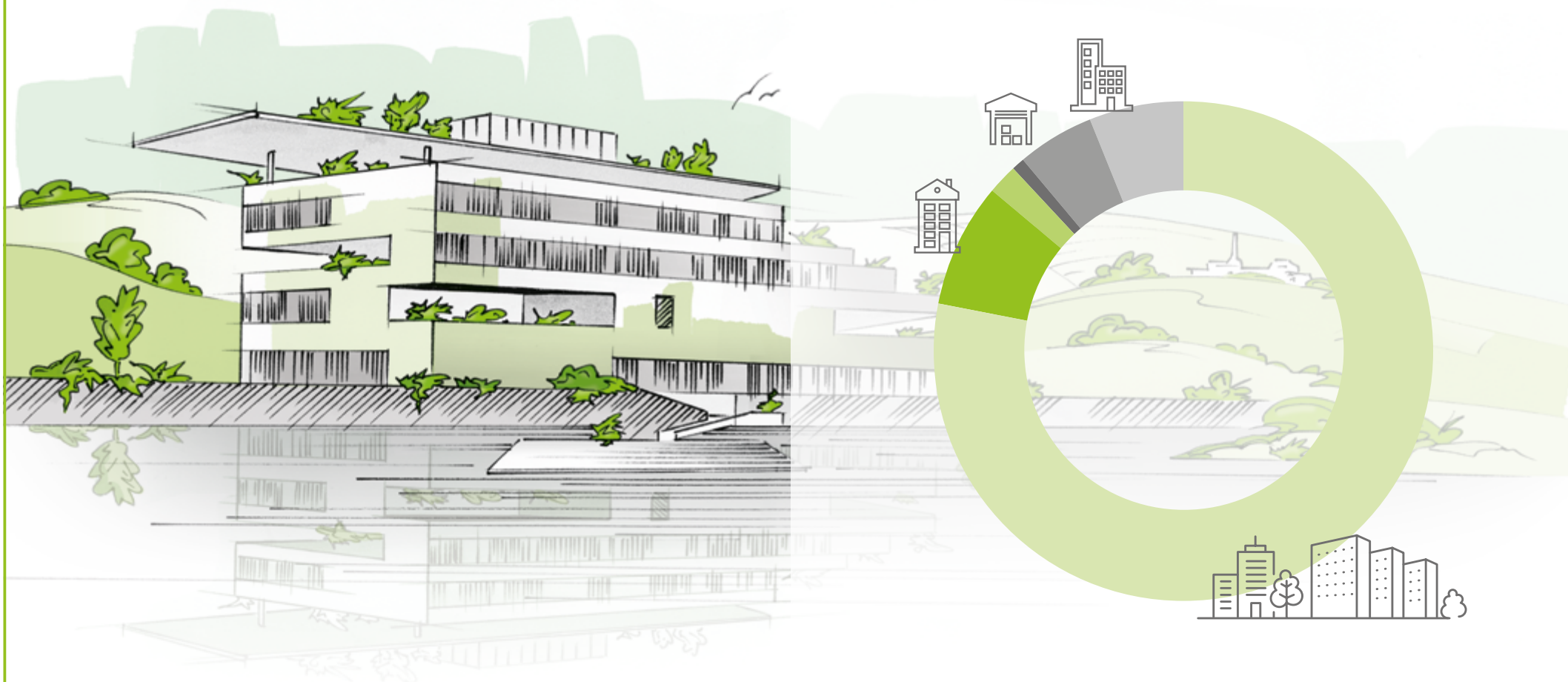


# pbb Green Bond Impact Report 2022

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# Foreword

2022 was a year of climate records – in the negative sense. This is the disillusioning conclusion of the Intergovernmental Panel on Climate Change (IPCC) in its sixth assessment report that we at pbb studied carefully. The report identifies numerous risks for Europe from the increase in global warming. As one of the four key factors that can help mitigate these risks, the real estate sector plays a central role and has to embrace the demands of the climate crisis to make appropriate adjustments. Especially adapting buildings to become more energy-efficient makes a significant contribution to reducing CO<sub>2</sub> emissions. As a leading commercial real estate lender, pbb can therefore **make a real difference by directing its lending towards greener, more energy efficient buildings.**

This is not only a matter of financing more sustainable buildings and their construction. It is also about **financing the transformation** of existing buildings to become more energy sufficient and sustainable.

