ING Green Bond Impact Report 2022

Financial Year 2022

do your thing

Contents

Introduction

ING's Sustainability Direction

There is no denying that one of the biggest challenges for society is sustainability, in all its forms. Climate change threatens both the planet and its people. People may struggle with inequality, poor financial health, and even a lack of basic human rights.

As the challenges increase, there's a growing sense of urgency that governments and businesses should step in and help tackle them. The world has changed, and banking needs to change with it.

ING aims to put sustainability at the heart of what we do, defining new ways of doing business where planet and people are just as important as economic growth. It's about making progress together, step by step.

ING wants to be a pioneer in defining new ways to do business. We want to be a banking leader in building a sustainable future for our company, our customers, society and the environment. How?

- We focus on climate action:
  - We lead by example by striving for net zero in our own operations.
  - We play our part in the social and low-carbon transformation that's necessary to achieve a sustainable future, steering the most carbon-intensive parts of our portfolio towards reaching net zero by 2050.
- We collaborate: working with clients to achieve their own sustainability goals, increasing our impact through partnerships and coalition-building.
- We manage the most relevant environmental and social risks while fostering the protection of biodiversity and human rights across all of our relationships.
- We're working to advance financial health and inclusion for our customers and communities.
- And we empower our employees to contribute to it all.

ING finances today's society, which means we do also finance things that aren't green. We want to help clients transition to a low carbon economy. It's about making progress together, step-by-step. See www.ing.com/climate for more on our climate strategy in action.

ING's Green Bond Framework

To support our sustainability strategy, and to meet green funding needs; ING issues green bonds, supported by our Green Bond Framework that aligns with the International Capital Market Association's (ICMA) Green Bond Principles (GBP). Under this framework, ING Group and its subsidiaries can issue any financial instrument to finance and refinance assets and projects which contribute to the UN's Sustainable Development Goals and our own sustainability strategy.

ING's Green Bond Impact Report

ING publishes its impact report of the Eligible Green Loan portfolio annually.

For Renewable Energy, these impact metrices are reported:

- Total Installation Capacity;
- Estimated annual avoided emissions in tonnes of CO_2 equivalent.

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 CO_2 equivalent.

The impact calculations has been assessed by external consultants. For Green Buildings in the Netherlands, CFP calculated CO_2 emissions and energy consumption of 80,449 residential buildings and 12,091 commercial buildings. For German Residential buildings, Drees & Sommer has calculated the relevant metrices. Lastly, Guidehouse conducted the analysis for the 215 Renewable Energy Projects. All the impact analysis conducted by the consultants are consolidated in this report.

Our Green Bond Impact Report 2022 reflects the impact reporting requirements per ING's Green Bond Framework 2022. The Green Bond Framework 2022 has been externally assessed by ISS ESG. In the Second Party Opinion (SPO), alignment with the Green Bond Principles (GBP) has been confirmed as well as additional reviews.

ING Group Green Bond Impact Report

31 December 2022

Eligible project category (r)	Number of loans/ addresses	Eligible portfolio (€ mln) (s)	Share of total ING DiBa Green Covered Bond Financing[1] (t)	Share of total Green Senior Bond & Deposit Financing[1] (u)	Eligibility for Green Bonds (v)	Building area m² (w)	Total installed capacity of Renewable Energy in MW (x)	Pro-rata installed capacity of Renewable Energy in MW (x)	GHG emissions avoided in tons of CO_2/year (x)
Green Residential Buildings									
ING Bank NV	80,449	17,361	0.00%	62.81%	100%	12,132,621	n/a	n/a	100,337
ING DiBa	25,955	4,062	100.00%	6.55%	100%	3,332,990	n/a	n/a	63,198
Green Commercial Buildings									
ING Bank NV	12,091	2,928	0.00%	10.58%	100%	3,389,825	n/a	n/a	43,205
Renewable Energy	**215**	**5,569**	**0.00%**	**20.15%**	**100%**	**n/a**	**43,865**	**5,831**	**4,740,981**
Total	**118,710**	**29,920**		**100%**	**100%**	**18,855,436**	**43,865**	**5,831**	**4,947,721**

Impact per € mln calculations		
CB ING DiBa	p/€ mln impact tons of CO_2/year	**15.56**
ING Group Senior	p/€ mln impact tons of CO_2/year	**177.55**

Portfolio based green bond report in accordance with the ICMA Harmonized Framework for Impact Reporting (version June 2019)

