

Green Bond Annual Report 2021





Maria Teresa Dreo-Tempsch, Member of the Board of Management

Dear Sir or Madam,

Today we are presenting the seventh edition of our Green Bond Annual Report, in which we look back on another very eventful reporting period.

In the course of 2021 Berlin Hyp was able to further develop its green finance franchise and, more general, its overall ESG strategy significantly. But it was not only us who made a big leap forward. As a matter of fact, ESG was one of the dominating political, regulatory and financial markets topics. ECB questionnaire, EBA guidelines or Green Asset Ratio are just some of the buzz words that occupied banks across Europe. Berlin Hyp itself started an overarching bank-wide project, dealing with ESG aspects across the bank – from sustainable lending and capital market products to risk controlling, and from additional necessary data to our new ESG Target Vision, which represents the further development of our Sustainability Agenda showcasing Berlin Hyp's multi-dimensional and holistic sustainability approach.

One of the most influential events 2021 was the finalisation of the Delegated Acts on the first two objectives of the EU Taxonomy: climate change mitigation and climate change adaptation. The EU Taxonomy's influence on future business activities is undisputable. Inside Berlin Hyp we refer to it as a new language which helps financial market participants to develop a truly common understanding of green finance. We decided to embrace this opportunity, to align our Green Bond Framework with the Taxonomy's buildings and construction activities criteria, and to start a journey together with our borrowers and capital markets investors towards proficiency in the new language. Learn more about our revised Green Bond Framework in section A of this report.

Sections B and C represent our allocation report and emphasize on the development of Berlin Hyp's Green Finance Portfolio and its new business in eligible green assets. In 2021 we managed to increase our Green Finance Portfolio by € 1.3 bn. It now stands at € 7.3 bn and allowed us to issue further three syndicated green bond transactions during the reporting period: Our seventh Green Pfandbrief and two further CHF-denominated green senior preferred bonds. With a total of 14 benchmark-sized green bonds outstanding by year-end 2021 Berlin Hyp manages to remain the most active issuer from the group of European commercial banks.

Finally, section D contains our impact reporting, which this year provides particularly interesting results highlighting the increasing speed of de-carbonising of energy mixes in many European countries.

In 2021 Berlin Hyp was granted 'Best ESG Issuer' at the GlobalCapital Covered Bond Awards and 'Most Impressive Financial Institution Green /SRI Bond Issuer' at the GlobalCapital Bond Awards. We feel very honoured by these awards, because they are based on the vote of you, the capital market participants. At the same time, they oblige us to continue our efforts to provide you with state-of-the-art ESG capital market products and ESG bond reporting, which in 2021 includes for the first time a separate Sustainability-Linked Bond report following the issuance of our inaugural SLB in April 2021.

The feedback we regularly receive from you makes it clear that you value our Green Bond reporting, and in particular our impact reporting, for its straightforwardness and transparency. To ensure that this remains in the future, your open feedback and diverse suggestions are very important to us. So, please do stay in touch, even in these times of restricted contact!

I hope you enjoy reading our report.

Best regards,



Maria Teresa Dreö-Tempsch



A – Green Bond Framework



After publication of the EU Taxonomy’s first two Delegated Acts on the Environmental Objectives 1 (climate change mitigation) and 2 (climate change adaptation), Berlin Hyp started to work on the adjustment of its eligibility criteria in summer 2021 to continue its efforts to comply with the highest green bond standards and regulations. The bank finalized the renewal of its Green Bond Framework in December 2021, making it even more ambitious. The renewed Framework is based on the latest version to date of the Green Bond Principles (GBP), published by the International Capital Market Association (ICMA) in June 2021¹. For the first time, the Framework also transposes the requirements of the Delegated Act for Environmental Objective 1 of the EU Taxonomy for Sustainable Activities (“EU Taxonomy”) published by the EU Commission in June 2021² and the requirements of the proposed Regulation of the European Parliament and of the Council on European Green Bonds (“Regulation on European Green Bonds”)³.

Moreover, the Framework complies with the minimum standards for Green Pfandbriefe published by the Association of German Pfandbrief Banks in 2019 and with the Guidelines on Loan Origination and Monitoring published in 2020 by the European Banking Authority (EBA).

Finally, the Framework is aligned with the Sustainable Development Goals (SDGs) published in 2015 by the United Nations as

part of the 2030 Agenda for Sustainable Development. Financing energy efficient green buildings Berlin Hyp is particularly committed to two Sustainable Development Goals:



SDG 11
(Sustainable Cities and Communities),
and
SDG 13
(Climate Action).

To fulfill its strong ambitions, Berlin Hyp adopted a robust approach, reflecting its strategy through two major innovative aspects:

→ Two green products aligned with two sets of eligibility criteria coexist in the Framework until 2025:

“Loans for energy-efficient green buildings”
meeting the Eligibility Criteria defined under Berlin Hyp’s 2020 Green Bond Framework and updated in the renewed Framework.

“Loans for EU Taxonomy-aligned buildings/construction activities”
meeting the Eligibility Criteria aligned with the EU Taxonomy.

→ After year-end 2025, the origination of new Eligible Green Assets will be 100 percent aligned with the Delegated Act for Environmental Objective 1 of the EU Taxonomy.

In addition, Berlin Hyp commits on a best-effort basis to a progressive timeline to ensure that its Green Bond Program is fully aligned with the aforementioned regulations by the end of 2025. This timeline follows the recommendation set out in the EU Explanatory Memorandum about the Taxonomy. It demonstrates that Berlin Hyp envisions to integrate loans for EU Taxonomy-aligned buildings/construction activities in its Green Finance Portfolio in a robust manner as soon as 2022.

