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Green Bond - Quarterly Report

October 2024

Green Bond Senior Preferred Benchmarks

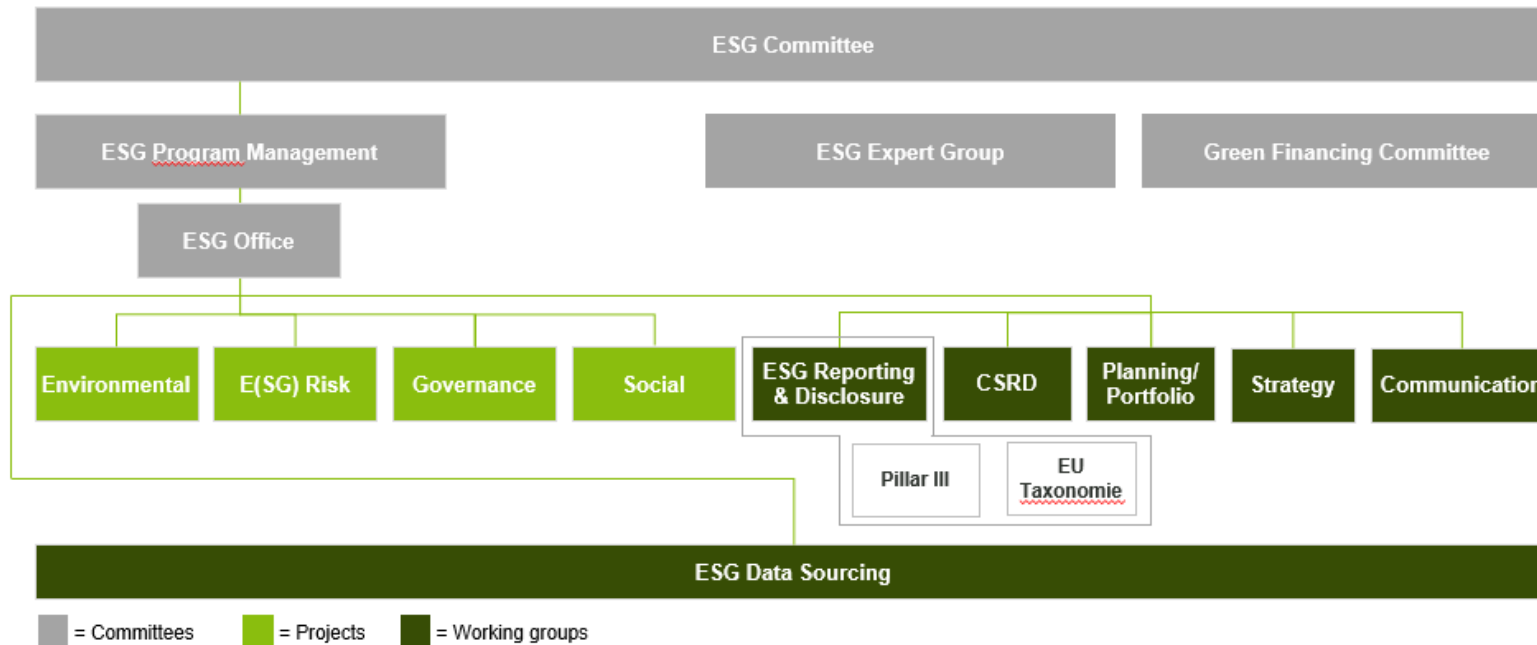
ISIN	DE000A3H2ZX9	DE000A3T0X22	DE000A3T0X97	DE000A30WFV1	DE000A30WF43	DE000A30WF84
Issue Rating	BBB- (S&P)					
Second Party Opinion	S&P Global					
Green Bond Framework	2020					
Coupon	0.10%	0.25%	0.25%	4.375%	7.625%	5.0%
Value Date	01.02.2021	27.10.2021	19.01.2022	29.08.2022	08.12.2022	06.02.2023
Maturity	02.02.2026	27.10.2025	17.01.2025	28.08.2026	08.12.2025	05.02.2027
Issue Size	€ 500 mn	€ 500 mn + € 200 mn tap	€ 750 mn	€ 500 mn	GBP 350 mn	€ 500 mn
Outstanding Amount	€ 500 mn	€ 597 mn	€ 458 mn	€ 500 mn	GBP 350 mn	€ 500 mn
Total outstanding amount	€ 3.0 bn					
Index Membership	Bloomberg MSCI Global Green Bond Index iBoxx Global Green, Social & Sustainable Bonds Index					



