Green Bond Impact Report

Nationale-Nederlanden Bank N.V.

Financial Year 2024

Introduction

In this impact report (the "Report"), Nationale-Nederlanden Bank N.V. ("NN Bank") reports on the impact of outstanding green bonds as per 31 December 2024. The reporting principles for the preparation of this Report can be found in NN Bank's Green Bond Framework (the "Framework", as published in February 2024). In the Second Party Opinion (SPO) by Sustainalytics, the alignment with the Green Bond Principles (GBP) and the EU Taxonomy has been assessed.

On 31 December 2024 NN Bank had four green bonds outstanding. All of the proceeds of outstanding green bonds were used to finance and/or refinance green residential buildings in the Netherlands.

NN Bank's Green Bond Impact Report

NN Bank publishes its impact report of the Eligible Green Loan portfolio annually. Our Green Bond Impact Report 2024 reflects the impact reporting requirements per NN Bank's Green Bond Framework 2024.

For Green Buildings, these impact metrices are reported:

- Estimated annual energy consumption or energy saving in kWh/m²;
- Estimated annual reduced and/or avoided emissions in tons of CO2 equivalent.

The impact calculations have been assessed by an external consultant, CFP Green Buildings, who calculated CO2 emissions and energy consumption of our residential buildings. Their assessment is included as an appendix to this Report. The calculations are indicative and shared on a best effort basis. The CO_2 emissions of the green residential buildings are compared to the CO_2 emissions of a comparable group of residential properties with the same floor area and an average Dutch energy-efficiency resulting in the annual emissions avoided. Applying the Loan-to-Value (LTV) for the respective collateral results in the financed annual emissions avoided. The impact analysis conducted by CFP is consolidated in this report. The impact reporting is not part of the scope of the assurance procedures performed by the external auditor.

Since the publication of the Green Bond Framework in 2021 and the first allocation report our Eligible Green Loan Portfolio grew from € 3.8 billion to € 6.2 billion.

NN Bank

NN Bank is a Dutch retail bank serving approximately 1.2 million retail customers in The Netherlands. As a fully owned subsidiary of NN Group, NN Bank offers mortgages, savings, investment and bancassurance products. Additionally, we service mortgage origination, administration, and management services to other NN Group entities and institutional investors.

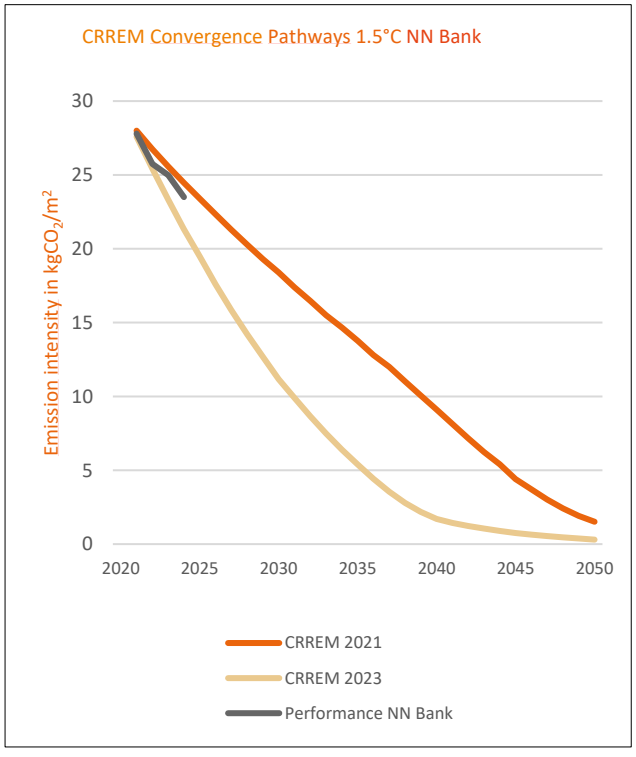
Sustainability strategy NN Bank

The NN Bank strategy focuses on contributing to a low-carbon economy by encouraging borrowers to improve the energy-label of their houses to reduce GHG emissions. It also aims to support an inclusive society by providing access to finance. While we encourage and seek to finance sustainability propositions focused on new origination, we are aware that a large part of our efforts should also be focused on our existing mortgage book and encourage both new and existing mortgage clients to improve the energy efficiency of their houses. For instance, by developing specific product propositions that offer mortgage clients help for making their homes greener, such as the introduction of the Energy Savings Budget in 2024 enabling customers to finance energy-saving measures.