The envisaged split between new loans for energy-efficient green buildings and new loans for EU Taxonomy-aligned buildings/construction activities to be added to the bank’s Green Finance Portfolio per year is displayed in the table below.

¹ <https://www.icmagroup.org/assets/documents/Sustainable-finance/2021-updates/Green-Bond-Principles-June-2021-140621.pdf>

² [https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=PI_COM:C\(2021\)2800](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=PI_COM:C(2021)2800)

³ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021PC0391&qid=1627478046576>

New eligible green assets

Year	Maximum share of new loans for energy-efficient green buildings (by year-end)	Minimum share of new loans for EU Taxonomy-aligned buildings / construction activities (by year-end)
2022	95%	5%
2023	85%	15%
2024	70%	30%
2025	40%	60%
2026	0%	100%

Berlin Hyp's renewed, EU Taxonomy-aligned Green Bond Framework can be accessed at [the bank's website](#).

As Berlin Hyp's renewed Framework only covers the bank's new business in Eligible Green Assets from 2022 onwards, this annual reporting is still based on the eligibility criteria from the April 2020 version of the bank's Green Bond Framework. It can be accessed at [the bank's website](#), and defines Eligible Green Assets as loans for energy-efficient green buildings with a final energy demand or consumption that does not exceed the following values:

Property type	Energy demand heating kWh/(m ² a)	Energy demand electricity kWh/(m ² a)	Total kWh/(m ² a)
Residential	60	–	60
Office	80	60	140
Retail	60	75	135
Hotels	95	60	155
Logistics (use: storage)	30	35	65
Light Industrial (use: production)	105	65	170

Additional/alternative eligibility criteria include the following sustainability certificates⁴:

LEED Gold status or higher

BREEAM Very good status or higher

DGNB Gold status or higher

HQE Excellent status or higher

The reference values above form the basis of our criteria and are also part of the annual re-verification process by ISS-ESG. The criteria refer to the final energy demand. Alternatively, the primary energy demand value can be used in certain cases where modern technology has been installed in/at the building (such as a block power station, heat recovery plant, etc.) to achieve a significant reduction in primary energy demand.

The eligibility criteria are generally to be fulfilled on an additive basis, which means that the main decision criterion is the sum of the energy demand for heating and electricity (shown in the above table in the “Total” column). In order to prevent buildings with energetically poor building envelopes or buildings with disproportionately high electricity demand from being included in the Green Finance portfolio, the maximum values in each energy demand category may not be exceeded by more than 20 percent. In the case of residential buildings, the differences attributable to the personal characteristics of users mean that no maximum threshold for electricity consumption has been defined.

With their re-verification, dated March 2022 and published on Berlin Hyp’s website, ISS-ESG positively assessed the sustainability of the green bond programme.⁵



⁴ LEED, BREEAM, DGNB and HQE issue sustainability certificates for buildings. Buildings financed by Berlin Hyp following the issue of the Green Pfandbrief on 27 April 2015 must achieve a score of at least 50 percent in the energy efficiency category of the green building certificate if the building does not already qualify through its energy requirements and consumption.

⁵ The re-verification can be downloaded at www.berlinhyp.de/en/investors/green-bonds.

B – Portfolio Report

Development of the Green Finance Portfolio

In the reporting period from 1 January 2021 to 31 December 2021 new green business of € 1,015 million (previous year € 722 million) was achieved. These are divided into € 875 million for loans for newly financed green buildings and € 140 million of newly granted loans for buildings already in the portfolio. Due to BerlinHyp's energy performance transparency initiative an additional amount of € 284 million of existing loans could be classified as green after borrowers handed in EPCs of buildings already financed by BerlinHyp.

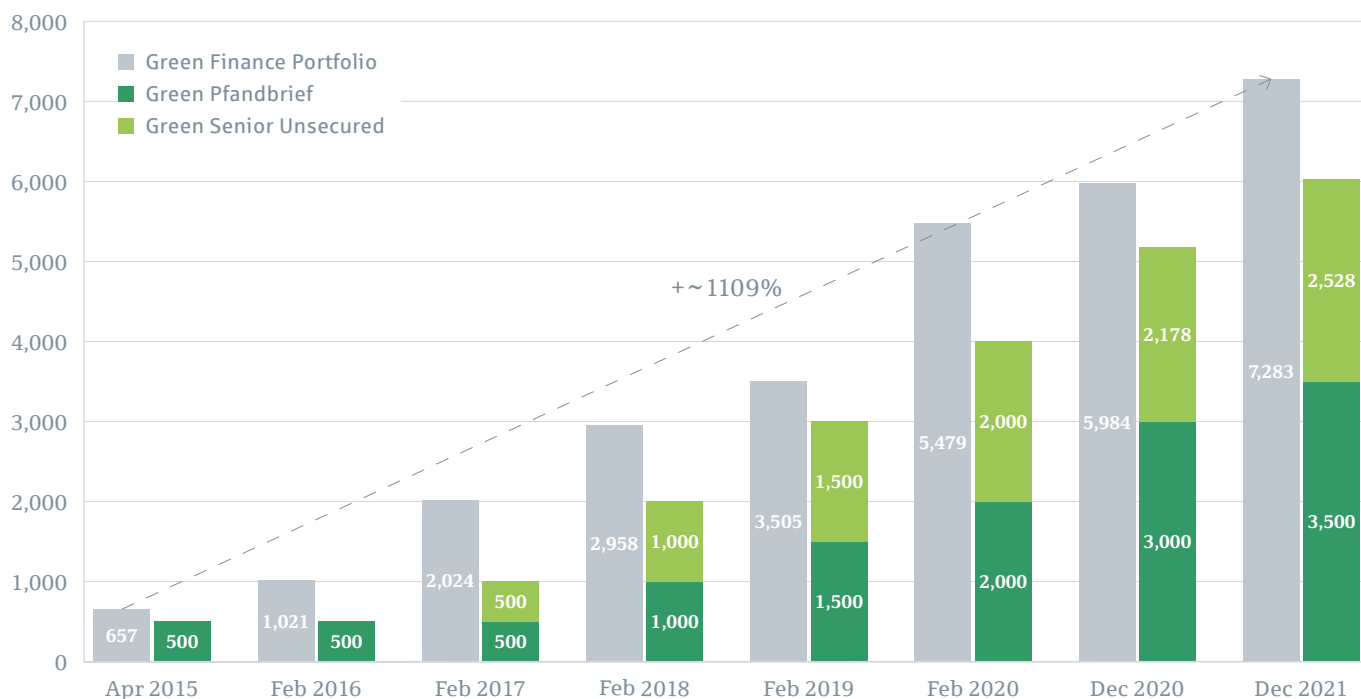
In total, the Green Finance Portfolio grew by € 1,299 million and stands at € 7,283 million as of 31 December 2021. This equals 24 percent of the entire bank's financing being green as of the reporting date.