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ESG Program

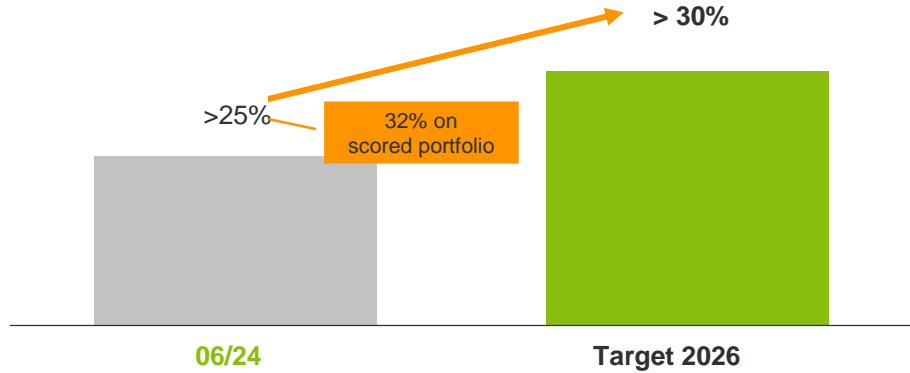


	2022	2023	06/2024
ISS ESG	C Prime	C Prime	C Prime
MSCI	AA	AAA	AAA
Moody's ESG Solutions	Score 44	Score 50	Score 50

- ESG at core of pbb's strategy:
 - pbb can help to reduce the real estate sector's significant CO₂ impact
 - Green finance bank and transformation partner
 - Current KPIs set initial roadmap for establishing green products, science-based decarbonization path for aligning pbb's CRE portfolio with Paris 1.5° C target by 2050
- ESG risk structurally integrated in risk management landscape and overall business strategy
 - Comprehensive monitoring and steering of physical and transitional risks in REF exposure – portfolio & individual loan basis
 - ESG risk assessment integral part of credit process
- Comprehensive ESG program in place
 - Management Board responsibility – ESG targets part of remuneration
 - Operationally, all ESG dimensions covered with clear responsibilities assigned, e.g. EU taxonomy alignment for REF business
- Progress reflected in above industry-average ESG rating

Green share of REF portfolio¹

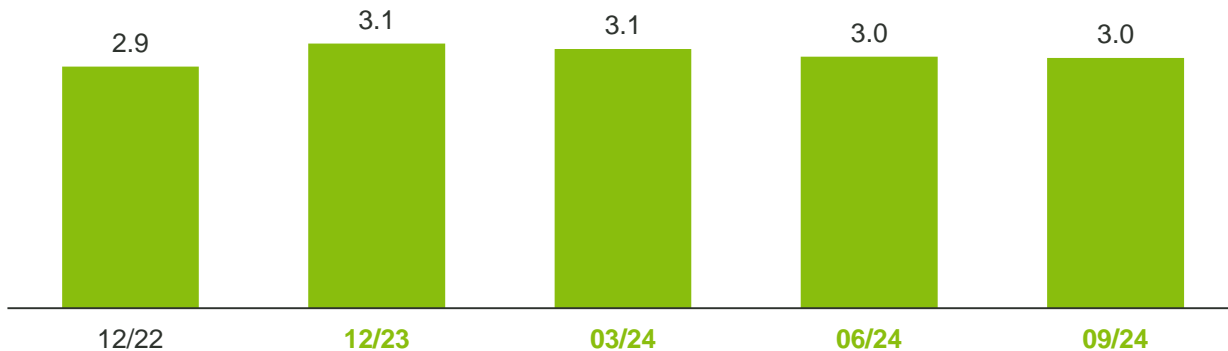
(commitments, green loan eligible assets, %)



- 78% of REF portfolio scored – scoring of remaining portfolio ongoing
- Green share of total REF portfolio currently at 23% resp. € 7.3 bn (30% based on scored portfolio of 78%) vs. 2026 target of >30%

Green Bonds

(nominal volume, € bn)