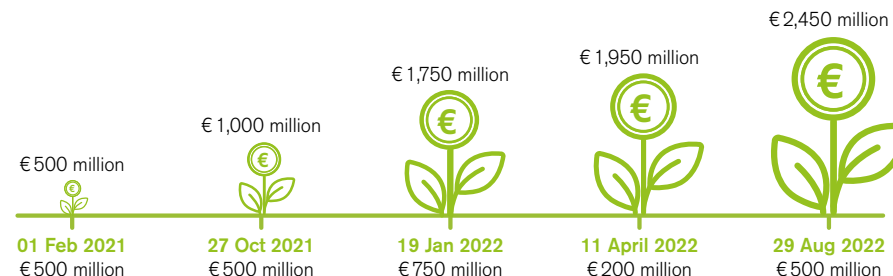
At pbb, we see the transformation of the real estate industry both as an obligation towards society but also as a significant business opportunity. We actively help our clients to navigate the transformation towards green and more sustainable buildings by providing investment financing to make buildings more energy efficient and sustainable. For example, the use of sustainable construction components, improving the insulation of the building shell or transitioning to sustainable energy sources and ultimately reducing the fossil CO<sub>2</sub> emissions of these properties.

In order to achieve this the comprehensive analysis of buildings' sustainability has become an **integral part of our credit process**, both for our new and existing real estate loans. For this, we use our dedicated ESG risk analysis tools and

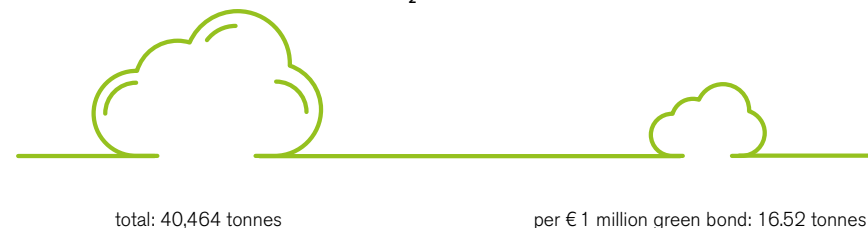
## Green Bond Pool



## Green Bond Benchmarks issued



## CO<sub>2</sub> reduction



all data as of 30 November 2022

benchmark each buildings carbon footprint against their climate neutral path and assess their viability with or without future investment. As a result, also **avoid lending against real estate that may become unviable or strand over time**. With this approach we actively manage and mitigate pbb's own credit risk exposure which is resulting from the fundamental transformation in the real estate industry.

But we are going one step further: pbb has embarked to align its commercial real estate loan portfolios with the **1.5-degree Celsius goal** of the Paris Climate Agreement. A tangible short-term goal on that journey is pbb's stated commitment to achieve a **30% share of green, eligible properties** in its commercial real estate portfolio **by 2024/25**. Continuous analysis of the existing portfolio is also essential in order to achieve holistic transparency with regard to the sustainability



criteria of our portfolio. In 2022, we carried out a **comprehensive data collection** and analysis, which enables us to make our existing portfolio even more transparent. We will continue to systematically collect data and further improve and expand transparency in 2023 even further. This is also necessary to reach pbb's long-term climate target.

All this shows: Transformational finance is the heart of our comprehensive ESG strategy, which in turn has become a central part of our business strategy. Through our comprehensive ESG programme, which is increasingly being operationalised across all areas, we are aligning our business with all three areas of environment, social issues and responsible corporate governance. This affects internal processes, the product range, business and individual performance metrics and, not least, pbb's corporate culture.