As of 31 December 2021, the Green Finance Portfolio encompassed the financing for a total of 312 properties. At € 4,499 million, around 62 percent of the portfolio is part of BerlinHyp's mortgage cover pool. The overall development is shown in the following table and chart.

	Total	Number of buildings
Total by 31 December 2020	5,984	238
New business for green buildings	1,015	43
Difference between subsequently identified green buildings and repayments	284	31
Total by 31 December 2021	7,283	312

Portfolio Development

€ million

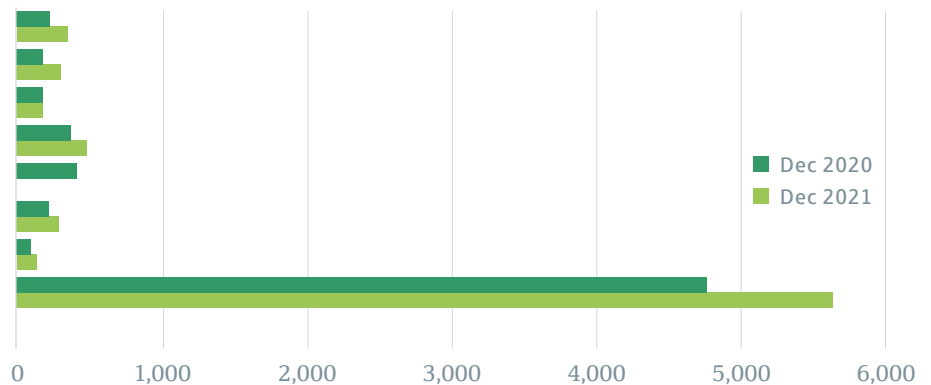


In sections B.1 to B.4, the green building financing included in BerlinHyp's Green Finance Portfolio is classified according to

a variety of parameters. All figures relate to the closing date as of 31 December 2021.

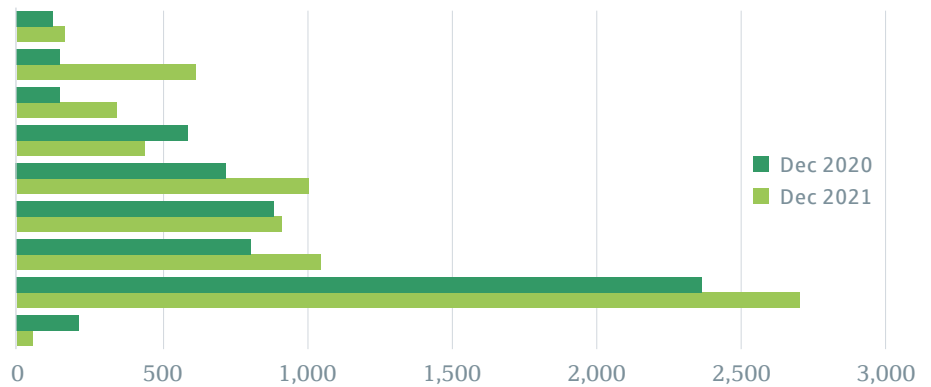
B.1 Certificates

€ million	Dec 21	%	Dec 20
BREEAM Excellent	346	5	228
BREEAM Very Good	300	4	180
DGNB Platin	178	2	181
DGNB Gold	480	7	369
HQE Basic Level	0	0	41
LEED Gold	289	4	219
LEED Platinum	135	2	100
Energy Certificate	5,555	76	4,666
Total	7,283	100	5,984