Decarbonisation objectives for residential mortgages

Our aim is to guide our mortgage portfolio towards net zero by 2050, we have set an intermediate reference objective to reduce emissions by 34% to 18.1 kgCO_2e/m^2 in 2030 (base year 2021), following the Carbon Risk Real Estate Monitor (CRREM 2021).

Based on the 2024 year-end result, the mortgage portfolio carbon footprint for NN Bank is 23.6 kg CO_2e/m^2. This is a reduction of 15.9% compared to 2021 and in line with our path to our 2030 objective. Currently 25% of NN Bank's mortgage portfolio is label A or higher according to the Netherlands Enterprise Agency (provisional and definitive labels of dwellings).



The latest update of the Carbon Risk Real Estate Monitor (CRREM 2023) indicates that a reduction of emission intensity to 11.2 kg CO_2e/m^2 by 2030 (-59%) is required, according to the 1.5-degree pathway for the real estate sector in the Netherlands and the available CBS emission figures. Based on PCAF data, this is approximately equal to an average energy label of A+++ or higher for the entire mortgage portfolio by 2030.

In order to achieve our already established decarbonisation reference objective, several systemic challenges, outlined in the following paragraph, must be addressed. Given our significant reliance on these external factors and limited capacity to influence the decarbonization trajectory, we do not consider the reference objective as suggested by the 2023 CRREM pathway (see amber line in graph) feasible in current circumstances.

However, we remain committed to reducing emission intensity by 34% to 18.1 kg CO_2e/m^2 in 2030 (base year 2021) in line with CRREM 2021 (see red line in graph). If insights change, we will update our objectives accordingly.

External factors and ability to influence

Achieving decarbonisation in the residential real estate sector is a complex challenge that depends on external factors beyond NN Bank's control. Most importantly, the houses our mortgage loans finance are not owned by NN Bank, meaning progress is heavily dependent on customers' willingness and financial capabilities to make their homes more sustainable. We have additionally defined three other external factors that strongly influence progress on our decarbonisation reference objective:

1. Government policies

Decarbonising the residential real estate sector relies to a large extent on the government's ability to achieve the goals of the Dutch Climate Commitment. Challenges include greening the electricity grid and transitioning homes from natural gas. Clear and consistent policies and regulations are critical to promote sustainable building practices, energy-efficient appliances, and renewable energy. Currently there is a gap between the carbon footprint of the Dutch real estate market and the reduction that is required by the latest CRREM pathway, as reported in studies from the Dutch Plan-bureau voor de Leefomgeving (Klimaat en Energieverkenning 2024). This report indicates that there is only a 20% chance that the real estate sector will meet the Dutch national 2030 target.

2. Economic and social factors

Economic and social considerations, including the availability and cost of renewable energy, energy-efficient technologies, and the technical workforce's capacity to implement change, also impact the transition to a low-carbon economy. These challenges are reflected in external studies such as one carried out by the Economisch Instituut voor de Bouw (2024). A just and equitable transition, where the benefits and burdens of the transition are fairly distributed among all members of society, is also vital, particularly given the current conditions in the Dutch housing market.

3. Data accuracy

Since there is no publicly available emissions data for individual dwellings and energy labels may not always accurately reflect GHG emissions, collecting and analysing accurate data on energy use and carbon emissions is challenging but essential if we are to develop effective decarbonisation strategies and track progress. Additional challenges arise from the fact that our actions must comply with data protection regulations (GDPR). These prescribe clear guidelines for data collection and use to protect individuals' privacy.

Actions to reduce GHG emissions

To achieve our decarbonisation objective of 34% by 2030 for our mortgage portfolio, we implement measures to help customers make their homes more sustainable.

Engagement with customers

NN Bank actively aims to collaborate with customers to reduce their carbon footprints. In 2024 NN Bank engaged customers through intermediaries and direct communication. Customers were encouraged to visit NN's online sustainability platform which offers insights, tools and actionable steps to help people reduce their carbon footprint. Based on these efforts, we will continue with our engagement activities.

Developing and improving propositions and services

NN Bank encourages customers to improve their energy label, adding value to their homes and enhancing comfort. Customers can finance improvements through personal resources or favorable finance solutions. For instance, NN Bank has introduced the Energy Savings Budget, which complements existing energy savings features, allowing additional loans of up to 6% of a home's value after implementing energy saving measures.

Policies and acceptance criteria for new loans are increasingly aligned with sustainable housing objectives. New constructions are prioritised in the context of financial discounts for customers, as they typically meet higher energy efficiency standards, for example, by having an A+++ energy label.

