 3: Calculated energy consumption Eligible Green Loan Portfolio

CO_2-emissions

Table 4 shows the CO_2-emissions of the Eligible Green Loan Portfolio and the Reference Group, based on the calculated energy consumption. The total CO_2-emissions of the Eligible Green Loan Portfolio is 53,853 tonnes CO_2 per year while the annual CO_2-emission for the Reference Group is 83,586 tonnes. Thus, the buildings are estimated to emit 29,733 tonnes of CO_2 per year less than the Reference Group.

[12] The total electricity consumption (79.2 million kWh) and gas consumption (178.4 million kWh) is divided by the total amount of square meters of the portfolio (2.9 million m^2), to calculate the electricity consumption (27.3 kWh/m^2) and gas consumption (61.5 kWh/m^2) per square meter.

	GHG emission Eligible Green Loan Portfolio (tonnes CO_2e)	GHG emission Reference (tonnes CO_2e)	GHG emissions Reduced (tonnes CO_2e)
Buildings with an A-label	40,965	61,492	20,528
Buildings built between 2006-2020 (Top 15%)	12,209	19,594	7,386
Buildings built since 2021 with PED of NZEB -10%	680	2,499	1,819
Total Eligible portfolio	53,853	83,586	29,733

Table 4: CO_2-emission Eligible Green Loan Portfolio compared to the Reference Group

Annual development of climate impact

CFP Green Buildings also gave insights into the energy consumption of the Eligible Green Loan Portfolio as of year-end 2022 and compared the CO_2-emissions of the Eligible Green Loan Portfolio. In order to be able to make a good comparison, the restated numbers of 2022 (as displayed in the appendix) are shown in this chapter. Figure 1 shows the energy consumption of the Eligible Green Loan Portfolio in 2022 (restated) and 2023. In order to compare the outcomes of both reports, the numbers are converted to consumption / CO_2-emissions per m^2.

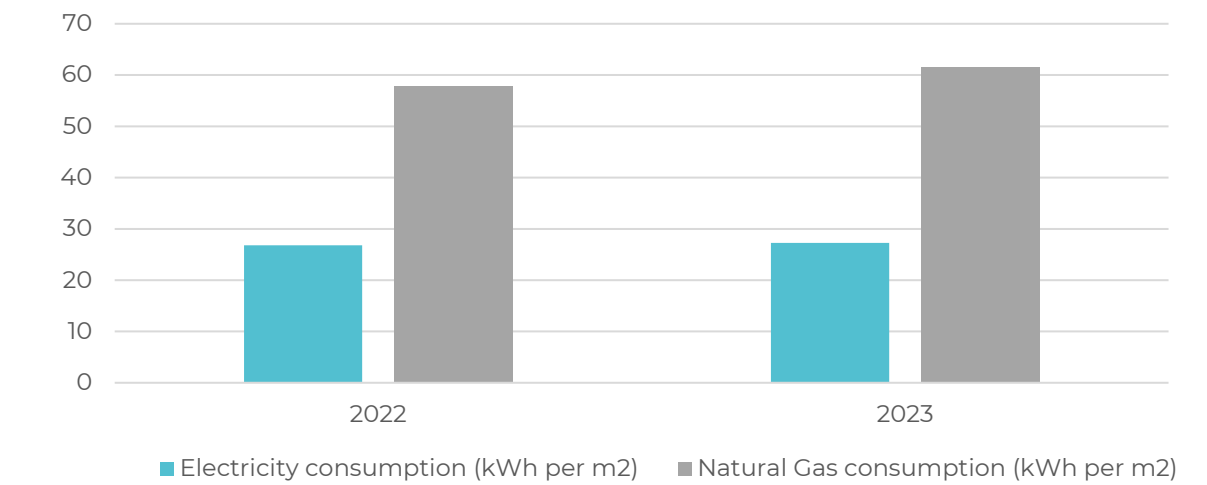

Figure 1: Calculated energy consumption comparison per m^2 Eligible Green Loan Portfolio

Figure 2 gives insights on the CO_2-Emissions per m^2 of the Eligible Green Loan Portfolio in 2022 and 2023. The total energy consumption is converted to CO_2-emission by using standard conversion factors. The CO_2-emission is calculated over the entire portfolio, divided by the total amount of square meters. This graph shows that the GHG emissions per m^2 of the Eligible Green Loan Portfolio have increased over the last year, from 18.3 kg CO_2/m^2 to 18.6 kg CO_2/m^2 as the Eligible Green Loan Portfolio per year-end 2023 includes relatively more older buildings compared to the year-end 2022 portfolio, and less A labels. Therefore, the reduced emissions per m2 have decreased from 11.2 kg CO_2/m^2 to 10.2 kg CO_2 $/m^2$.