To sum it up: We see ourselves as green transformers. We support the reduction of CO<sub>2</sub> emissions and promote the Paris climate goals by providing financing and incentivising our clients to **transform real estate properties sustainably**. This represents both a significant business opportunity and risk management tool. Ultimately we aim to sustainably further pbb's attractiveness as an investment.

Yours sincerely,

Marcus Schulte  
Member of the Management Board

# Sustainable Finance – from green loans to green bonds

As we align our business activities with ecological and social criteria as well as good corporate governance standards, our focus lies on Sustainable Finance, i.e. granting green loans and issuing green bonds. There is as of yet no established standard for green loans in the market. Therefore, pbb has developed a Green Loan Framework geared towards two elements: a proprietary scoring model that builds on the EU Taxonomy, or fulfilment of the requirements set forth in the EU Taxonomy. The pbb scoring model allows for the assessment of real estate using specific criteria derived from the taxonomy; from a defined score upwards, real estate qualifies for green lending.

## Scoring model or EU Taxonomy for green loans

pbb's scoring model takes three dimensions into account: the energy efficiency of buildings, building certifications, and further sustainability factors. The latter include factors such as soil surface sealing or the availability of, and distance to, the public transportation network – more than 80% of the properties in the Green Bond Portfolio have a distance of less than 500 meters – as well as the use of recycled materials for construction or the type of heating and use of green electricity.

With its Green Loan Framework, pbb deliberately includes more than just the energy efficiency of a building as prerequisite for a green loan. Low final energy consumption is thus a necessary criterion, but not the only factor.

## pbb applies ICMA Green Bond Principles to issue green bonds

The issuance of green bonds also requires a framework. The ICMA Green Bond Principles have become the standard here. pbb's Green Bond Framework follows the ICMA Green Bond Principles. A Green Bond Committee selects the properties and unanimously decides which loans to add to the reference portfolio.

## Integral funding instrument

Green bonds have evolved to become an integral part of pbb's funding. pbb's framework allows for the issuance of green bonds either as Pfandbriefe, i.e. German covered bonds, or as unsecured bonds, giving the option of senior preferred bonds and senior non-preferred bonds for the latter. As of 30 November 2022, pbb had issued green bonds exclusively in the form of senior preferred benchmarks. It also sees this as the focus of its green funding activities for the future.

An impact report for pbb's green bonds is published annually. The second party opinion of the framework and the review of the impact report is provided by CICERO Shades of Green, one of the leading players in this field.

## Green Bond Framework to be developed further

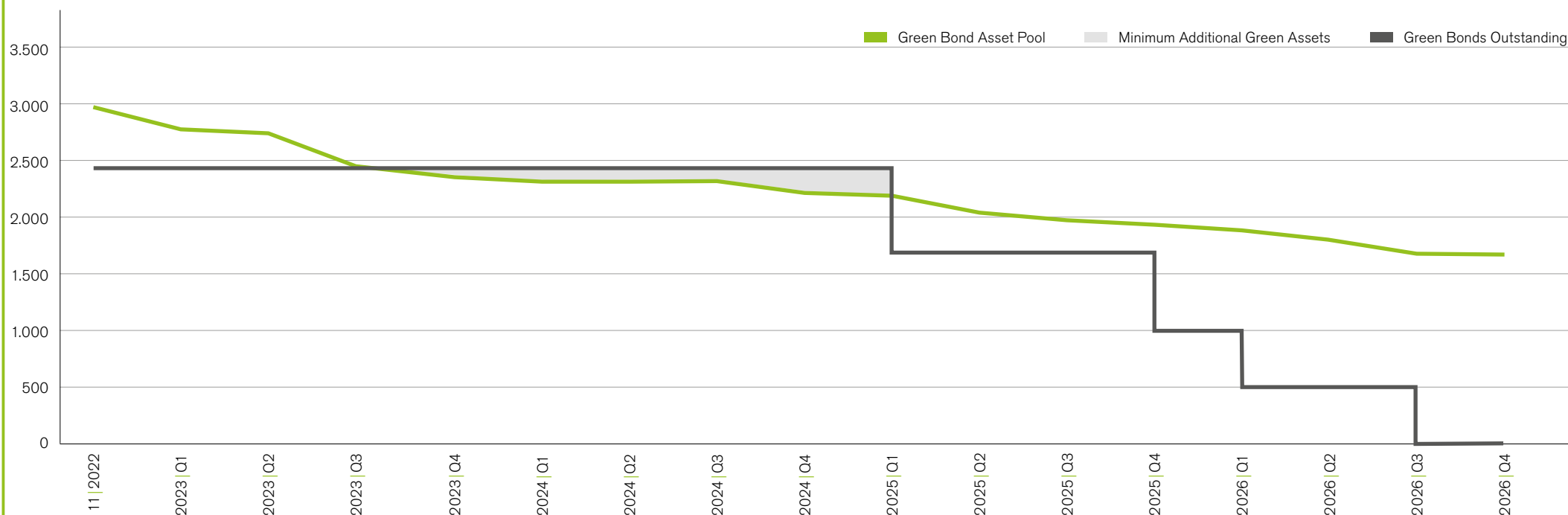
We will carefully monitor to what extent the bond market will gravitate towards the EU taxonomy. Therefore, pbb's green bond framework will regularly be updated in line with market developments.