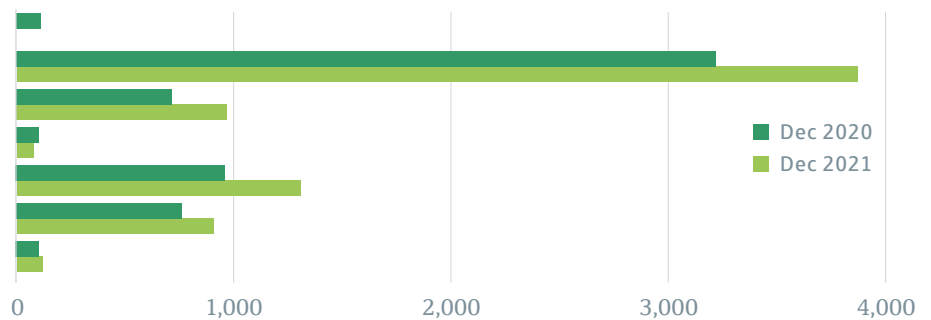
B.2 Maturity structure

€ million	Dec 21	%	Dec 20
≤ 6 months	165	2	125
6 months and ≤ 1 year	615	8	150
1 year and ≤ 1.5 years	344	5	149
1.5 and ≤ 2 years	441	6	588
2 and ≤ 3 years	1,006	14	720
3 and ≤ 4 years	912	13	883
4 and ≤ 5 years	1,046	14	804
5 and ≤ 10 years	2,700	37	2,351
> 10 years	54	1	214
Total	7,283	100	5,984



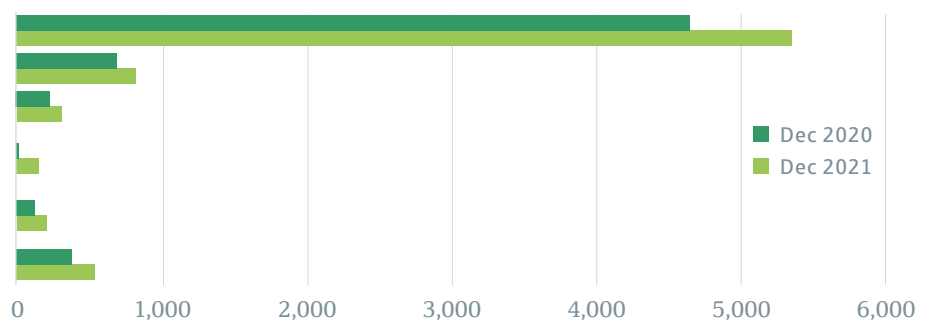
B.3 Countries

€ million	Dec 21	%	Dec 20
Belgium	0	0	115
Germany	3,892	53	3,217
France	973	13	717
Luxembourg	78	1	104
Netherlands	1,312	18	962
Poland	909	12	763
Czech Republic	119	2	106
Total	7,283	100	5,984



B.4 Type of use

€ million	Dec 21	%	Dec 20
Office buildings	5,273	72	4,551
Retail buildings	815	11	681
Logistic	306	4	230
Logistic – Light Industrial	155	2	19
Management/ Social buildings	203	3	127
Multi-family dwellings	531	7	376
Total	7,283	100	5,984



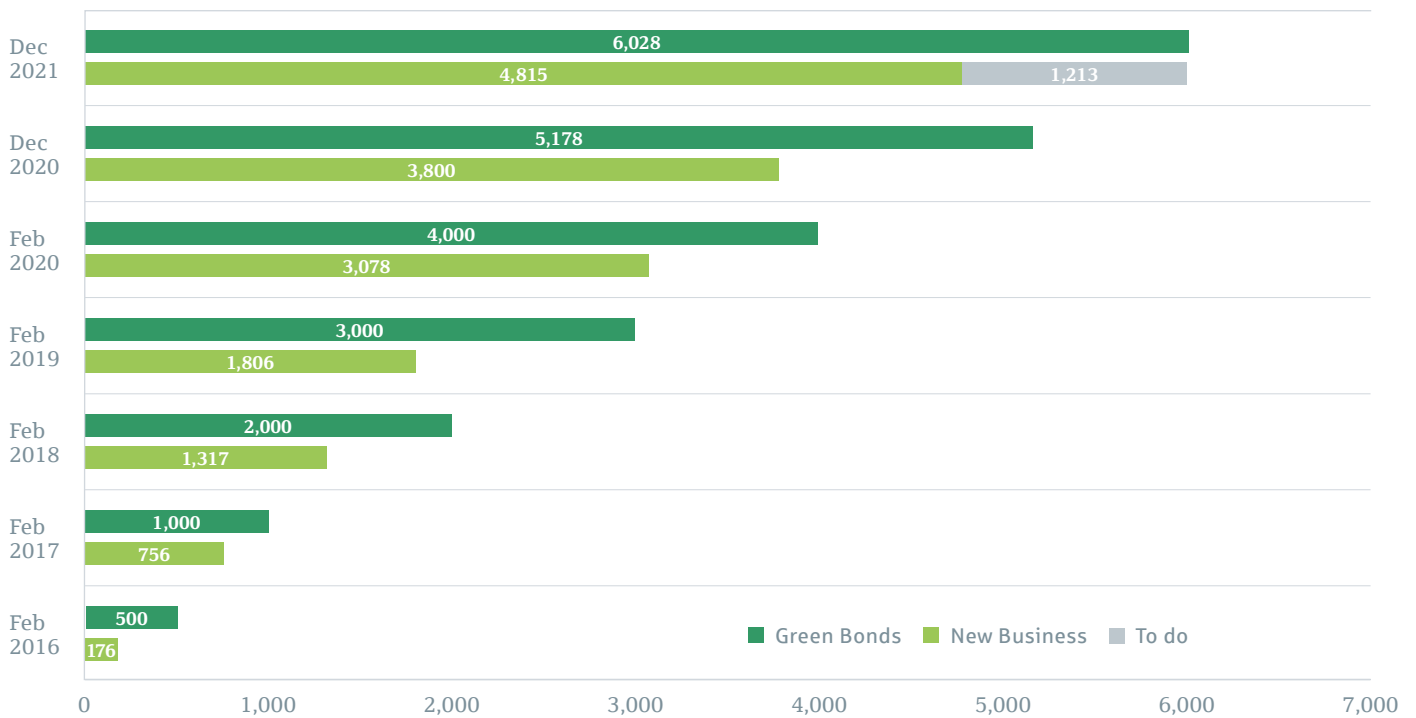
C – New Lending Report

Since the issuance of the first Green Pfandbrief, the bank has pursued a best-effort approach and gives its commitment to do its utmost to invest an amount equivalent to the proceeds from the issued Green Bonds in new loans for green buildings during the terms of these bonds. During the reporting period Berlin Hyp issued one new Green Pfandbrief and a Sustainability-Linked Bond as the first bank worldwide.