(r)	Eligible category
(s)	Signed amount represents the amount legally committed by the issuer for the portfolio or portfolio components eligible for Green Bond financing
(t)	This is the share of the total portfolio cost that is financed by the issuer for green covered bonds
(u)	This is the share of the total portfolio cost that is financed by the issuer for green senior bonds
(v)	This is the share of the total portfolio costs that is Green Bond eligible
(w)	This is the building area in m²
(x)	Impact indicators - Estimated reduced energy (in GWh/year) - Direct and indirect emissions avoided in tons of CO_2/year (clean transportation only) - Estimated annual reduced emissions in tons of CO_2/year - Expected power production (in GWh/year)

1. Green covered bonds are allocated solely to green residential buildings situated within the covered bond entity (ING DiBa) and green senior bonds are allocated to all Use of Proceeds categories (minus any green residential buildings already allocated to green covered bonds). Green Covered Bonds will be allocated to assets within the covered bond cover pool. For Senior Green Bonds, ING may allocate towards Eligible Green Loans situated within its subsidiaries as per the guidance laid out in the Green Bond Principles 2021 regarding pledged assets (https://www.icmagroup.org/assets/documents/Sustainable-finance/2021-updates/The-GBP-Guidance-Handbook-June-2021-140621.pdf).

Impact assessment ING Green Residential Buildings Portfolio the Netherlands

Project: Impact Assessment ING Green Residential Buildings Portfolio

Subject: Reduced CO_2-emission calculation

Date: April 2023

Status: **Final** Draft

As requested by ING, 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 ING green residential building portfolio) to that of a comparable group of real estate with an average energy efficiency (indicated as "Reference" or "Reference Group"[2]). The objective of this analysis is to demonstrate that the selected buildings belong to the top most sustainable buildings in The Netherlands. This document outlines the results of this analysis.

The Eligible Green Building Portfolio

Assets in the ING Green Residential Portfolio that are built before 2021 should have an energy label A or belong to the top 15% of the national or regional building stock expressed as operational Primary Energy Demand, as required by the EU taxonomy. Moreover, buildings that are built after 2021 and meet the requirements for a PED lower than 10% threshold set for a Nearly Zero Energy Building (NZEB) are also included in the green residential portfolio.

The building year is used as a criterion to determine the top 15%. Over time, the Dutch Building Regulations require higher energy efficiency and improved sustainability for new buildings. Therefore, the year of construction is used as a criterion to define the as ING green residential building portfolio. 12.36% of the total Dutch housing stock is built between 2006 and 2020.[3] Hence, the selected year of construction to determine the top 15% is 2006. This way, the buildings in the ING green residential building portfolio belong to the top 15% of most energy-efficient buildings of the Dutch real estate market. Additionally, buildings built before 2006 with an energy label A deliver a substantial contribution to climate change mitigation, according to the EU Taxonomy.

Methodology

Within this study the CO_2-emissions of 80,449 residential objects, as selected by ING, were determined using the calculated real energy consumption of these objects. This selection is based on the selection criteria from the Green Bond Framework.

The energy usage is based on the algorithms and benchmarks from the expert system of CFP Green Buildings. This is the largest building database in The Netherlands with actual data on energy consumption and building characteristics. These algorithms and benchmarks are the same as those used in the online tool www.ingrefduurzaam.nl. In this study, the calculated real energy consumption

[1] Greenhouse gas emissions are calculated in CO_2-equivalent, which will be referred to as CO_2 throughout this document.
[2] The Reference Group is an anonymized portfolio from several clients from CFP Green Buildings, which contains about 140.000 comparable buildings.
[3] All residential buildings built since 2006 either have a registered energy label A or would have gotten a provisional energy label A. Provisional energy labels were calculated based on building characteristics.

of Dutch real estate (the Reference) was determined using this methodology. The CO_2-emissions were calculated with the Dutch market standard conversion factors, derived from the Green Deal CO_2-Emissionfactors.The applied factors are illustrated in table 1[4].

Applied GHG emission factors[5]		
Natural gas	1.884	kg CO_2e /m^3
Electricity	0.337	kg CO_2e /kWh

Table 1: Dutch CO_2-emission factors

Table 2 shows the distribution of the assets in the ING green residential building portfolio among the three different criteria:

1. Buildings with an Energy Label A (built before 2006).
2. The top 15% of the national or regional stock, expressed as primary energy demand.
3. Buildings built since 2021 that have a PED that is 10% lower than the NZEB requirements.

Criteria	Objects
Buildings built before 2006 with registered A labels	24,865
Building built between 2006-2020 (top 15%	55,012
Buildings built since 2021 with PED of NZEB -10%	572

Table 2: Assets in the Green Building Portfolio

Energy consumption

Table 3 shows the calculated real energy consumption of the entire ING Green Residential Portfolio. The calculated real energy consumption for electricity is 319 million kWh each year and 104 million m^3 natural gas each year.