# Green Bond asset pool as per 30 November 2022

For properties to be included in the green bond asset pool, their final energy consumption must not exceed pre-defined thresholds per property type. As in 2021, building certificates have not been used as stand-alone inclusion criterion. On top of these hard criteria, heating technology (no coal- or oil-powered systems), soil sealing (5% greenfield) and tenants are taken into consideration. The pool consisted of 81 properties with **€3.0 billion** in loans. Energy performance certificates were analysed for efficiency classes for which the database is still relatively small since not all certificates provide an efficiency class.

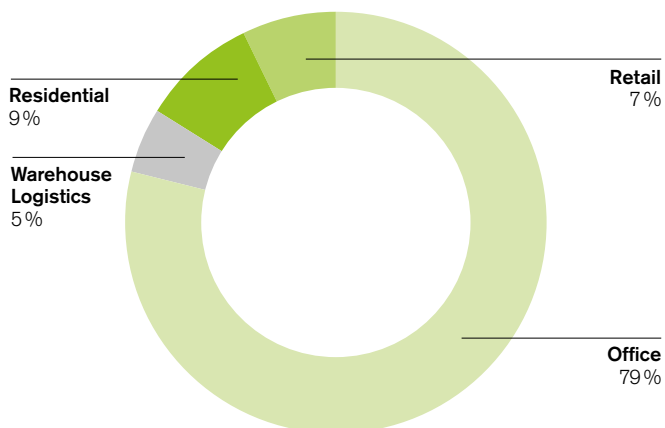
Commercial real estate loans typically run for around five years, but this term may decrease due to early loan repayments. To ensure coverage going forward, new loans will have to be added to the green bond asset pool. In line with its broader ESG strategy, pbb is confident that it will originate sufficient eligible loans in the future. As of November 2022, four Euro-denominated senior preferred benchmarks in the total amount of **€2.45 billion** were outstanding. According to the framework, also investments in other issuers' green bonds can serve to offset a short-term shortfall.