In addition, the bank proceeded to strengthen its position on the Swiss capital markets when it issued two further Senior Preferred Green Bonds and tapped another one, adding CHF 380 million to its funding volume. The chart below shows that € 4,815 million have already been invested in new loans for green buildings in order to fulfil our commitment for the outstanding Green Bonds by 31 December 2021. Accordingly, it is necessary to invest another € 1,213 million to meet the commitment for the issued bonds.

Fulfilment commitment

€ million



A list with the new green buildings in the portfolio is shown in the appendix.

D – Impact Reporting: Results and Methodology

On the following pages, you will find the results and methodology of our assessment of avoided carbon emissions owing to Berlin Hyp's Green Bonds. The calculation of CO₂ savings is based on the energy demand for heating and the energy demand for electricity of green buildings. In order to convert heating energy demand savings into avoided carbon emissions, individual conversion factors are applied based on the buildings' specific heating sources. In the case of green buildings in Germany heated by district heating system, there is also the possibility to account for regional differences. Factors applied for converting electricity energy demand savings into avoided carbon emissions are based on country-specific energy mixes.

The impact calculation was performed in partnership with the acclaimed consulting firm Drees & Sommer. The calculations were passed on to ISS-ESG on a line-by-line basis, who reviewed the plausibility of the results as part of a re-verification process in March 2022.⁶

All calculations are based on loan data as of 31 December 2021 and on the most current available EPC and/or sustainability certification for each property. If no EPC data is available, energy average values for heat and electricity per use and the year of the building construction are applied. This was the case for a total of nine out of 312 buildings. If information regarding heating sources was not available (31 buildings), the CO₂ factors mentioned in D.4 are used, which reflect the mix of final energy consumption for commercial and residential buildings in specific countries.

D.1 Estimated avoided carbon emissions

Several assumptions significantly influence the estimation of avoided carbon emissions.

First, the quantification of avoided carbon emissions of a specific asset depends on the choice of a baseline, i. e., the carbon emissions of a reference asset against which the carbon emissions of this specific asset

are compared. This choice is highly sensitive, since avoided carbon emissions decrease as the energy efficiency of the chosen baseline increases. This is particularly true in the real estate sector, where buildings' energy performance varies greatly depending on asset type and construction year.

Another important decision is the way carbon emissions are allocated to one given asset. In practical terms, one can allocate the avoided carbon emissions of a given asset to the debt holder either in full or proportionally to the amount of the financing share.

In order to provide a maximal transparency to investors, this carbon report includes four different estimates of avoided carbon emissions corresponding to two baselines:

- The latest energy reference values (heating and electricity) for various real estate classes according to the German Energy Savings Regulation (Energieeinsparverordnung, EnEV, hereinafter referred to as "EnEV reference values").⁷ This reference provides an estimate of avoided carbon emissions.
- Average heat energy efficiency of existing properties in Europe provides a second benchmark. This involves comparing each building with the average heat energy efficiency of existing properties in Europe. This baseline provides a rough estimate of the positive carbon impact of Berlin Hyp's Green Bond assets.

In addition, the following two assumptions are applied to the avoided carbon emissions:

- 100 percent of the carbon impact of each asset is allocated to Berlin Hyp's financing.
- Carbon impact is allocated proportionally to Berlin Hyp's initial share in financing.

The results are provided in the table below.

⁶ Published on <https://www.berlinhyp.de/en/investors/green-bonds>

⁷ Joint Announcement by the Federal Ministry of Economics and Energy and the Federal Ministry for the Environment, Nature Conservation, Construction and Nuclear Safety (Ed.): Announcement of the Rules for Energy Consumption Values and the comparative values for non-residential buildings, 7 April 2015

In avoided tCO ₂ /€ mn/year	100 percent allocated to Berlin Hyp financing	Proportionally allocated to Berlin Hyp's initial financing share
against current EnEV reference values (heating energy and electricity)	15.17 (PY 26.60)	7.86 (PY 14.52)
against the European average (heating energy only)	20.23 (PY 23.56)	10.56 (PY 12.92)

CO₂ savings per million euros invested have decreased compared to the previous year. This is mainly due to the reduction of the lower conversion factors for electricity and district heating⁸. Furthermore, the average energy demand values have decreased both in the portfolio and in the benchmarks. The CO₂ emissions of the portfolio thus decreased overall to 108,500 tCO₂ from 116,016 tCO₂ in the previous year.

Comparison to EnEV reference values (heating and electricity)

Compared to EnEV reference values, annual savings of 540 GWh (444 GWh in the previous year) are achieved. 264 GWh out of these are based on heating energy savings.⁹ On average, financed green buildings have an energy demand for heating of 56 kWh/m² per year, which is 45 percent lower than the weighted average EnEV reference values (102 kWh/m² per year).¹⁰ In addition, a total of 275 GWh of electricity is saved every year. Financed green buildings have an average energy demand for electricity of 34 kWh/m² per year, which is 58 percent lower than the weighted average EnEV reference values (82 kWh/m² per year). This results in avoided carbon emissions of 110,500 tonnes per year in absolute terms.