Electricity (kWh)	Natural gas(m^3)
319,026,532	104,615,842

Table 3: Energy consumption ING Green Residential Portfolio

CO_2-emission

Table 4 shows the CO_2-emissions of the ING Green Residential Portfolio and the reference group based on calculated real energy consumption. The total CO_2-emission of the ING Green Residential Portfolio is 325,008 tonnes CO_2 per year. The Reference CO_2-emission is 425,345 tonnes of CO_2 per year. Resulting in a reduction of 100,337 tonnes of CO_2 per year.

Emission ING Green portfolio (tonnes CO_2)	Emission reference (tonnes CO_2)	Emission reduction (tonnes CO_2)
325,008	425,345	100,337

Table 4: Total CO_2-emission ING Green Residential Portfolio compared to Reference

Table 7 gives a summarized overview of the reduced CO_2-emissions in relation to the reference group for the three different criteria building groups with registered and provisional A labels.

Approximately 31% (in square meters) of the portfolio consists of A label buildings built before 2006. The CO_2-emissions of the ING Green Residential Portfolio for A label buildings built before 2006 is 102,514 tonnes of CO_2 per year. The reference CO_2-emission is 132,523 CO_2 per year.

Approximately 68% of the portfolio consists of buildings with a registered or provisional A

[4] Source: https://www.co2emissiefactoren.nl using WTW emissions for natural gas in kg/CO_2 per m^3.

[5] Source: https://www.co2emissiefactoren.nl using WTW emissions for electricity (unknown) in kg/CO_2 in kWh.

label built between 2006 and 2020. The CO_2-emissions of these buildings is 220,405 tonnes of CO_2 per year while the reference CO_2-emission for this group is 290,093 tonnes of CO_2 per year.

Approximately 1% of the portfolio consists of buildings that are eligible due to meeting the requirements for a PED lower than 10% threshold set for a Nearly Zero Energy Building (NZEB). The total CO_2-emissions of the ING Green Residential Portfolio for these new buildings 2,090 tonnes of CO_2 per year. The reference CO_2-emission is 2,729 tonnes of CO_2 per year. The reduction in CO_2-emissions for the three building groups can be found in table 7 below.

	#	m^2	Emission ING green portfolio (tonnes CO_2)	Emission reference (tonnes CO_2)	Emission reduction (tonnes CO_2)
Buildings A label <2006	24865	3,780,107	102,514	132,523	30,009
Buildings A label 2006-2020	55,012	8,274,665	220,405	290,093	69,689
NZEB - 10% >2021	572	77,849	2,090	2,729	640
Total	80,449	12,132,621	325,008	425,345	100,337

Table 7: Summarized overview of the reduced CO2-emissions compared to the reference

Conclusion

The following conclusions are drawn from this study:

- Based on the calculated real energy consumption, the ING Green Residential Portfolio has a CO_2-emission that is 100,337 tonnes per year lower than the reference, which is a difference of 23.6%.
- All buildings in the ING Green Residential Buildings Portfolio deliver a substantial contribution to climate change mitigation following the EU Taxonomy definition, either by having an EPC class A rating or belonging to the top 15% of the national building stock expressed as operational PED for buildings built before 2021., and by meeting the requirements for a PED lower than 10% threshold set for a Nearly Zero Energy Building (NZEB) for buildings built after 2021.

Impact assessment ING Green Commercial Buildings Portfolio the Netherlands

Project: Impact Assessment ING Green Commercial Buildings Portfolio

Subject: Reduced CO_2-emission calculation

Date: April 2023

Status: **Final** Draft

As requested by ING, CFP Green Buildings has been asked to compare the greenhouse gas emissions[1] of a specific, energy-efficient group of Commercial real estate (in this document indicated as ING green commercial building portfolio[2]) to that of a comparable group of real estate with an average energy efficiency (indicated as "Reference" or "Reference Group"[3]). The objective of this analysis is to demonstrate that the selected buildings belong to the top most sustainable buildings in The Netherlands. This document outlines the results of this analysis.

The Eligible Green Building Portfolio

A total of 12,091 assets have been selected as eligible for the ING green commercial building portfolio. Assets In the ING green commercial building portfolio either have a registered energy label A or belong to the top 15% of the national or regional building stock expressed as operational Primary Energy Demand, as required by the EU taxonomy. A relatively small portion of residential buildings were included in the portfolio based on the top 15% criteria[4]. For these assets, the building year was used as a criterion for the top 15% due to the fact that over time, the Dutch Building Regulations require higher energy efficiency and improved sustainability for new buildings. 12.36% of the total Dutch housing stock is built between 2006 and 2020.[5] Therefore, the selected year of construction to determine the top 15% is 2006.