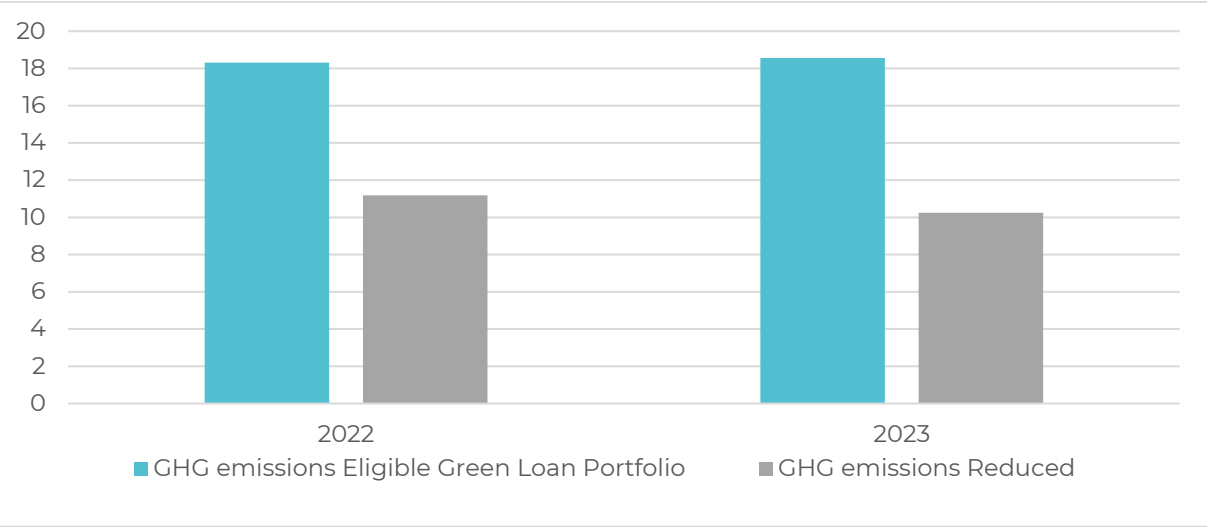

Figure 2: Reduced CO_2-Emissions per m^2 of the Eligible Green Loan Portfolio relative to the Reference group[13].

Conclusion

The following conclusions are drawn from this study:

- The buildings in the Eligible Green Loan Portfolio are estimated to emit 29,733 tonnes of CO_2 per year less than the Reference Group, which is a difference of 36%.
- The total energy consumption is calculated at 88.8 kWh/m^2.
- The reduced emissions have decreased from 38% for 2022 to 36% for the year 2023. A decrease of 2% in reduced emission performance in relation to the Reference group.
- All buildings in the Eligible Green Loan Portfolio deliver a substantial mitigation following the EU Taxonomy definition, either by having an EPC class A rating, belonging to the top 15% of the national building stock expressed as operational PED, or meeting the requirements for a PED lower than 10% threshold set for a Nearly Zero Energy Building (NZEB).

[13] The Reference group is a dynamic portfolio that is becoming more sustainable over time, as it represents the Dutch (residential) building stock, which is also becoming more sustainable.

Appendix

Energy consumption 2022 (restated)

Table 5 shows the recalculated energy consumption of the Eligible Green Loan Portfolio for the year 2022 based on the updated algorithms. The recalculated annual energy consumption is approximately 57.6 million kWh of electricity and 12.7 million m^3 of natural gas. To calculate the total energy consumption in kWh, the natural gas consumption in m^3 needs to be converted to kWh. One m^3 of natural gas is equal to 9,769 kWh. So to convert the natural gas consumption to kWh, the consumption in m^3 (12.7 million) must be multiplied by 9,769 giving a gas consumption of 124.1 million kWh. The total recalculated energy consumption is 84.6 kWh per m^2 (26.8 + 57.8 kWh per m^2)[14].

	#	m^2	Electricity consumption		Natural gas consumption	
			(x1,000 kWh)	(kWh/m^2)	(x1,000 m^3)	(kWh/m^2)
Buildings built between 2005-2020 A label and top 15%	14,118	2,076,186	55,330	26.7	12,673	59.6
Buildings built since 2021 with PED of NZEB -10%	543	71,013	2,225	31.3	29	4.0
Total Eligible portfolio	14,661	2,147,199	57,555	26.8	12,702	57.8

Table 5: Calculated energy consumption Eligible Green Loan Portfolio

[14] The total electricity consumption (57.6 million kWh) and gas consumption (124.1 million kWh) is divided by the total amount of square meters of the portfolio (2.15 million m^2), to calculate the electricity consumption (26.8 kWh/m^2) and gas consumption (57.8 kWh/m^2) per square meter.

CO_2-emission 2022[15] (restated)

Table 6 shows the recalculated CO_2-emissions of the Eligible Green Loan Portfolio for the year 2022 and the Reference Group, based on the recalculated energy consumption. The total CO_2-emissions of the Eligible Green Loan Portfolio is 39,327 tonnes CO_2 per year while the annual CO_2-emission for the Reference Group is 63,321 tonnes. Thus, the buildings are estimated to emit 23,994 tonnes of CO_2 per year less than the Reference Group.

	GHG emission Eligible Green Loan Portfolio (tonnes CO_2e)	GHG emission Reference (tonnes CO_2e)	GHG emissions Reduced (tonnes CO_2e)
Buildings built between 2005-2020 A label and top 15%	38,630	61,227	22,597
Buildings built since 2021 with PED of NZEB -10%	697	2,094	1,397
Total Eligible portfolio	39,327	63,321	23,994

Table 6: CO_2-emission Eligible Green Loan Portfolio compared to the Reference Group

[15] Emission factors used origin from the previous report: Natural gas 1.782 kg CO_2/m^3, Electricity 0.29 kg CO_2/kWh.