Leveraging NN Bank's Green Bond Framework

NN Bank issues green bonds under its Green Bond Framework to align its funding strategy with sustainability goals. The framework takes into account the EU Taxonomy and is structured in accordance with the ICMA Green Bond Principles and the Loan Market Association (LMA) Green Loan Principles. By focusing on green buildings, NN Bank raises sustainable financing that adheres to regulatory criteria and market best practices. The Green Bond Framework reflects NN Bank's commitment to sustainability and contributes to the Dutch Climate Agreement and the development of sustainable markets. Proceeds from these green bonds fund assets that mitigate climate change by reducing emissions, helping to steer the total mortgage portfolio towards our net-zero ambition. NN Bank provides separate reports on its green bond portfolio, assets, and climate impact, which are available on NN Group's corporate website.

Contributing to sector-specific initiatives and partnerships

To strengthen our customer propositions, NN Bank participates in various initiatives that share knowledge promoting healthy and sustainable living. Collaborations with industry peers in organisations such as the Energy Efficient Mortgages Netherlands Hub (EEM NL Hub) and PCAF enable NN Bank to develop harmonised standards and frameworks for energy-efficient mortgages and carbon footprint measurement.

Assessing climate risks of mortgages

Physical climate risks in the mortgage portfolio may cause damage to the underlying collateral, reducing its value and affecting homeowners' ability to service their debt. Climate transition risks can decrease the collateral value of the assets that are not energy-efficient and that fall short of meeting new regulations towards a more carbon-efficient economy.

Physical risk assessment

NN Bank uses external data sources and proprietary models to analyse climate risk. We use the Klimaateffectatlas tool, maintained by the Dutch Climate Adaptation Services in collaboration with the Dutch government, to gather climate risk indicators on a per-collateral basis. Hazards assessed are: pluvial, fluvial and coastal flooding (under a 1:10, 1:100, 1:1,000 and 1:100,000 event), wildfire, pole rot and soil subsidence. By combining the indicators with quantitative research from governmental bodies, NGOs and other climate experts, we determine the potential damages to each collateral. The damages are combined with Loan To Value (LTV) information to identify the extent of the assets that are exposed to climate change. A key limitation of the analysis is that it does not incorporate factors such as insurance and government support. Such mitigating effects will further limit the impact of climate risk on the balance sheet, so these effects are important to acknowledge and incorporate in future assessments.

The assessment uses a baseline scenario, that is, no change to the warming of the earth over the short, medium or long term, and performed only on the current portfolio not considering different time projections. We do not have data to assess longer term horizons under the current tool. This is a key limitation to assessing the mortgage portfolio. Despite this, it is reasonable to expect that under a 'hot-house world' scenario, flood severity and frequency will magnify and sea level rise will increase, leading to potentially large adverse impacts.

The results for the mortgage portfolio align with expectations, identifying fluvial and pluvial flood as the most significant hazards for the Netherlands. Sea level rise might also become significant under a long term horizon in a 'hot-house world' scenario. This insight highlights the need for ongoing monitoring and robust risk mitigation strategies.

Transition risk assessment

We identified time horizons for each transition risk driver based on expected occurrence of each transition risk. These were classified into short, medium, and long term horizons. High and medium impact risk drivers were considered in the qualitative assessment.

The assessment of transition risks is internally developed and aligned with the targets for energy efficiency, and for transitioning to a low-carbon economy, laid out by the IPCC and the Network for Greening the Financial System (NGFS). We combine energy label information and market value data on the residential property portfolio to measure potential shifts in valuation related to energy efficiency. This information is combined with client level risk parameters such as loan-to-income ratios, to assess mortgage risks from new regulatory policies or market sentiment shifts (i.e. shifts in consumer behavior towards more energy-efficient homes).

This analysis indicated that the impact is primarily short term. Extending this analysis to the longer term (10+ years), we assume that rising costs of inflation and energy will significantly affect clients with energy labels D and E. By that time, having an energy label equal to or below D will no longer suffice. Despite these considerations, the impact remains limited for NN Bank's portfolio in both the short and long term.

The findings are aligned with the macroeconomic forecasts and sensitivities derived from the NGFS scenarios. From NN Bank's perspective, no business activities are deemed incompatible with, nor require, significant efforts to align with a transition to a climate-neutral economy.

NN Bank Green Bond Framework

In alignment with NN Bank's sustainability strategy, a Green Bond Framework (Framework) was established in 2021, under which NN Bank can issue financial instruments (such as unsecured green debt and green covered bonds) to finance and refinance assets and projects which contribute to the UN Sustainable Development Goals and the sustainability strategy of NN Bank.