Methodology

Within this study, the CO_2-emissions of 12,091 objects selected by ING, were determined using the calculated real energy consumption of these objects. This selection is based on the eligibility criteria under the Green Bond Framework.

The energy usage is based on the algorithms and benchmarks from the expert system of CFP Green Buildings. This is the largest building database in The Netherlands with actual data on energy consumption and building characteristics. These algorithms and benchmarks are the same as those used in the online tool www.ingrefduurzaam.nl. In this study, the calculated real energy consumption of Dutch real estate (the Reference) was determined using this methodology. The CO_2-emissions were calculated with the Dutch market standard conversion factors, derived

[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 Asset Portfolio in this document, we refer to buildings that are owned by professional real estate investors including residential objects that are all intended to be rented out (commercially).
[3] The Reference Group is an anonymized portfolio from several clients from CFP Green Buildings, which contains about 140.000 comparable buildings.

[4] A total of 230 (1.8% of total commercial portfolio) residential buildings with a building year after 2006 were added to the eligible portfolio
[5] All residential buildings built since 2006 either have a registered energy label A or would have gotten a provisional energy label A. Provisional energy labels were calculated based on building characteristics.

from the Green Deal CO_2-Emissionfactors.The applied factors are illustrated in table 1[6].

Applied GHG emission factors[7]		
Natural gas	1.884	kg CO_2e /m^3
Electricity	0.337	kg CO_2e /kWh

Table 1: Dutch CO_2-emission factors

Group Composition

The group composition of the 12,091 objects are shown in table 2. Retail buildings have the largest footprint with 34% of total square meters. Residential buildings account for 21% of the portfolio. About 53% of the portfolio are new buildings[8], 47% is refurbished to obtain an energy label A.

	#	m^2	Refurbished	New
Industry	418	413,954	336	82
Office	726	826,453	552	174
Retail	2,621	1,150,582	1,910	711
Residential	8,083	711,172	2,761	5,322
Other	243	287,664	138	105
Total	12,091	3,389,825	5,697	6,394

Table 2: Group composition ING Green Buildings

Energy consumption

Table 2 shows the calculated real energy consumption of the ING green commercial building portfolio. The calculated real energy consumption for electricity is around 307.8 million kWh each year and approximately 23.5 million m^3 for natural gas each year.

Electricity (kWh)	Natural gas(m^3)
307,868,390	23,475,156

Table 3: Energy consumption ING green commercial building portfolio

CO_2-emission

Table 4 shows the total CO_2-emissions of the ING Green Commercial Portfolio and the reference group based on calculated real energy consumption. The total CO_2-emission of the ING green commercial building portfolio is 162,642 tonnes of CO_2 per year. The Reference CO_2-emission is 205,847 tonnes of CO_2 per year. This is a reduced amount of 43,205 tonnes of CO_2 per year.

Emission ING Green portfolio (tonnes CO_2)	Emission reference (tonnes CO_2)	Emission reduction (tonnes CO_2)
162,642	205,847	43,205

Table 4: CO_2-emission ING green commercial building portfolio compared to Reference

Table 5 shows an overview of the calculated CO_2-emissions reduction for the refurbished buildings and new buildings, compared to reference groups.

Approximately 47% (in square meters) of the portfolio consists of refurbished buildings. The CO_2-emissions of the ING green commercial building portfolio for refurbished buildings is 110,672 tonnes of CO_2 per year. The Reference CO_2-emission is 140,763 tonnes of CO_2 per year. For refurbished buildings, this is a reduced amount of 30,091 tonnes of CO_2 per year.

Approximately 53% of the portfolio consists of non-refurbished buildings or new buildings. The total CO_2-emission of the ING green commercial building portfolio for new buildings is 51,970 tonnes CO_2 per year. The Reference CO_2-emission is 65,084 tonnes of CO_2 per year. For new buildings, this is a reduced amount of 13,114 tonnes of CO_2 per year.

[6] Source: https://www.co2emissiefactoren.nl using WTW emissions for natural gas in kg/CO_2 per m^3.
[7] Source: https://www.co2emissiefactoren.nl using WTW emissions for electricity (unknown) in kg/CO_2 in kWh.

[8] A building is categorised as new when the construction year of the building is 2006 or later.