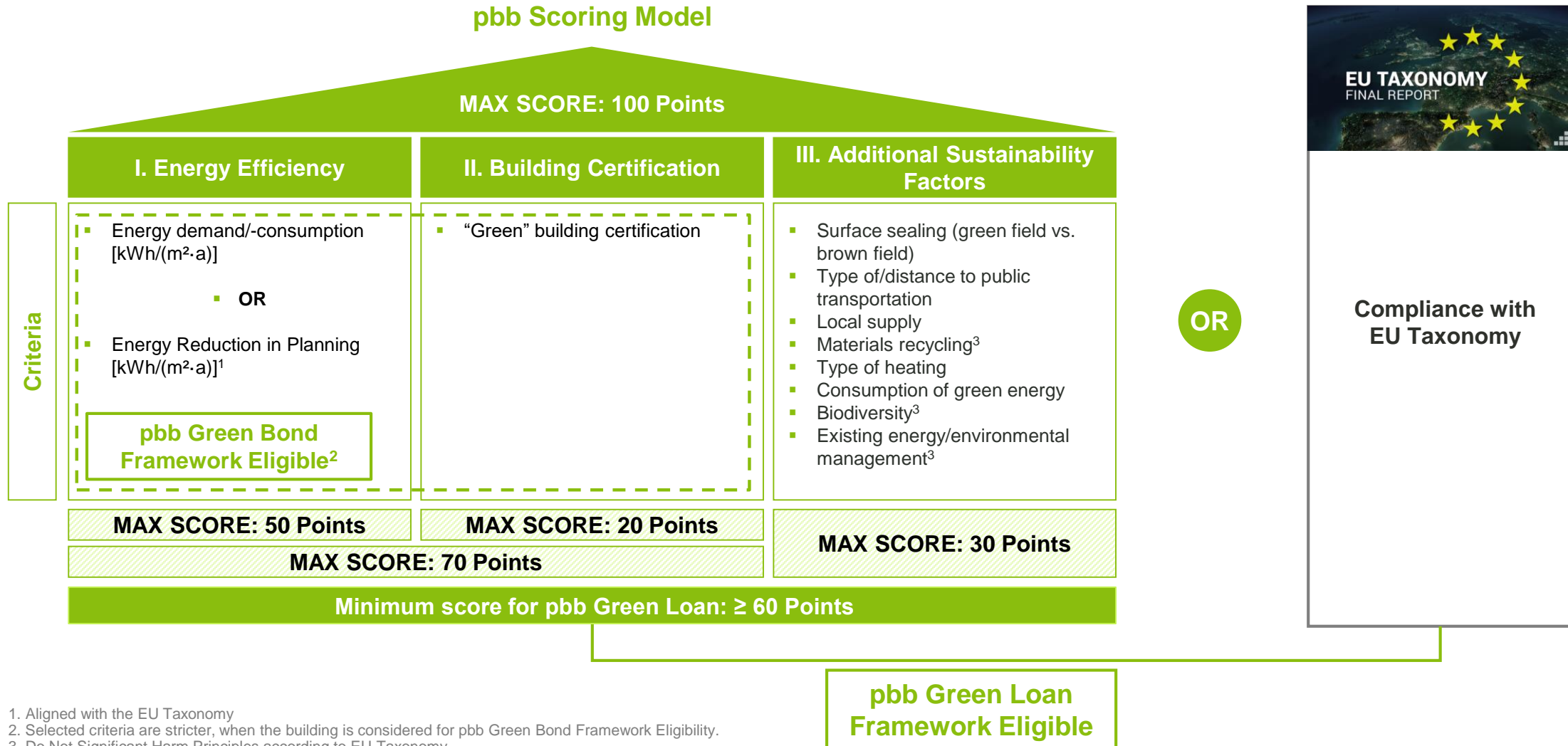


- pbb is a leading issuer of senior preferred green bonds in the European market
- Reduction of outstanding green bonds due to bond buy-back in Q2/23 as well as in Q1/24 and Q2/24
- Current headroom between green bond eligible loans and green bonds outstanding allows further green finance activities

1. Based on total REF portfolio; 32% based on scored REF portfolio of 80% as of 30 June 2024 / Green assets according to pbb's green loan framework (Green loan eligible)

Green Loan

pbb Green Loan Framework aligned with current regulatory and market developments – specific metrics defined for each criterion



1. Aligned with the EU Taxonomy
 2. Selected criteria are stricter, when the building is considered for pbb Green Bond Framework Eligibility.
 3. Do Not Significant Harm Principles according to EU Taxonomy

Green Bond – Second Party Opinion

Last Second Party Opinion & External Review by S&P Global (Shade of Green: Light Green)



- S&P Global provided the Second Party Opinion on pbb's Green Bond Framework and related policies. The most recent framework was published in March 2023
- S&P Global also provided the last annual independent review of pbb's [Green Bond Report](#) in February 2024.
- pbb publishes all reports [here](#).

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Deutsche Pfandbriefbank AG (pbb) External Review of Green Bond Impact Report 2023

February 15, 2024

This report was produced by Shades of Green using Shades of Green Methodology. On December 1, 2022, S&P Global acquired Shades of Green from CICERO.

Shades of Green has reviewed pbb's Green Bond Impact Report 2023 ("Report"). We review against pbb's Green Bond Framework criteria (dated March 2020, the "2020 Framework", under which all outstanding green bonds have been issued), and impact metrics for relevance and transparency.

