

Annual Reporting Green Bonds 2020





Sascha Klaus, Chair of the Board of Management, about the business year 2020.

Dear Sir or Madam,

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

Since at least March last year, the global spread of coronavirus has had an impact on large swaths of the economy and social life. Here at Berlin Hyp, we too have felt the effects of the pandemic. Since the corona crisis began, most of our colleagues have been working from home. Luckily, however, even in these unusual times, there are some things that have not changed. Berlin Hyp has had another very positive financial year. Once again, we have managed to significantly expand our Green Finance portfolio, and once again we have successfully placed our green bond issues on the market.

At the start of the pandemic, there was concern in many quarters that the coronavirus crisis could distract from another challenge just as, if not more, serious: the fight against climate change. With the benefit of hindsight, we are optimistic that this fear will prove to have been unfounded. Over the course of 2020, significant progress was made and important priorities were set in the drive to ensure more climate-sustainable economic activity and a continued increase in the importance of ESG criteria on global financial markets. Central banks such as the ECB are looking at how they can better integrate green finance into their own investment decisions. Many of them are investing in the green bond funds issued by the Bank for International Settlements (BIS). For the first time, the Federal Republic of Germany has launched a government bond in green bond format. Undoubtedly the most significant thing, however, is that the finalisation of the EU taxonomy is now on the home stretch. 2020 was a year of progress for Berlin Hyp and its green finance activities too:

→ by the end of 2019 (earlier than planned), we had already achieved our strategic corporate goal of increasing the share of loans for green buildings to 20 per cent of the total loans portfolio by the end of 2020. Then, in August 2020, we presented our new set of strategic goals: our sustainability agenda. At its core is Berlin Hyp's commitment to the Paris Agreement and the German government's Climate Paths. This is linked to our target of making not only our business operations but also (and far more importantly) our entire loans portfolio climate-neutral. Subordinate to this, we have set ourselves three other ambitious strategic goals: increasing the share of our Green Finance portfolio in the Bank's total loan book to one-third by the end of 2025, introducing an incentivised Transformationskredit (transformation loan) for energy-related building refurbishments, and achieving full transparency with regard to the energy demand and carbon emissions of our complete loans portfolio by the end of 2023. We consider the latter to be essential, because once full transparency is achieved, we will be able to more accurately determine climate risks arising from the portfolio.



→ In the reporting period from March to December 2020, we were able to increase the volume of our Green Finance portfolio by €505 million. Although this amount is significantly less than the record for new green business set in the previous period, we are still proud of it given the challenging market conditions. It should also be noted that the current reporting period only comprises ten months.

→ Last year, for the fourth time in a row following our successes in 2017, 2018 and 2019, we were able to launch at least two green bonds in benchmark format within one year. An 8-year Green Pfandbrief in June was followed by another 10-year one in August, each with a volume of €500 million. We subsequently issued our first Green Bond in foreign currency, a senior preferred benchmark bond with a volume of 125 million Swiss francs. With now eleven outstanding green bonds in benchmark format, Berlin Hyp remains the most active issuer from the group of European commercial banks. We also managed to complete private placements in green bond format for the first time.

As you have just read, this year our Green Bond Annual Report is not really an ‘annual report’, but refers to a period of only ten months. We made the one-off decision to shorten the reporting period in this way so that, from 2021 onwards, we can bring it into line with our financial year and integrate results into the bank’s Annual Report in future. Section E of this year’s Report also gives an insight into the role now being played by ESG in the real estate industry. To this end, we interviewed our client Warburg-HIH. The Report is divided into the following sections:

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D – Impact Reporting on page 9

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You will notice that this year we have not made any changes to the content of our Green Bond Framework, whereas in previous years this section often featured reporting on the tightening of our eligibility criteria. There is a simple reason for this. With the next update to our Framework we want, as far as possible, to integrate the EU taxonomy requirements for buildings into our eligibility criteria. At this point, therefore, we are awaiting publication of the EU Commission’s finalised delegated act. We anticipated the formal requirements of the future EU Green Bond Standard in the last update to our Green Bond Framework.

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 so in the future, your open feedback and diverse suggestions are still very important to us. So please do stay in touch, even in these times of restricted contact!

I hope you enjoy reading this.

Best regards,



Sascha Klaus

A – Green Bond Framework



The originally planned date for finalizing the EU taxonomy was the end of 2020. Now that the publication of the final criteria and their adoption will presumably be delayed until after the first quarter of 2021, Berlin Hyp has also postponed a corresponding adjustment of its eligibility criteria. Therefore, criteria from the latest version of April 2020 remain effective. An adjustment will be made as soon as there is clarity about the requirements of the EU taxonomy for the development, renovation and acquisition of buildings.

The Green Bond Framework Version April 2020, which will thus remain valid for the time being, can be accessed at www.berlinhyp.de/en/investors/green-bonds. It defines green buildings as energy-efficient commercial properties with a final energy demand or consumption that does not exceed the following values:

Additional/alternative eligibility criteria include the following sustainability certificates¹:

- 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.