Comparison to European average (heating only)

In terms of the European average, financed green buildings generate savings of 762 GWh (547 GWh in the previous year) concerning their energy demand for heating. The buildings have an average energy demand for heating of 56 kWh/m² per year, which is 70 percent lower than the European average (187 kWh/m² per year). This results in avoided carbon emissions of 147,000 tonnes per year in absolute terms.

D.2 Principles of methodology

The methodology is based on a two-phase process:

- I. An estimation of the energy savings per building, which includes:
 - a: **Assessment of each building's energy efficiency** (Final energy demand for heating and for electricity in kWh/m²a)
 - b: **Choice of the energy efficiency baseline**
EnEV reference values: Final energy demand for heating and for electricity in kWh/m²a
European average: Final energy demand for heating in kWh/m²a
 - c: **Calculation of energy savings (a–b)**
EnEV reference values: Final energy demand for heating and for electricity savings in kWh/m²a
European average: Final energy demand for heating savings in kWh/m²a
- II. An assessment of carbon intensity of avoided energy using specific carbon emissions factors through the following:
 - d: **Assessment of the carbon intensity of different energy sources for heating and differentiation of carbon intensity of each country's electricity mix and district heating supply as well as further differentiation of the district heating supply in Germany by region** (kg CO₂/kWh final energy demand)¹¹
 - e: **Calculation of carbon intensity savings** (c*d) (kg CO₂/m²a)
 - f: **Calculation of total avoided carbon emissions** (e*rentable surface of the building) (kg CO₂/m²a)
 - g: **Initial Market Value of building** (€ mn) (Initial Loan/Initial Loan to Value (LTV))
 - h: **Outstanding nominal amount in the Green Finance Portfolio** (€ mn)
 - i: **Berlin Hyp share expressed as a percentage of the initial market value of asset** (Initial LTV) (%)
 - j: **Calculation of financed avoided carbon emissions (f*i)** (kg CO₂a)

⁸ AIB European Residual Mixes 2020, <https://www.aib-net.org/facts/european-residual-mix>

⁹ The calculation of the average is based on the 304 out of 312 buildings with available energy demand data.

¹⁰ $\sum [m^2 \text{ Building} * (\text{Benchmark} - \text{kWh per m}^2)]$

¹¹ See also Section D.4 and Appendix. A CO₂ factor of 0g/kWh is applied to buildings whose heating energy is produced by environmental energy. To calculate the savings, the local district heating factor is used as the benchmark value.

D.3 Energy efficiency baselines

Two sets of comparable values were selected as energy efficiency baselines in order to provide different annual estimates of energy savings:

Baseline 1:

Current EnEV reference values

The energy savings calculated for the green buildings in Berlin Hyp's Green Finance Portfolio are measured against the current standards in Germany using the reference values in the table below. As a result, energy-efficiency reference values for heating vary from 30 kWh/m² per year for logistic buildings to 135 kWh/m² per year for office buildings. Electricity standard values are between 35 kWh/m² per year and 105 kWh/m² per year.

The specific heating energy reference value for residential buildings is taken from the Deutsche Energie-Agentur Report on Buildings 2016. This value equates to the threshold value for new builds defined in the German Energy Savings Regulation 2016.¹²

Given that the framework for residential buildings does not take the energy demand for electricity into account, the electricity reference value for residential buildings is not included.

Use	Specific energy demand for heating (kWh/m ² a)	Specific energy demand for electricity (kWh/m ² a)
Residential	60	–
Office	135	105
Retail	70	85
Hotels	105	65
Logistics (use: storage)	30	35
Light industrial (use: production)	110	65

Baseline 2:

Average energy efficiency of existing European buildings

Energy demand for heating, cooling and domestic hot water for buildings representative of the existing building stock have been modelled in the European project ENTRANZE¹³. Single houses, multi-family dwellings, offices and schools are covered. Comparing carbon emissions on the basis of energy demand for electricity is not suitable, as energy demands for ventilation and lighting are not taken into account as part of the project. Due to this fact, the baseline is only used to compare emissions caused by the energy demand for heating.

In accordance with the composition of Berlin Hyp's Green Finance Portfolio, only the values for multi-family dwellings and offices are considered for the present calculation. Values for selected relevant countries/cities (Berlin, Vienna, Prague, Paris and Helsinki) are averaged to obtain a robust baseline.

As a result, 188 kWh/m² per year is derived as a baseline of energy efficiency for European existing offices¹⁴ and 158 kWh/m² per year is derived as a baseline of energy efficiency for existing European multi-family dwellings.

D.4 Carbon dioxide intensity of energy consumption in the real estate sector

187 out of the 312 Green Buildings are based in Germany, 64 in the Netherlands and 29 in France and 25 in Poland. In addition, five are located in the Czech Republic and two in Luxembourg. The following carbon emissions factors split into respective energy sources originate from the standard reference work of the European Commission¹⁵ and have been included in the calculation for all countries.

¹² Deutsche Energie Agentur (publisher): dena Report on Buildings: Energy efficiency in the building stock – statistics and analyses (2016)

¹³ ENTRANZE, March 2014. Heating and cooling energy demand and loads for building types in different countries of the EU – D2.3. of WP2 of the Entranze Project. www.entranze.eu/files/downloads/D2_3/Heating_and_cooling_energy_demand_and_loads_for_building_types_in_different_countries_of_the_EU.pdf

¹⁴ This is assumed for all commercial real estate in Berlin Hyp for CO₂ reporting, as ENTRANZE does not include any data for other commercial real estate except office buildings.