## Development of Green Bond Assets and Green Bonds outstanding (€mn)



# Reference Portfolio: approx. € ~3.0 bn as of 11/2022

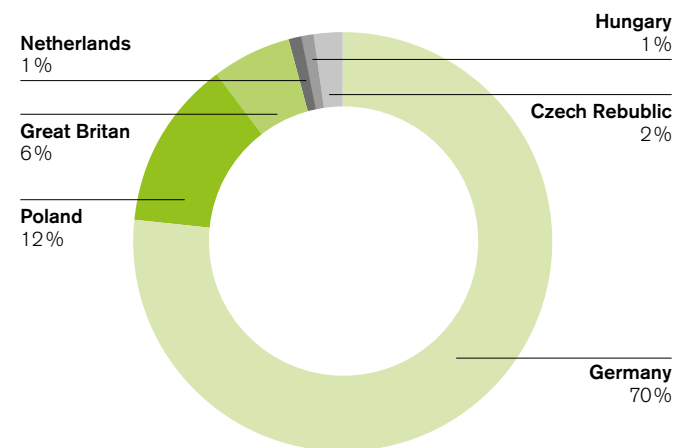
## Breakdown by property type



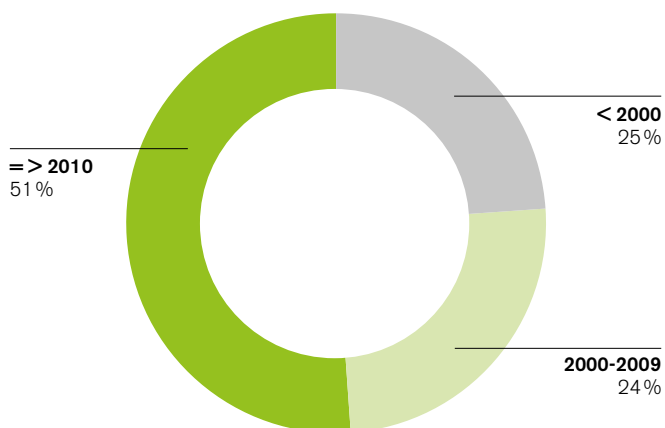
There are no production facilities included and the properties / borrowers are not involved in the production of weapons, hazardous waste, fossil fuels or chemicals **nor have a negative impact** on biodiversity.

All properties are located in **the European Union/ Great Britain** with Germany accounting for the by far highest portion.

## Breakdown by regions



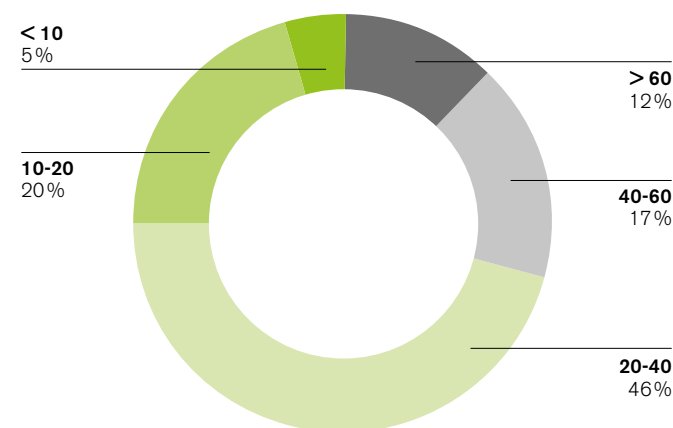
## Breakdown by year of construction



Properties **built after 2010** should roughly represent the top 15 % of a specific market.

The overwhelming majority (72 %) of the green bond asset pool emits **less than 40 kg CO<sub>2</sub>/m<sup>2</sup>**.  
Almost 25% of the pool emits even no more than 20 kg CO<sub>2</sub>/m<sup>2</sup>.

## Breakdown by total CO<sub>2</sub> emissions in kg/m<sup>2</sup> p.a.





# Impact calculation – methodology and results

The CO<sub>2</sub> reduction emanating from properties financed by pbb is determined by comparing these properties' emissions against a benchmark representing the emissions of standard properties in the market. In the interests of transparency and traceability, methodology and results are explained below.

## Analysis of financed properties

The data on CO<sub>2</sub> emissions is taken from the energy performance certificates. Where energy performance certificates do not contain information on CO<sub>2</sub> emissions, such emissions are calculated from primary or final energy using the formula outlined below. Calculations and reporting apply to one year. CO<sub>2</sub> emissions for electricity and heating are recorded separately. Absent respective data in the energy performance certificates, consumption will be split in a ratio that is typical for the property type in question. The sum of these emissions yields the CO<sub>2</sub> emissions from unsustainable resources of the building.