We consider that the allocations considered in the Report align with the Framework and that the Report utilizes a relevant and sufficiently transparent impact metric. Moreover, we consider the Report aligns with the core principles and recommendations contained in ICMA's Handbook – Harmonized Framework for Impact Reporting (June 2023).¹

Project allocation
In respect of allocation, Shades of Green considers the Report aligned with the 2020 Framework; for a more detailed review, please see Appendix I.

pbb reports on its green bond asset pool as at November 30, 2023. This totals approximately EUR 4.75 billion in green loans, and its value exceeds the EUR 3.13 billion outstanding green bonds at this date. All outstanding green bonds are issued under the 2020 Framework, notwithstanding that pbb introduced an updated framework in May 2023 (the "2023 Framework"). According to the Report, all green loans in the green bond asset pool relate to properties that satisfy the 2020 Framework's energy performance criteria, and the Report sets out the energy performance of each such property to substantiate this. According to pbb, any green loans included in the green bond asset pool since May 2023 furthermore satisfy the 2023 Framework's eligibility criteria.

The 2020 Framework was assigned overall Light Green in our Second Party Opinion.² The 2020 Framework included only one project category, green buildings, where proceeds would finance or re-finance loans extended in respect of such buildings. This project category also received a Light Green shading, and all proceeds have necessarily been allocated to this category (see Figure 1).

¹ ICMA Handbook
² pbb - SPO (2020)

External Review of pbb's Green Bond Impact Report 2023 1

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Project allocation by Shade of Green

Light green 100%

Figure 1: Allocation of bonds by SPO Shade of Green. Shading is based on evaluation at time of issuance and does not reflect ex-post project verification.

Impact metrics
Impacts are reported on the green bond portfolio as at November 30, 2023, and pbb sets out estimated impact for a one year period.

The Report sets out estimated annual reduced/avoided GHG emissions in tons CO₂e - this is an example indicator given in the 2020 Framework and commonly used for green buildings. This is reported on a portfolio level, though pbb calculates impacts on a line-by-line basis. pbb has furthermore pro-rated the impacts: firstly by every EUR 1 million of issued green bonds, and secondly by every EUR 1 million financed.

pbb uses the same impact reporting methodology as in its previous Report, which is welcome. More specifically, it utilizes emission information contained in buildings' EPC (where available), PCAF data for benchmarking energy consumption,³ and the emissions factors from a tool it has developed with KPMG used in its underwriting process. If emissions data is missing from the EPC, emissions are calculated assuming what is typical for the given property type. Investors should note that, according to pbb, external benchmarks utilized have tightened, resulting in lower reduced/avoided emissions compared to its previous Report (both absolutely and when pro-rated).

In respect of impacts, we consider that the Report is sufficiently transparent. There is always uncertainty around emissions data and especially avoided emissions, and we welcome that pbb includes information on its methodology. More specific information on emission factors – or even publication of its line by line calculations – could improve the reporting. For a more detailed review, please see Appendix I.

Terms
S&P Global Ratings Shades of Green provides a review of pbb's annual reporting based on documentation provided by pbb and information gathered during teleconferences and e-mail correspondence with pbb. pbb is solely responsible for providing accurate information. All financial aspects of the sustainable finance reporting - including the financial performance of the bonds and the value of any investments in the bonds - are outside of our scope, as are general governance issues such as corruption and misuse of funds. Shades of Green does not validate nor certify the existence of investments and does not validate nor certify the climate effects of investments. Our objective has been to provide an assessment of the extent to which the bond has met the allocation and reporting criteria established in the Frameworks. The review is intended to inform pbb, investors and other interested stakeholders in pbb's green bonds and has been made based on the information provided to us. Shades of Green

³ PCAF

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Carbon Impact Figures

Main building type	Carbon Emissions of heating & electricity (kgCO ₂ /m ² /year)	Energy Demand Baseline (kWh/m ² /year)	Emission Factor (kgCO ₂ /kWh)	Carbon Emission Benchmark (kgCO ₂ /m ² /year)	Carbon Savings (kgCO ₂ /m ² /year)	Total Carbon Savings (tCO ₂ /year)	Financed Carbon Savings (tCO ₂ /year)
Building 1	EPC	Local average	Local energy mix	EDB x EF	CEB - CE	CS x Area	TCS x pbb financing share
Total						XXX	XXX

pbb Green Bond Carbon Impact: 38,653 tCO₂/year

Carbon impact assessment methodology

- pbb estimates the carbon impact of its Green Bond Assets portfolio on a line by line basis
- pbb collects the carbon emission intensity for each building from its Energy Performance Certificates (EPCs)
- If carbon emissions are not included in the EPC, energy demand figures are translated to carbon emissions via applicable emission factors for heating (sources: GEG 9 – German building energy law) and electricity (source: European Environment Agency)
- The benchmark is the average energy demand by type of use in specific locations from PCAF (Partnership for Carbon Accounting Financials). (<https://carbonaccountingfinancials.com/about>). PCAF published new values in 2023. Hence, the benchmarking can be conducted with recent data.