	#	m^2	Emission ING green portfolio (tonnes CO_2)	Emission reference (tonnes CO_2)	Emission reduction (tonnes CO_2)
Refurbished buildings	5,697	1,251,967	110,672	140,763	30,091
New Buildings	6,394	2,137,858	51,970	65,084	13,114
Total	12,091	3,389,825	162,642	205,847	43,205

Table 5: CO2-emission ING green commercial building portfolio compared to reference group

Conclusion

The following conclusions are drawn from this study:

- Based on the calculated real energy consumption, the ING green commercial building portfolio has a CO_2-emission that is 43,205 tonnes per year lower than the reference, which is a difference of 21%.
- Based on the registered A energy labels and the top 15%, buildings in the ING green commercial building portfolio belong to the top most energy-efficient buildings of the Dutch real estate market.

ING-DIBA AG

IMPACT REPORTING

RESIDENTIAL BUILDINGS IN GERMANY

12.04.2023

Claudio Tschätsch

Lavinia Namur

GREEN BOND IMPACT REPORT ING-DIBA AG

German residential real estate portfolio - Harmonized Framework

Low Carbon Buildings	Date of Issuance	Type	Signed Amount[a]	Share of Total Portfolio Financing[b]	Eligibility for green bonds[c]	Average portfolio lifetime[d]	Annual final energy savings[e]	Annual CO2 emissions avoidance[f]
Unit	*[dd.mm.yyyy]*	*[-]*	*[EUR]*	*[%]*	*[%]*	*[years]*	*[MWh/year]*	*[tCO2/year]*
ING-DiBa AG Green Bond	*31.12.2022*	*Low Carbon Building*	*4.061.560.984*	*100,0*	*100*	*9,3*	*210.365*	*63.198*
Einfamilienhaus (freistehend)	31.12.2022	Low Carbon Building	2.156.624.612	53,1	100	10,4	127.561	36.652
Zweifamilienhaus			73.089.601	1,8	100	7,4	5.083	1.411
Reihenhaus			336.096.309	8,3	100	10,9	18.479	5.601
Eigentumswohnung			983.658.704	24,2	100	7,0	33.037	11.700
Doppelhaushälfte			512.091.758	12,6	100	7,5	26.205	7.834

[a] Legally committed signed amount by the issuer for the porfolio or portfolio components eligible for green bond financing.

[b] Portion of the total portfolio cost that is financed by the issuer.

[c] Portion of the total portfolio cost that is eligible for Green Bond.

[d] average remaining term of Green Bond loan within the total portfolio.

[e] Final energy savings calculated using the difference between the top 15% and the national building stock benchmarks

[f] Greenhouse gas emissions avoidance determined by multiplying the final energy savings with the carbon emissions intensity

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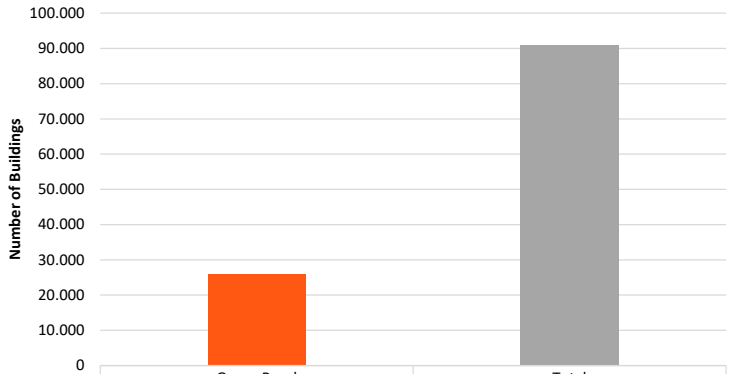
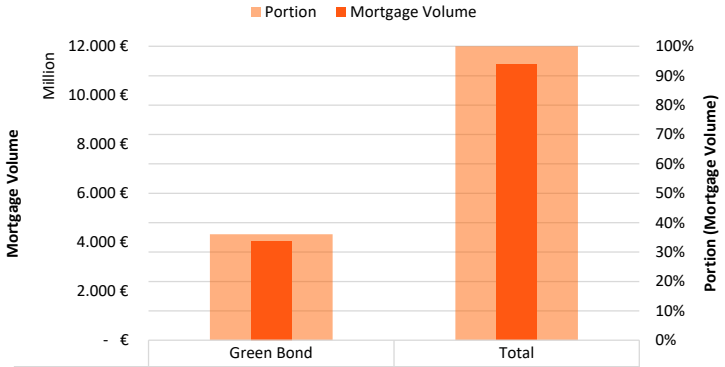
GREEN BOND IMPACT REPORT ING-DIBA AG