### CO<sub>2</sub> Emissions =

primary energy  $\times$  CO<sub>2</sub> emissions factor

$\times$  floor space as per energy performance certificate

$$\left( \text{kg CO}_2 = \frac{\text{kWh}}{\text{m}^2} \times \frac{\text{kg CO}_2}{\text{kWh}} \times \text{m}^2 \right)$$

### Primary Energy =

final energy  $\times$  primary energy factor

$$\left( \frac{\text{kWh}}{\text{m}^2} = \frac{\text{kWh}}{\text{m}^2} \times \text{factor} \right)$$

- 
- Primary energy factors in accordance with the DIN V 18599-1 norm.
  - CO<sub>2</sub> emission factors in accordance with the following norms (publicly available sources):
    - Electricity: European Environment Agency
    - Fossil fuel-based heating: German Environment Agency.
  - Data on primary energy factors or CO<sub>2</sub> emission factors provided by regional utilities (based on publicly available sources) are permissible.

In 2022, together with KPMG pbb developed a CO<sub>2</sub> calculation tool, which is used for all properties in the regular underwriting process to avoid the financing of “stranded assets”. The tool uses average carbon intensity figures for the respective country in case of long distance heating and benchmarks the property to the net zero target of the EU by 2050.

## Benchmark definition

Data pertaining to the average energy consumption of commercial and residential buildings in individual European countries, which is required to be able to compare the properties with the standard in the market, is taken from the Partnership [for Carbon Accounting Financials \(PCAF\)](#). PCAF data provide country- and property-specific reference values for all properties in pbb's green bond asset pool. These energy consumption values are converted into CO<sub>2</sub> values using country-specific factors reflecting a mix of electricity and heating. In comparison to last year's benchmark (ENTRANZE) the new baselines are more up to date and therefore lower. Consequently, the CO<sub>2</sub> impact figure also declines.

## Impact calculation

Finally, the green bond asset pool's CO<sub>2</sub> impact is calculated by comparing the property's emission values with the derived PCAF values. In this comparison, however, only pbb's financing share is taken into account. The CO<sub>2</sub> reductions of all properties are then added up to yield the total green bond asset pool's annual impact. As per 30 November 2022, this reduction stood at 40,464 tonnes of CO<sub>2</sub> per year. This means 16.52 tonnes of CO<sub>2</sub> were saved for every € 1 million issued bonds or 13.54 tonnes of CO<sub>2</sub> were saved per every €1 million financed, based on a total financed volume of €3.0 billion.



# List of properties

Property Type	Loan Amount in €	EPC Level / Certificate	Final Energy Consumption in kWh/m <sup>2</sup> p.a.	Heating System
Office	20,402,631	D	87	
Office	18,237,454	B	83	
Office	11,880,716	BREEAM Outstanding	44	
Office	8,879,796	LEED Gold	82	
Residential	68,870,030	C	96	
Residential	13,414,152	n/a	94	
Residential	41,516,801	n/a	63	
Residential	27,230,729	n/a	99	
Residential	9,389,907	n/a	64	
Office	7,697,108	B	121	
Office	45,028,081	B	115	
Office	25,950,250	A	140	
Office	12,205,414	B	116	
Office	4,931,647	C	155	
Retail	100,133,140	n/a	113	
Logistics	52,297,500	n/a	61	
Office	19,623,913	n/a	139	
Residential Portfolio	98,565,895	n/a	30-99	
Residential	2,615,669	n/a	65	
Logistics	26,171,127	DGNB Gold	60	

Property Type	Loan Amount in €	EPC Level / Certificate	Final Energy Consumption in kWh/m <sup>2</sup> p.a.	Heating System
Office	6,287,066	n/a	62	
Office	34,580,000	C	143	
Office	17,000,000	n/a	143	
Office	33,162,500	n/a	105	
Office	20,259,935	n/a	93	
Residential	5,040,735	n/a	59	
Office	34,350,000	LEED Gold	70	
Logistics	16,808,170	DGNB Gold	58	
Logistics	20,573,367	DGNB Gold	59	
Office	15,800,000	n/a	81	
Office	9,431,919	n/a	98	
Office	41,750,000	n/a	64	
Office	14,665,353	n/a	82	
Office	12,851,180	n/a	108	
Office	5,140,472	DGNB Bronze	66	
Office	15,421,416	n/a	127	
Office	8,896,971	n/a	123	
Office	19,573,336	n/a	116	
Office	9,836,096	n/a	127	
Office	49,500,000	n/a	131	