NN Bank issues green bonds under the Green Bond Framework to align the funding strategy with the sustainability ambition. The Framework was updated in February 2024 to reflect regulatory developments, including the EU Taxonomy, and aligns with the International Capital Market Association's (ICMA) Green Bond Principles (GBP) and has been externally assessed by Sustainalytics. The Framework, focused on green buildings, enables NN Bank to raise sustainable financing that meets regulatory criteria and market best practices regarding sustainability. In the Second Party Opinion (SPO) by Sustainalytics, the alignment with the Green Bond Principles (GBP), the EU Taxonomy and other additional regulations/standards has been assessed. Since the first publication of the Framework, NN Bank has continued to take important steps to enhance its sustainable debt strategy and sees it as an important tool to support the strong growth of sustainable lending.

The Framework reflects NN Bank's commitment to sustainability and contributes to the Dutch Climate Agreement and the development of sustainable markets. Proceeds from these green bonds fund assets that mitigate climate change by reducing emissions, helping to steer the total mortgage portfolio emissions towards intermediate target levels and ultimately the long term net-zero ambition. We aim to contribute to reducing climate change impact by engaging our value chain, leveraging our Green Bond Framework and contributing to (sector) specific initiatives and partnerships.

A practical example of living in an energy-neutral home with a sustainable mortgage loan from Nationale-Nederlanden Bank

Making homes more sustainable is important to Nationale-Nederlanden. That's why Nationale-Nederlanden Bank offers additional financing options when customers make sustainability improvements to their current or new homes. Thanks to this financing, Remco Theunisse and his partner Eva den Hollander were able to thoroughly transform their home in Zierikzee into an eco-friendly property.

In May 2024, Remco and Eva received the keys to their new house. 'I'm a true Zeelander, and Eva has lived in Zeeland for almost her entire life. We both wanted to stay in the area,' explains Remco. 'About five years ago, we bought our first house, also in Zierikzee. But we always dreamed of eventually buying a more spacious home. Preferably one we could completely strip and renovate to make it exactly how we wanted it.'

Suddenly, the dream home

Remco and Eva kept an eye on the housing market in Zeeland, but weren't actively looking for another house. 'We weren't in any rush. But then, suddenly, a dream home crosses your path,' Remco says. 'In our case, it was a very old house from 1850, in the centre of Zierikzee. It's close to the distinctive Sint-Lievensmonstertoren square, which locals call the "Fat Tower".'

Daylight through roof gaps

With two floors and a storage loft – totalling around 160 square metres – this house was pleasantly spacious. However, the property had an 'F' energy rating. 'The house wasn't insulated, and hardly any energy-saving measures had been implemented,' says Remco. 'When I stood in the loft during the viewing, I could see daylight coming through the gaps in the roof. With such draughts and without insulation, a lot of heat was escaping, along with expensive energy.'

Climate, wallet and comfort

Remco and Eva were keen to make their home more energy-efficient. 'An investment like that contributes to CO_2 reduction, so it's good for the climate,' says Remco. 'But by making your home more energy-efficient, you also reduce your energy bills. Moreover, home sustainability and comfort go hand in hand: in winter your house is warmer, and in summer it's cooler. So you really benefit personally as well.'

Insulation as the first step

After completely stripping the house, Remco and Eva opted for insulation first. 'That's where it all begins. Think of roof, wall, floor and façade insulation, plus triple-glazed windows,' explains Remco. 'This immediately made the house much less cold, draughty, and damp. It also allowed us to tackle heat loss in our home straight away.'

Heating and cooling

For the ground floor, they chose underfloor heating combined with a heat pump. On the first floor, Remco and Eva installed an air conditioning system that can both cool and heat. Remco explains: 'An air conditioner is an efficient and sustainable way to heat. It's much more energy-efficient than heating via radiators, for example. Plus, you don't use gas for this kind of heating. In summer, the air conditioning extracts heat from the air in our home, causing the temperature inside to drop. In winter, it works the other way around. The air conditioner draws energy from the outside air, which it converts into heat indoors.'

Heat pump water heater

The bathroom, of course, still needed hot water. So Remco and Eva chose a heat pump water heater. ‘An efficient and sustainable heat pump water heater extracts warmth from the surroundings. It uses this heat to warm water in an energy-efficient way,’ says Remco.

Energy via solar panels

The energy Remco and Eva need is generated by the solar panels on the roof. ‘We moved into our new house in December 2024,’ says Remco. ‘During the relatively cold months, we were a little short on electricity. But looking at the expected power generation over the entire year, I anticipate we'll be able to generate more than we need. Although the net metering scheme will end in 2027, we have signed a dynamic energy contract. This contract works with hourly electricity prices. When it's windy and sunny, the electricity price is low. In cloudy and relatively windless weather, the price is higher. We try to adjust our electricity consumption accordingly. An added benefit is that, with this contract, we don't have to pay any feed-in costs.’