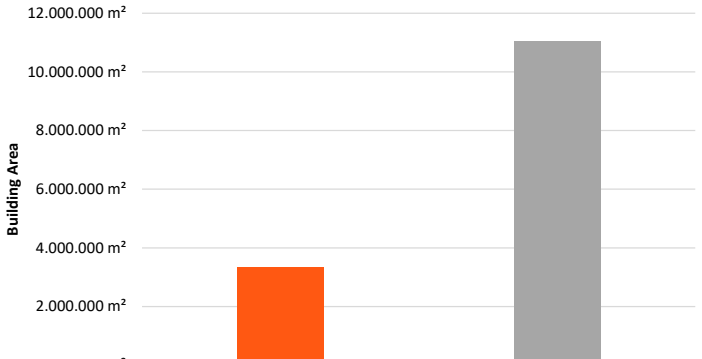
German residential real estate portfolio - Impact Reporting



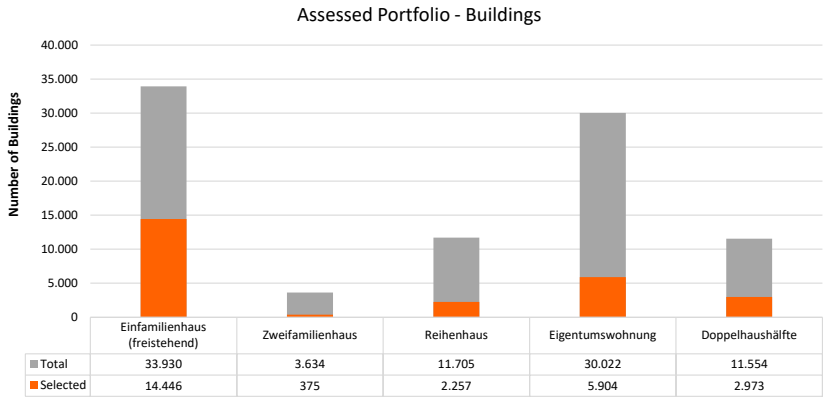
	Green Bond	Total
Amount	25.955	90.851



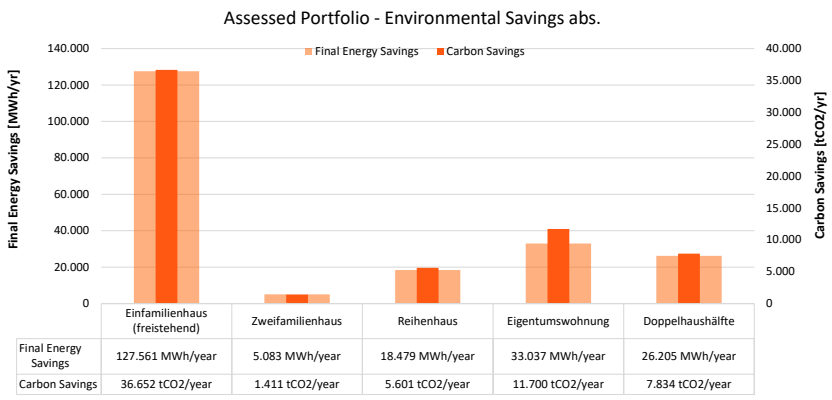
	Green Bond	Total
Portion	36%	100%
Mortgage Volume	4.061.560.984 €	11.262.557.021 €



	Green Bond	Total
Building Area	3.332.990 m²	11.029.823 m²



	Einfamilienhaus (freistehend)	Zweifamilienhaus	Reihenhaus	Eigentumswohnung	Doppelhaushälfte
Total	33.930	3.634	11.705	30.022	11.554
Selected	14.446	375	2.257	5.904	2.973



	Einfamilienhaus (freistehend)	Zweifamilienhaus	Reihenhaus	Eigentumswohnung	Doppelhaushälfte
Final Energy Savings	127.561 MWh/year	5.083 MWh/year	18.479 MWh/year	33.037 MWh/year	26.205 MWh/year
Carbon Savings	36.652 tCO2/year	1.411 tCO2/year	5.601 tCO2/year	11.700 tCO2/year	7.834 tCO2/year

German Green Bond Portfolio:

- Buildings: 25 955
- Exposure: 4 061 560 984 EUR (36%)
- Energy savings: 210 365 MWh/year
- Carbon emissions savings: 63 198 tCO_2/year