As per 30 November 2022, the green bond asset pool comprised **81 properties**, 80 individual properties as well as one residential portfolio counted as one property. The loan portfolio accounts for €3.0 billion in financings.

The **largest individual loan** of €200 million finances an office object in Frankfurt. It was constructed in 2019 and uses near and long distance heating. With a final energy consumption of 107 kWh/m<sup>2</sup> p.a. the building is far below the threshold.

The **aggregate final energy consumption** for almost half of the assets lies in the lower and middle clusters of below 50 and between 50 and 100 kWh/m<sup>2</sup>/year. Modern logistic properties naturally perform well in their final energy consumption given the nature of their usage. Office properties showed a broad span, and their energy consumption (as might be expected) usually rises with the age of the property.

**Heating systems** mainly rely on near and long distance heating, with a share of around 68% except for gas, which makes up 24% of the pool, all other fossil fuels are excluded by definition. Electricity as a heating source is mainly used in office properties.





Unfortunately, an **EPC level** for commercial properties is not compulsory in every European jurisdiction.






- Liquid Gas
- Natural Gas
- Electricity
- Self generated heating
- Near and long distance heating

# List of properties

Property Type	Loan Amount in €	EPC Level / Certificate	Final Energy Consumption in kWh/m² p.a.	Heating System
Office	59,000,000	n/a	62	
Office	14,802,018	n/a	135	
Office	6,272,042	n/a	128	
Office	92,535,041	n/a	115	
Office	19,797,391	n/a	98	
Residential	4,853,729	n/a	63	
Office	33,400,000	n/a	50	
Office	92,000,000	n/a	89	
Office	150,000,000	LEED Gold	156	
Office	92,500,000	n/a	135	
Office	23,390,125	n/a	139	
Office	25,243,959	DGNB Gold	101	
Office	50,356,519	LEED Gold	66	
Office	64,750,000	DGNB Gold	95	
Office	11,100,000	n/a	120	
Office	63,464,045	LEED Platinum	123	
Office	200,000,000	LEED Platinum	107	
Office	45,000,000	n/a	131	
Office	45,505,348	DGNB Gold	74	

Property Type	Loan Amount in €	EPC Level / Certificate	Final Energy Consumption in kWh/m² p.a.	Heating System
Retail	57,414,790	n/a	109	
Office	12,609,041	n/a	112	
Office	13,916,077	n/a	93	
Office	150,000,000	BREEAM Excellent	158	
Office	13,643,106	n/a	112	
Office	65,200,000	B	56	
Office	39,330,461	BREEAM Excellent	49	
Office	49,914,439	B	148	
Office	75,154,935	B	105	
Office	21,011,765	n/a	105	
Office	14,598,026	n/a	115	
Office	19,741,372	n/a	130	
Office	13,474,802	BREEAM Excellent	83	
Office	10,645,421	BREEAM Excellent	36	
Office	9,630,972	BREEAM Very Good	20	
Office	39,990,000	BREEAM Excellent	61	
Office	60,000,000	LEED Platinum	42	
Office	69,191,667	BREEAM Excellent	78	

Property Type	Loan Amount in €	EPC Level / Certificate	Final Energy Consumption in kWh/m² p.a.	Heating System
Retail	50,000,000	BREEAM Very Good	87	
Office	6,091,176	n/a	53	
Logistics	32,128,609	BREEAM Good	50	
Office	64,476,107	BREEAM Excellent	69	

-  Liquid Gas
-  Natural Gas
-  Electricity
-  Self generated heating
-  Near and long distance heating