Additional mortgage loan for sustainability

Remco and Eva were able to make their new home sustainable thanks to a mortgage loan from Nationale-Nederlanden Bank. ‘Our mortgage advisor, Zuiver Financieel, pointed out the additional financing options that NN Bank offers if you buy an energy-efficient home or make energy-saving renovations,’ says Remco. ‘Since we knew exactly which sustainability measures we wanted to implement beforehand, we could include these energy-saving provisions in the mortgage loan. The increase in the property's value that resulted from these sustainability measures could also be taken into account when we applied for the mortgage loan. Another advantage of this financing is that you can finance up to 106% of the market value of the home. Normally, this is capped at 100%."

Energy neutral

Remco is proud of the result. ‘We're completely off gas. Our energy bill is significantly lower – we now only pay around €30-€40 per month. So essentially, we have an almost energy-neutral house. We still need to apply for a new energy label, but it will certainly be much higher than the ‘F’ rating we had. Plus, we're very satisfied with our living comfort. In our previous home, Eva used to be very cold upstairs during winter. It was simply impossible to heat adequately. In our new home, it's a completely different story – it's nice and warm. And thanks to all these measures, the value of our home has increased. Moreover, the financing through Nationale-Nederlanden went smoothly. All in all, we're extremely pleased with our home's sustainability transformation.’

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. Calculation of CO2-emissions are in line with the recommendations of the Partnership for Carbon Accounting Financials (PCAF).

31 December 2024

Eligible Project Category	SBP/ GBP	Number of units	Eligible portfolio (EURm)	Share of Total Financing	Eligibility for Green Bonds	Building area in m^2 (x 1000)	Annual energy consumption (KWh/m^2)	Annual emissions avoided in CO_2 (tons)	Financed[1] annual emissions avoided in CO_2 (tons)	Financed[3] annual emissions avoided in CO_2 (tons) per EUR m invested
a/	b/		c/	d/	e/		f/	f/	f/	f/
Green Buildings	GBP	21,200	6,209	100%	100%	3,053	84.2	32,847	22,913	3.7
Total			**6,209**	**100%**	**100%**		**84.2**	**32,847**	**23,147**	**3.7**

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] Financed annual emissions avoided are calculated by applying the Loan-to-Value (LTV) for the respective collateral, as per the guidance of PCAF

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2 please see the link to our sustainability matters definition www.nn-group.com/sustainability/policies-reports-and-memberships/policy-and-reportlibrary.htm

Impact assessment Eligible Green Loan Portfolio NN Bank

Project: Impact Assessment Eligible Green Loan Portfolio NN Bank

Subject: Reduced CO_2-emission calculation

Date: 16-4-2025

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 10 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.

In the context of climate change, in 2024 we entered unchartered territory. According to the World Meteorological Organisation (WMO), last year the global average surface temperature exceeded 1.5 °C above pre-industrial levels for the first time, threatening the Paris Agreement's goal of keeping temperatures below this threshold. Furthermore, the UN Environment Programme (UNEP) reports that we are on course for a 2.6-3.1°C temperature increase over the course of this century. The physical effects of climate change are becoming more evident too; with wildfires, storms, droughts and floods posing an increasing threat to communities and ecosystems. According to the Intergovernmental Panel on Climate Change (IPCC), these impacts disproportionately affect the marginalised and most vulnerable. Against this backdrop, sentiment opposing the incorporation of sustainability considerations into investing has gained traction, particularly in the US, as evidenced by a number of high-profile withdrawals from global climate initiatives.

[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 21,200 objects. The Eligible Green Loan Portfolio represents 27% as per 31-12-2024 of the total outstanding amount of the total amount of the Nationale – Nederlanden bank N.V. mortgage portfolio.
[4] The Reference Group is represents the average CO_2-emissions of residential buildings in the Netherlands, taking the floor area of the eligible assets into account.

We acknowledge NN Group's role and responsibility to help establish a sustainable economy through our investments, insurance and banking activities, and through our own operations, while supporting our stakeholders, particularly those who most need our help. As impacts of climate change become ever more evident, the associated risks and challenges for our business increase. However, there are also opportunities for innovation; to create positive impact and help accelerate the transition to a low-carbon economy. We are committed to reducing our greenhouse gas (GHG) emissions, while investing in and insuring climate solutions, and collaborating with others to create momentum for change.