ISS-ESG positively assessed the sustainability of the green bond programme underpinning the issues as part of its second party opinion dated 22 August 2016. This verdict was confirmed in consideration of the adjustments to the framework as part of the annual re-verification process in March 2021.²

¹ 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.

² The re-verification can be downloaded at www.berlinhyp.de/en/investors/green-bonds

| Property type | Energy demand heating | Energy demand electricity | Total |
|------------------------------------|-------------------------|---------------------------|-------|
| | kWh/(m ² *a) | 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 |

B – Portfolio Report

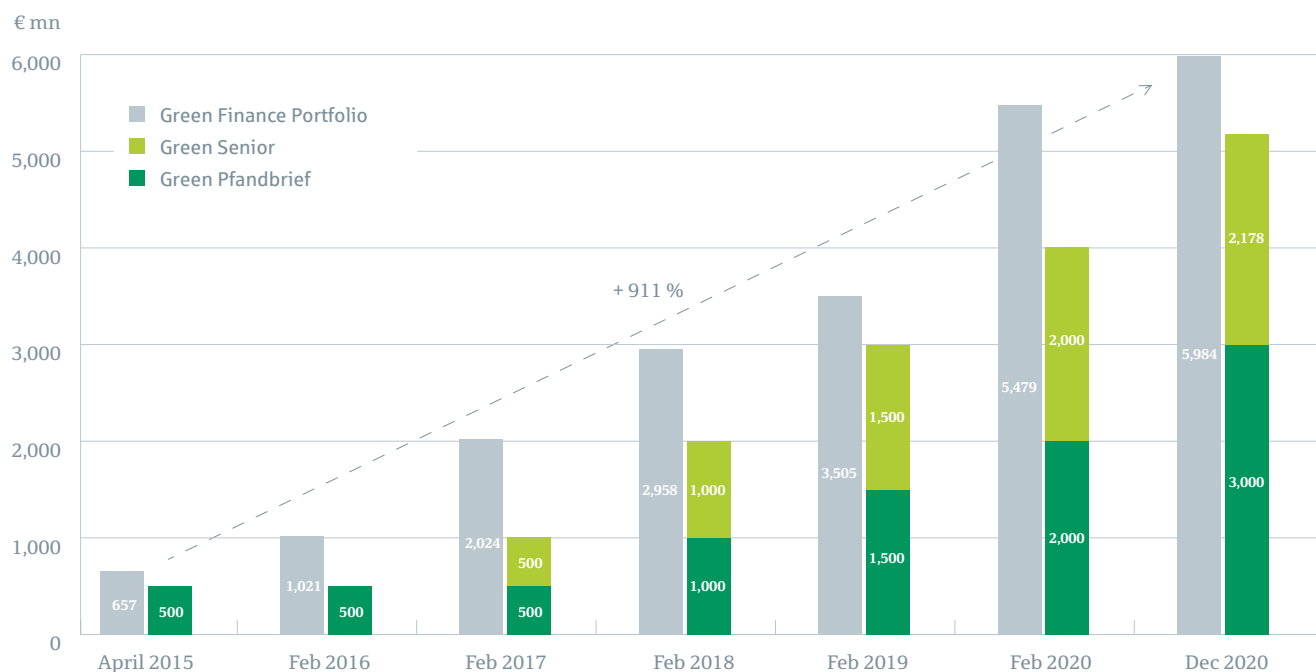
Development of the Green Finance Portfolio

In the reporting period from 1 March 2020 to 31 December 2020 new green business of € 722 million (previous year € 1,272 million) was achieved. These are divided into € 420 million for loans for newly financed green buildings and € 302 million of newly granted loans for buildings already in the portfolio. Despite redemptions of € 217 million, the Green Finance portfolio grew by a total of € 505 million. The portfolio's total by 31 December 2020 stands at € 5,984 million. This equals, 22 per cent of the entire bank's financing being green as at the reporting date.

As of 31 December 2020, the green building portfolio encompassed the financing for a total of 238 properties. At € 3,541 million, around 59 percent of the portfolio is part of Berlin Hyp's mortgage cover pool. The overall development is shown in the following table and chart.

| | Total | Number of buildings |
|---|-------|---------------------|
| Total by 29 February 2020 | 5,479 | 180 |
| New loans for green buildings granted after 28 February 2019 | 722 | 46 |
| Prolongations & subsequently identified existing loans for green buildings minus redemptions and repayments | -217 | 12 |
| Total by 31 December 2020 | 5,984 | 238 |