¹⁵ Joint Research Centre of the European Commission (publisher): "CoM Default Emission Factors for the Member States of the European Union", <http://data.jrc.ec.europa.eu/dataset/jrc-com-ef-comw-ef-2017>.

Energy source	kg CO ₂ /kWh final energy demand
Heating oil	0.306
Natural gas	0.240
Liquified gas	0.281
Wood	0.0
Biogas	0.0
Biopetroleum	0.0

The emission factor for environmental energy is 0 kg CO₂/kWh final energy demand and is taken from DIN V 18599.

The following emissions factors were able to be used, with the help of information provided by regional energy supply companies, for a detailed calculation of emissions from district heating systems in Germany:

District heating by region in Germany	kg CO ₂ /kWh final energy demand
Munich	0.066
Cologne	0.0
Duisburg	0.138
Frankfurt am Main	0.065
Düsseldorf	0.0
Böblingen	0.0
Offenbach am Main	0.317
Oberhausen	0.070
Mannheim	0.227
Bonn	0.141
Neubrandenburg	0.194
Essen	0.175
Hamburg	0.064
Dortmund	0.219
Karlsruhe	0.081
Saarbrücken	0.0
Berlin	0.129
Stuttgart	0.174
Leipzig	0.091
Hanau	0.178
Mainz	0.092

Bochum	0.099
Sandersdorf	0.071
Welden	0.097
Münster	0.0

Carbon emissions factors for district heating systems outside of Germany were calculated as no complete data was available. The method used to calculate these values is described in the Appendix.

District heating by country	kg CO ₂ /kWh final energy demand
France	0.032
Netherlands	0.165
Poland	0.323
Czech Republic	0.276
Belgium	0.077
UK	0.093
Luxembourg	0.014

The following country-specific emissions factors¹⁶ were used to calculate emissions from energy demand for electricity.

Electricity by country	kg CO ₂ /kWh final energy demand
Germany	0.339
France	0.051
Netherlands	0.374
Poland	0.76
Czech Republic	0.495
Belgium	0.162
UK	0.196
Luxembourg	0.101

For unknown heating sources, the following factors by use and country were used:

¹⁶ AIB European Residual Mixes 2019, <https://www.aib-net.org/facts/european-residual-mix>

Unknown heating sources	Residential	Commercial
	kg CO ₂ / kWh final energy demand	
Germany ¹⁷	0.210	0.250
France ¹⁸	0.110	0.139
Netherlands ¹⁹	0.227	0.276
Poland ²⁰	0.369	0.442
Czech Republic ²¹	0.230	0.329
Belgium ²²	0.197	0.192
UK ²³	0.200	0.193
Luxembourg ²⁴	0.194	0.136

¹⁷ Facts and figures Energy data 2020. https://www.bmwi.de/Redaktion/DE/Binaer/Energiedaten/energiedaten-gesamt-xls.xlsx?__blob=publicationFile&v=129

¹⁸ Bilan énergétique de la France 2018: <https://www.statistiques.developpement-durable.gouv.fr/bilan-energetique-de-la-france-pour-2018?rubrique=19&dossier=170>

¹⁹ CBS: <https://opendata.cbs.nl/statline/#/CBS/en>

²⁰ Statistics Poland 2020: <https://stat.gov.pl/en/topics/environment-energy/energy>

²¹ European Building Database: https://ec.europa.eu/energy/eu-buildings-database_de;
Since the data are older than 5 years, the energy mix for buildings in the Czech Republic was extrapolated on the basis of the EU energy statistical pocketbook and country datasheets.

²² Statbel: <https://statbel.fgov.be/fr/themes/energie/statistiques-de-lenergie-par-secteur-economique-et-par-source-denergie>

²³ Dukes: <https://www.gov.uk/government/statistics/energy-chapter-1-digest-of-united-kingdom-energy-statistics-dukes>

²⁴ Portail des Statistiques: https://statistiques.public.lu/stat/ReportFolders/ReportFolder.aspx?IF_Language=eng&MainTheme=1&FldrName=4

Appendix

I District heating in buildings outside of Germany

In order to calculate carbon emissions from district heating systems in buildings outside of Germany, the emissions factor must either already be known or, as in this case, be determined.

Country-specific data relating to heating energy and electricity production, as well as total carbon emissions in the year 2019²⁵ as published by the International Energy Agency, are used to determine the emissions factor.

Country	Heat energy produced ²⁶ (TWh)	Electricity produced ²⁶ (TWh)	Total emissions ²⁷ (MtCO ₂)
France	43.35	431.95	36.6
Netherlands	24.73	109.55	50.4
Poland	64.86	140.41	137.4
Czech Republic	23.6	58.4	47.9
Belgium	5.64	81.96	16.6
UK	14.47	295.37	72.1
Luxembourg	14.69	299.76	80.9

Given that carbon emissions are calculated as the total of emissions out of electricity and heating, the values only attributable to heating energy must first of all be determined for each country as follows:

$$\text{CO}_2 - \text{emissions (heat)} = \text{percentage of heat emissions} * \text{CO}_2 - \text{emissions}_{\text{tot}}$$

The percentage share of heating energy emissions compared to total emissions equates to the percentage share of heating energy generated compared to overall energy generated with regard to energy production efficiency. This is calculated on the basis of existing energy data.