NN Bank aims to be a sustainable business leader in the markets in which it operates. That includes creating long-term value for our 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 to reduce greenhouse gas emissions
- Develop new mortgage-specific 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 21,200 assets have been selected as eligible for the NN Bank Eligible Green Loan Portfolio. Assets in the NN Bank Eligible Green 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.

For buildings built after 31 December 2020 in the portfolio, they are 10% more energy efficient than the local Dutch NZEB requirements as they comply to the following values:

- Ground based houses (such as houses and (semi)-detached houses): Equal to or lower than 27 kWh/m^2/year.
- Non-ground based buildings (such as flats and apartments): Equal to or lower than 45 kWh/m^2/year.

Methodology

The CO_2-emissions of the 21,200 eligible objects, as selected by NN Bank are determined by using the calculated energy consumption of these objects.

The energy 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. CFP Green Buildings continuously improves its calculation methods and algorithms when new data or insights become available. In this study, the calculated energy consumption of the Reference Group was determined based on data from CBS, RVO, Kadaster and CFP[6]. The Netherlands' average CO_2 emissions per square meter per building type are calculated based on these sources. These averages are regularly updated as the public sources are also updated regularly.

[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

[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.

The numbers used for the calculations in this report are given in the table below[7].

CO^2 emissions of the Reference Group per m^2		
Residential	28.7	kg CO_2e per year

Table 1: Emission of the Reference Group

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.

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[8]). This is in accordance with the generally accepted PCAF[9] 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[10]		
Natural gas	1.779	kg CO_2e /m^3
Electricity	0.270	kg CO_2e /kWh

Table 2: Dutch CO_2-emission factors

In addition, table 3 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[11]	15,785
Buildings built between 2006-2020 (Top 15%)[12]	4,127
Buildings built since 2021 with PED of NZEB -10%	1,288

Table 3: Assets in the Eligible Green Loan 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. In May 2024, the Green Buildings Tool was updated to provide a more accurate estimation of electricity consumption from (hybrid / full electric) heat pumps, particularly in newer or highly energy-efficient buildings. As a result, electricity consumption appears slightly higher than previous years, while gas consumption has decreased in some cases especially in buildings with higher energy labels, and/or constructed after 2020.

[7] The emission factors of table 2 are used.
[8] Tank to Wheels (TTW) are the direct emissions of an activity. In this case, the direct emissions of the energy usage.
[9] 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.

[10] Source: https://www.co2emissiefactoren.nl using TTW emissions, retrieved 28-03-2025.
[11] This category also includes buildings with building year after 2020. These however do have a building permit of before 2021.
[12] This category has no registered energy labels.

Energy consumption

Table 4 shows the calculated energy consumption of the Eligible Green Loan Portfolio. The calculated annual energy consumption is approximately 90.5 million kWh of electricity and 17.1 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 (17.1 million) must be multiplied by 9.769 giving a gas consumption of 166.7 million kWh. The total calculated energy consumption is 84.2 kWh per m^2 (29.6 + 54.6 kWh per m^2)[13].

	#	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	15,785	2,214,975	66,222	29.9	13,150	58.0
Buildings built between 2006-2020 (Top 15%)	4,127	667,742	17,933	26.9	3,910	57.2
Buildings built since 2021 with PED of NZEB -10%	1,288	170,685	6,348	37.2	0	0.0
Total Eligible portfolio	21,200	3,053,402	90,503	29.6	17,060	54.6

Table 4: Calculated energy consumption Eligible Green Loan Portfolio

CO_2-emissions

Table 5 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 54,786 tonnes CO_2 per year while the annual CO_2-emission for the Reference Group is 87,633 tonnes. Thus, the buildings are estimated to emit 32,847 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 with an A-label	41,275	63,570	22,295
Buildings built between 2006-2020 (Top 15%)	11,797	19,164	7,367
Buildings built since 2021 with PED of NZEB -10%	1,714	4,899	3,185
Total Eligible portfolio	54,786	87,633	32,847

Table 5: CO_2-emission Eligible Green Loan Portfolio compared to the Reference Group

[13] The total electricity consumption (90.5 million kWh) and gas consumption (166.6 million kWh) is divided by the total amount of square meters of the portfolio (3.1 million m^2), to calculate the electricity consumption (29.6 kWh/m^2) and gas consumption (54.6kWh/m^2) per square meter.

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 2023 and compared the CO_2-emissions of the Eligible Green Loan Portfolio. Figure 1 shows the energy consumption of the Eligible Green Loan Portfolio in 2023 and 2024. In order to compare the outcomes of both reports, the numbers are converted to consumption / CO_2-emissions per m^2.