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SUCCESSFUL BUILDINGS

LIVEABLE CITIES

HIGH-YIELD PORTFOLIOS

POWERFUL INFRASTRUCTURE

FUTURE-ORIENTED CONSULTING

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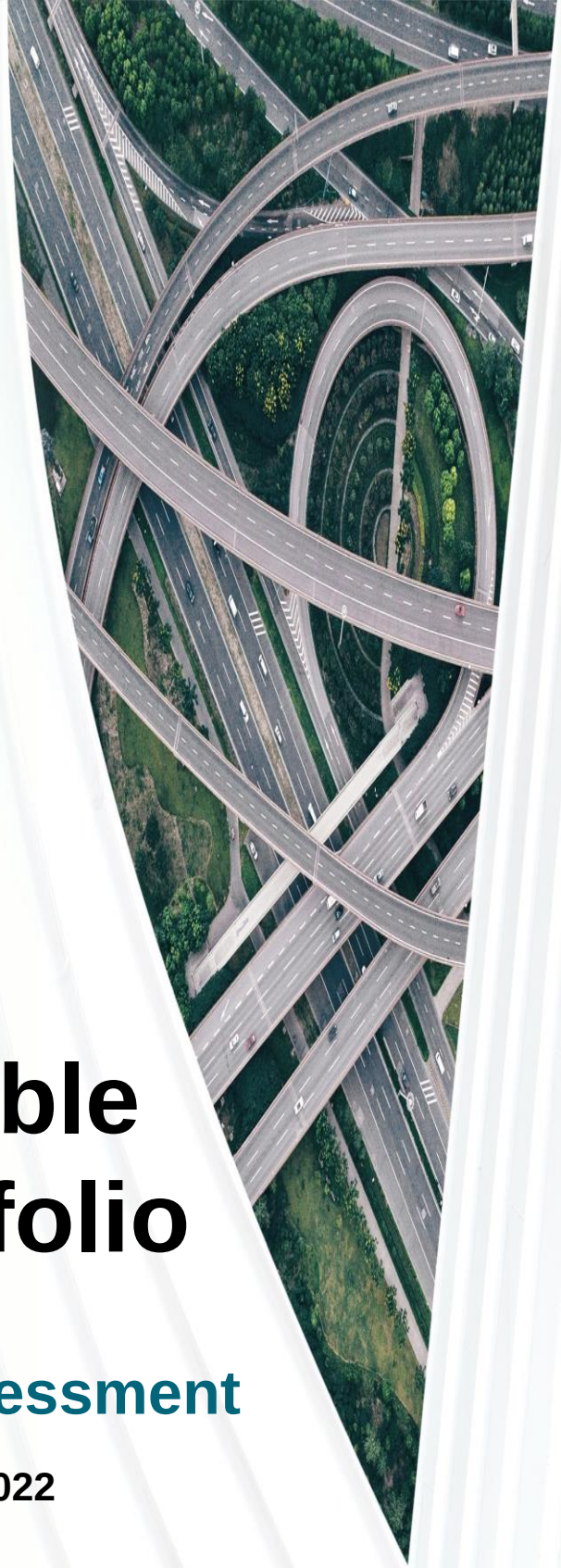
Guidehouse
Outwit *Complexity*



ING Renewable Energy Portfolio

Climate Impact Assessment

Portfolio as of December 31, 2022

ING

April 11, 2023

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ING RENEWABLE ENERGY PORTFOLIO

CLIMATE IMPACTS – PORTFOLIO AS OF 31 DECEMBER 2022

By the Numbers

Total ING portfolio (M€)[1]
5,569

Number of projects[1]
215

Annual avoided emissions (megatons CO_2eq)[2]
4.7

Average avoided emissions per Euro invested ($kgCO_2eq/€$)[2]
1.1

Avoided emissions[2] are equal to…

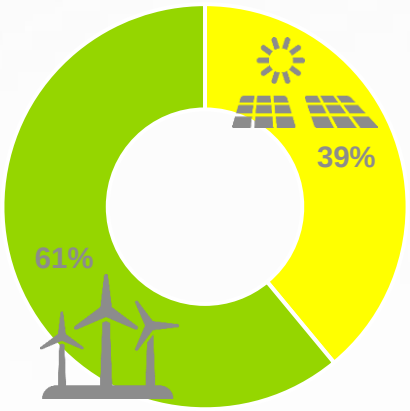
Passenger flights London to New York[3]
3.3 million

Reduction in global beef consumption[4]
48 kton

Key Findings

» ING is financing **5,831 MW** of renewable power projects[1]
» The annual avoided emissions for the operational portfolio was **4.7** megatons CO_2eq, or an average **1.1** $kgCO_2eq$ per euro invested[2]

Avoided Emissions by Technology[2]