Using these heating energy emissions values, the emission factor can now be calculated in relation to the heating energy generated by the respective country:

$$\text{CO}_2 - \text{emission factor (heat)} = \frac{\text{CO}_2 - \text{emissions (heat)}}{\text{heat output}}$$

This results in the emission factors for district heating outside Germany used in the report, which are essential for impact reporting.

²⁵ More recent data is not available.

²⁶ IEA Data and statistics. <https://www.iea.org/data-and-statistics/data-tables?country=UK&energy=Balances&year=2019>

²⁷ IEA, CO₂ Emissions from Fuel Combustion 2020: Highlights <https://webstore.iea.org/co2-emissions-from-fuel-combustion-2020-highlights>

II Overview new buildings

The new green buildings from the latest reporting period, along with energy demand figures and CO₂ savings, are presented below in anonymised form. For French properties, please note that the energy performance certificates do not differentiate between

heating and electricity. The total energy demand stated in the energy performance certificates has therefore been divided up among the two components in accordance with the ratios stipulated in our criteria.

New green buildings

Type of use	Country	Granting of loan	Loan (€ mn)	Certificate	Type of project	Rentable area (m ²)	Energy demand heating (kWh/m ² a)	Energy demand electricity (kWh/m ² a)	CO ₂ savings vs. EnEV (kg CO ₂ / m ² a)
Retail	Netherlands	23.06.21	12.11	EPC	Financing	26,225	55	68	3
Retail	Germany	19.06.15	3.04	EPC	Financing	5,193	35	28	28
Retail	Germany	19.06.15	0.95	DGNB Gold	Development	2,417	30	32	32
Logistics	France	10.03.21	0.81	BREEAM Very Good	Financing	50,916	–	–	–
Logistics	Germany	09.09.21	7.19	EPC	Financing	32,323	20	15	9
Logistics	Germany	09.09.21	0.92	EPC	Financing	19,002	7	18	11
Office	Germany	09.09.21	11.04	EPC	Financing	18,418	61	21	41
Logistics	Germany	30.11.20	11.90	DGNB Gold	Development	66,233	83	11	–5
Office	Netherlands	06.12.19	5.31	BREEAM Very Good	Financing	21,161	18	14	48
Retail	Germany	11.06.20	7.11	EPC	Financing	9,673	28	50	22
Office	Poland	12.11.19	0.76	BREEAM Very Good	Financing	67,604	50	45	39
Residential	Germany	09.06.20	1.20	EPC	Financing	1,660	58	0	0
Logistics	Germany	21.04.21	23.00	EPC	Financing	14,000	55	22	–2
Retail	Germany	08.01.21	3.04	EPC	Financing	2,130	33	31	31
Retail	Germany	08.01.21	1.17	EPC	Financing	1,097	71	25	20
Retail	Germany	08.01.21	1.61	EPC	Financing	1,386	56	27	23
Retail	Germany	08.01.21	0.95	EPC	Financing	1,152	55	27	23
Light Industrial	Germany	28.01.21	98.00	EPC	Financing	189,958	100	2	–6
Residential	Germany	17.11.20	4.78	EPC	Financing	5,344	53	0	1
Residential	Germany	17.11.20	2.65	EPC	Financing	2,623	58	0	0
Retail	Germany	19.06.15	0.19	EPC	Financing	963	34	47	25

Type of use	Country	Granting of loan	Loan (€ mn)	Certificate	Type of project	Rentable area (m ²)	Energy demand heating (kWh/m ² a)	Energy demand electricity (kWh/m ² a)	CO ₂ savings vs. EnEV (kg CO ₂ /m ² a)
Office	Poland	22.02.21	35.00	LEED Platinum	Financing	18,720	45	38	42
Office	France	21.01.21	69.00	BREEAM Excellent	Financing	47,198	8	27	17
Office	Poland	12.03.21	40.81	BREEAM Excellent	Financing	24,621	42	33	44
Residential	Germany	16.12.20	12.50	EPC	Financing	6,457	59	1	0
Office	Germany	26.02.21	70.00	LEED Gold	Financing	67,643	77	48	23
Residential	Germany	10.03.21	4.44	EPC	Development	8,601	41	0	3
Office	France	17.03.21	45.00	BREEAM Very Good	Financing	7,331	–	–	–
Retail	Germany	25.03.21	5.38	EPC	Financing	5,783	57	31	22
Retail	Germany	25.03.21	1.35	EPC	Financing	2,571	33	37	15
Office	France	29.04.21	16.50	EPC	Financing	12,003	18	15	21
Office	Germany	23.03.21	40.45	EPC	Financing	23,441	88	42	36
Retail	Netherlands	26.10.17	0.34	EPC	Financing	1,796	28	35	18
Office	Germany	28.04.21	30.00	EPC	Financing	7,571	81	42	28
Hotel	Germany	21.05.21	53.32	EPC	Financing	19,970	37	53	20
Hotel	Germany	06.09.21	32.60	DGNB Gold	Financing	21,190	235	61	–21
Office	France	02.08.21	112.00	BREEAM Very Good	Financing	18,623	53	95	13
Office	Poland	17.12.21	16.19	EPC	Financing	3,876	16	37	52
Logistics	Poland	31.08.21	25.23	BREEAM Very Good	Financing	48,201	75	17	–16
Logistics	Poland	31.08.21	11.52	BREEAM Very Good	Financing	27,577	85	14	–20
Residential	Germany	27.09.21	2.27	EPC	Financing	1,515	50	0	2
Light Industrial	Germany	09.09.21	2.42	EPC	Financing	9,270	85	14	9
Office	Germany	14.12.21	50.51	EPC	Development	16,206	39	21	52

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