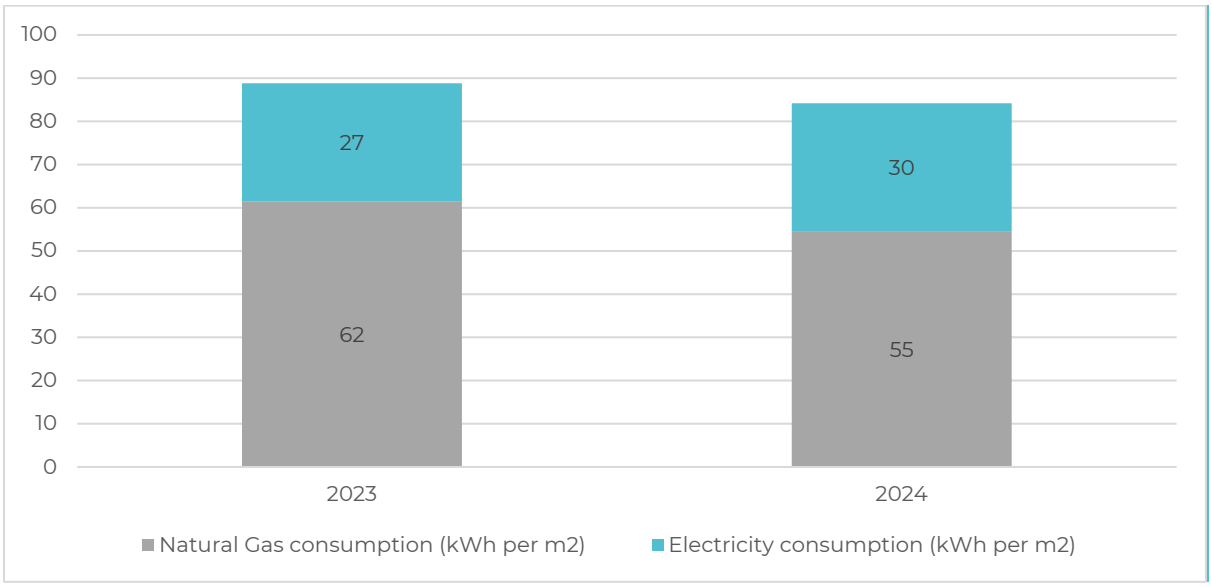

Figure 1: Calculated energy consumption comparison per m^2 Eligible Green Loan Portfolio

The (estimated) electricity consumption has not visibly improved, which can be explained by several factors. As the Green Buildings Tool was updated in May 2024 to better estimate electricity use from heat pumps, particularly in newer or highly efficient buildings, it leads to slightly higher calculated electricity consumption and lower gas consumption. In the Eligible Green Loan Portfolio the number of buildings with an energy label A and the number of buildings built since 2021 with PED of NZEB-10% have increased substantially compared to 2023 leading to an increased use of heat pumps in the portfolio resulting in higher electricity demand and lower gas usage. Additionally, portfolio changes—with some buildings added or removed—have also influenced overall energy consumption due to different usage patterns across building types.

Figure 2 gives insights on the CO_2-Emissions per m^2 of the Eligible Green Loan Portfolio in 2023 and 2024. 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 decreased over the last year, from 18.6 kg CO_2/m^2 to 17.9 kg CO_2/m^2 as the Eligible Green Loan Portfolio per year-end 2024 includes relatively more newly built buildings that have high energy efficiency as determined by latest building regulations. Therefore, the reduced emissions per m^2 have increased from 10.2 kg CO_2/m^2 to 10.9 kg CO_2 /m^2.