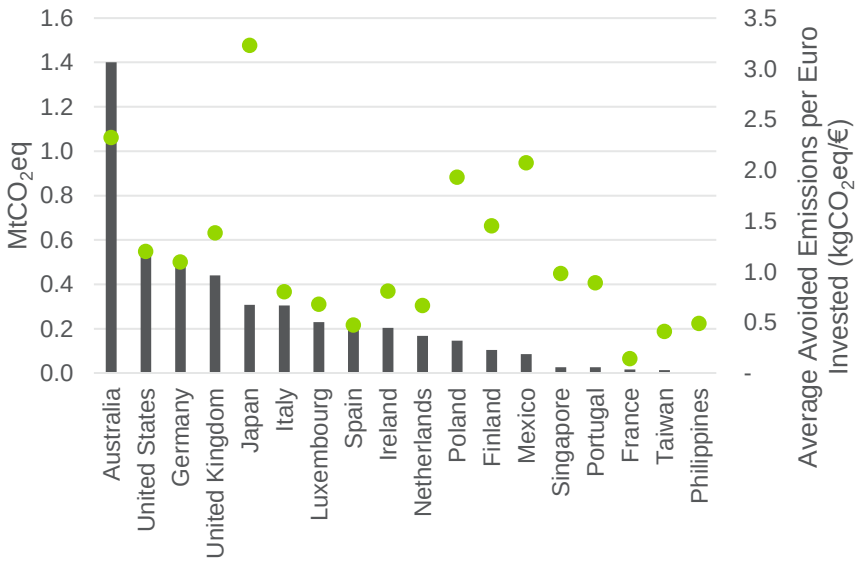


Total avoided emissions (kton CO_2eq) *(number of operational projects in parentheses)*

Wind	2,599 (95)
Solar	2,142 (73)

There are an additional **14 wind** projects and **33 solar** projects under construction.

Avoided Emissions in megatons CO_2eq (Bars) and Average Avoided Emissions per Euro Invested (Dots) by Project Country[2]



Source: ING Data and Guidehouse Analysis

[1] Includes projects that are operational and those under construction.
[2] All calculations related to avoided emissions are for operational projects only. Projects under construction are excluded.
[3] Individual one-way passenger flights from London to New York.
[4] The reduction in global beef consumption is calculated using an updated source from last year.

Guidehouse Outwit Complexity

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ING RENEWABLE ENERGY PORTFOLIO
CLIMATE IMPACTS - METHODOLOGY

Introduction

ING Bank contributes to sustainability by financing projects that accelerate its clients' transition to a low-carbon economy. By financing projects that reduce the need for carbon intensive technologies on the electricity grid, ING can contribute to a low-carbon economy and help its clients' contribution as well. Such renewable energy projects diversify the grid and reduce the need for electricity generated by fossil fuel technologies (such as natural gas, coal or oil).

Guidehouse was appointed to calculate the positive climate impacts of ING's renewable energy portfolio. The positive climate impacts are expressed by the avoided greenhouse gas (GHG) emissions from solar and wind projects financed through ING.

Methodology

The method used to calculate the avoided GHG emissions for ING's portfolio is based on PCAF's *Global GHG Accounting and Reporting Standard for the Financial Industry*[1] and the *IFI Approach to GHG Accounting for Renewable Energy Projects*.[2]

Guidehouse measured the climate impacts from ING's renewable energy portfolio by calculating the avoided GHG emissions from loans and investments in projects financed through ING. The avoided GHG emissions were calculated by:

- Taking the estimated or actual electricity production of the project, measured in MWh, multiplied by a country specific emission factor.
- The country specific emission factor is the operating margin (OM). The OM represents the marginal generating capacity in the existing dispatch hierarchy that will most likely be displaced by the project. The OM is used in the methodology because the assessment is backward looking in the sense that it measures the avoided emissions over the previous financial year.
- In cases where the estimated electricity production was not provided by ING, production is calculated by multiplying (1) the annual load hours of wind or solar by (2) the project capacity (MW).
- In most cases, ING does not finance the entire project, therefore the avoided emissions are adjusted by the share (%) that is financed by ING. This attribution share is calculated by taking (1) the amount currently outstanding on the deal and dividing by (2) the original deal size amount[3].
- Projects under construction are excluded from annual avoided emissions calculations
- The calculations are valid based on the portfolio as of December 31st, 2022.

[1] https://carbonaccountingfinancials.com/files/downloads/PCAF-Global-GHG-Standard.pdf
[2] IFITWG_Methodological_approach_to_common_dataset.pdf (unfccc.int)
[3] Equity was not available for projects; attribution was calculated using debt values only

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