As of	Outstanding nominal amount in the potential Green Portfolio (€ mn)	No. of Green Buildings	Total floor area (m ²)	Carbon savings - pbb financing share (tCO ₂ /year)	Carbon savings - pbb financing share (tCO ₂ /€ 1mn)
10/2024	~5,528	210	~4.1 mn	~38,600	~7.0

Green Bond – Reference Portfolio

Reference Portfolio: approx. € 5.5 bn as of 10/2024

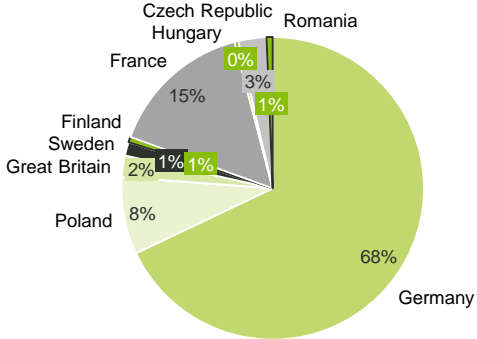
Portfolio consisting of ~ € 5.5 bn.

Portfolio will change over time

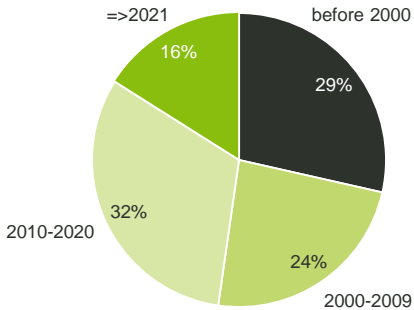
Process for recording the criteria of the overall portfolio established:

- Recording of all properties of the new business
- Recording of the already existing portfolio as part of the regular monitoring process

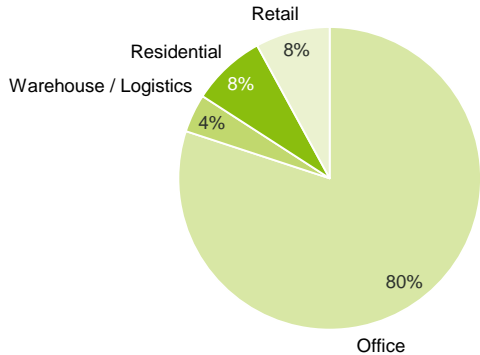
Breakdown by regions (€ mn)



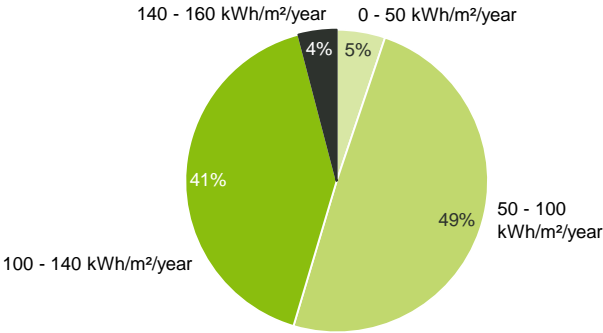
Breakdown by year of construction (€ mn)



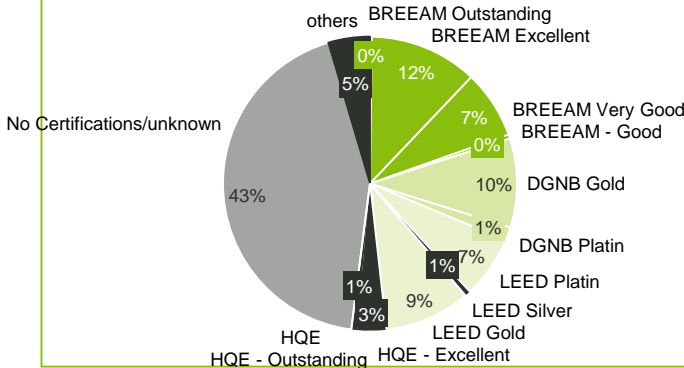
Breakdown by property type (€ mn)



Breakdown by final energy consumption (€ mn)



Breakdown by green certifications (€ mn)



Top 15% Criterion (for buildings built before 2021)