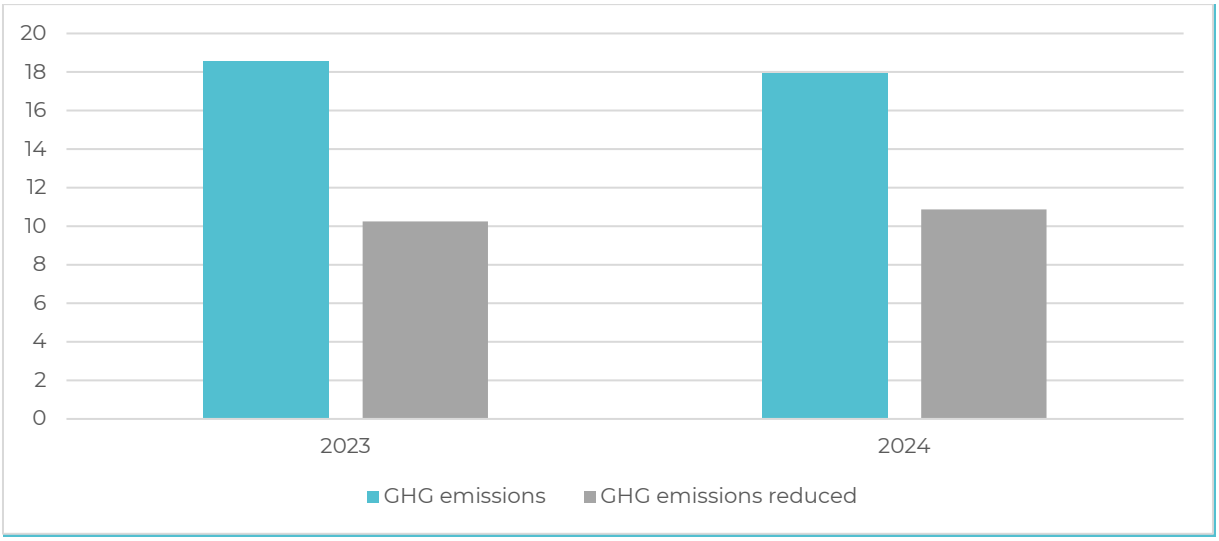

Figure 2: GHG emissions of the Eligible Green Loan Portfolio and GHG emissions reduced relative to the Reference Group.

Conclusion

The following conclusions are drawn from this study:

- The buildings in the Eligible Green Loan Portfolio are estimated to emit 32,847 tonnes of CO_2 per year less than the Reference Group, which is a difference of 37.5%.
- The total energy consumption is calculated at 84.2 kWh/m^2.
- The reduced emissions have increased from 35.6% for 2023 to 37.5% for the year 2024. An increase of 1.9% in reduced emission performance in relation to the Reference Group.
- All buildings in the Eligible Green Loan Portfolio align with the substantial contribution to climate change mitigation criteria 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).

Appendix: Data Integrity and validation in CFP Green Buildings Services

Third-Party Verified Reliability of Sources and Algorithms

At CFP Green Buildings, we ensure our tools and data are reliable and accurate by working with independent third-party experts to review and verify the accuracy of the Green Buildings Tool[1]. Zanders, respected in real estate and energy efficiency, confirm that our algorithms are robust, and our data sources are trustworthy. This gives confidence to stakeholders like auditors, investors, and regulators.

We perform third-party validations in each country where the tool is used. Zanders assess our data and methods, providing recommendations to further improve accuracy. This ensures the tool stays up to date with local market conditions and industry best practices.

The Green Buildings Tool is designed to provide accurate, location-specific insights by tailoring its calculations to the building type and location. This approach ensures relevant and reliable results for every property.

The key data used in the tool is sourced from respected organizations and government publications and backed by detailed country-specific research. By combining expert validations, tailored calculations, and reliable data, we deliver a tool that meets the highest standards of accuracy and reliability.

Commitment to Data Confidentiality

We believe the importance of confidentiality cannot be taken lightly. Full care is taken to handle all information provided by our clients in conformity with relevant data protection regulations, including GDPR. Our systems are designed to maintain rigid security protocols that ensure sensitive information remains secure throughout processing.

Complementing our internal strict policies on security and confidentiality are internationally recognized certifications showing our commitment to data security and confidentiality, including:

- **ISO 27001:2022 Certification**: In line with this standard, we have implemented an Information Security Management System, ISMS, that strives to guarantee comprehensive protection of information for our clients.
- **SOC 2 Report**: Our SOC 2 attestation is proof that we meet all the rigid criteria regarding security, availability, processing integrity and confidentiality.

We also follow the following practices:

- **Limited Access:** Data access is restricted to authorized personnel. We also apply the Need-To-Know principle in that individuals will only be given access to data they absolutely need to know for their jobs. We periodically review the rights of access to data in order to keep it compliant and further minimize any possible risk.
- **Encryption Standards**: Data transferred and stored is protected with advanced methods of encryption.
- **Four-Eyes Principle**: All major acts involving sensitive data by key persons are always approved and reviewed by at least two team members for better accountability and accuracy.

Maintaining these high standards gives our clients confidence in knowing that their data is secure and handled with integrity.

About CFP Green Buildings

CFP Green Buildings is the industry leader in sustainability for the real estate industry. Sustainability is at the core of everything we do, guiding our mission to create a more sustainable built environment. This commitment is underscored by our certifications, including **B Corp** and **EcoVadis**, which reflect our adherence to the highest standards of social and environmental performance, transparency, and accountability.

We empower our clients to make informed decisions that will positively impact the environment and their bottom line through innovative tools, data-driven insights, and expert guidance. As an extension of their team, we continuously improve our processes and outcomes to protect a greener future for all.