Portfolio growth

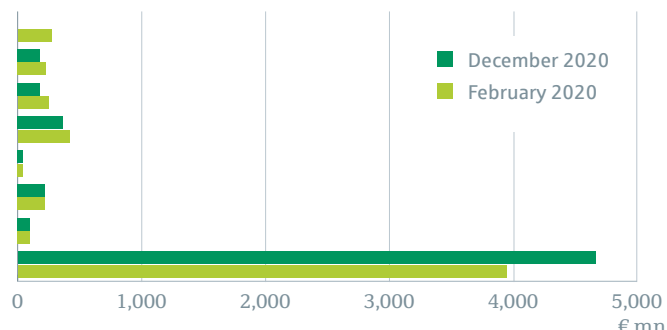


In sections B.1 to B.4, the green building financing included in Berlin Hyp's Green Finance portfolio is classified according to a variety of

parameters. All figures relate to the closing date as at 31 December 2020

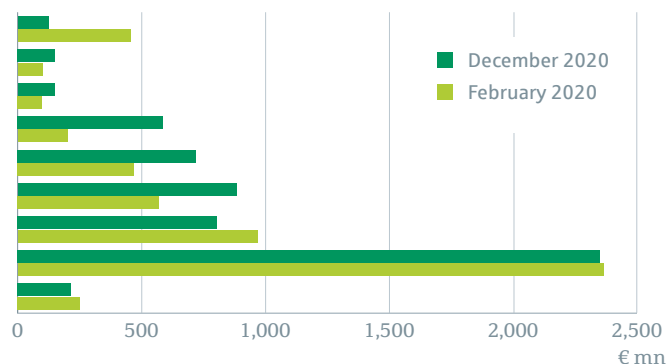
B 1 Certificates

| | 31.12.2020 € mn | % | 01.02.2020 € mn |
|--------------------|--------------------|--------------|--------------------|
| Breeam Excellent | 228 | 4 % | 274 |
| Breeam Very Good | 180 | 3 % | 230 |
| DGNB Platin | 181 | 3 % | 250 |
| DGNB Gold | 369 | 6 % | 418 |
| HQE Basic Level | 41 | 1 % | 41 |
| LEED Gold | 219 | 4 % | 219 |
| LEED Platinum | 100 | 2 % | 100 |
| Energy certificate | 4,666 | 78 % | 3,947 |
| Total | 5,984 | 100 % | 5,479 |



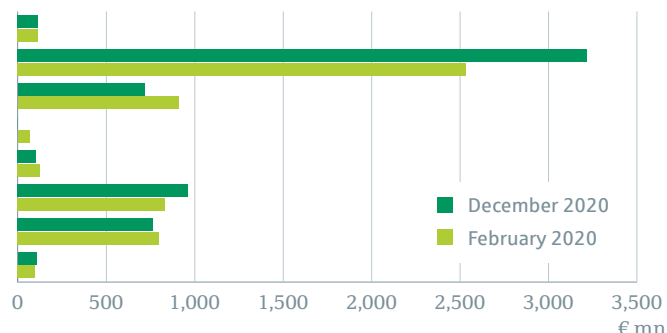
B 2 Maturity structure

| | 31.12.2020 € mn | % | 01.02.2020 € mn |
|------------------------|--------------------|--------------|--------------------|
| ≤ 6 months | 125 | 2 % | 455 |
| 6 months and ≤ 1 year | 150 | 3 % | 100 |
| 1 year and ≤ 1.5 years | 149 | 2 % | 97 |
| 1.5 and ≤ 2 years | 588 | 10 % | 201 |
| 2 and ≤ 3 years | 720 | 12 % | 470 |
| 3 and ≤ 4 years | 883 | 15 % | 571 |
| 4 and ≤ 5 years | 804 | 13 % | 968 |
| 5 and ≤ 10 years | 2,351 | 39 % | 2,365 |
| > 10 years | 214 | 4 % | 252 |
| Total | 5,984 | 100 % | 5,479 |



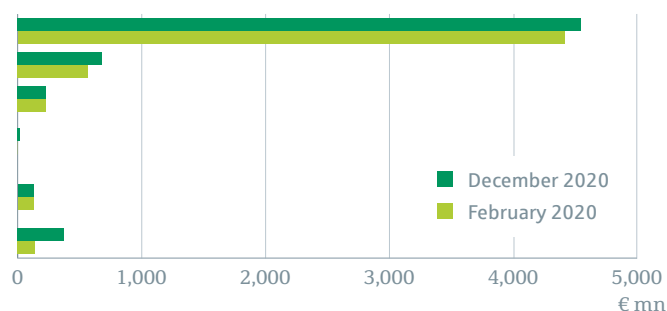
B 3 Countries

| | 31.12.2020 € mn | % | 01.02.2020 € mn |
|----------------|--------------------|--------------|--------------------|
| Belgium | 115 | 2 % | 115 |
| Germany | 3,217 | 54 % | 2,533 |
| France | 717 | 12 % | 909 |
| UK | 0 | 0 % | 67 |
| Luxembourg | 104 | 2 % | 125 |
| Netherlands | 962 | 16 % | 834 |
| Poland | 763 | 13 % | 798 |
| Czech Republik | 106 | 2 % | 97 |
| Total | 5,984 | 100 % | 5,479 |



B 4 Type of use

| | 31.12.2020 € mn | % | 01.02.2020 € mn |
|----------------------------------|--------------------|--------------|--------------------|
| Office buildings | 4,551 | 76 % | 4,416 |
| Retail buildings | 681 | 11 % | 566 |
| Logistic | 230 | 4 % | 229 |
| Logistic – Light Industrial | 19 | 0 % | 0 |
| Management / Social buildings | 127 | 2 % | 129 |
| Multi-family dwellings | 376 | 6 % | 139 |
| Total | 5,984 | 100 % | 5,479 |

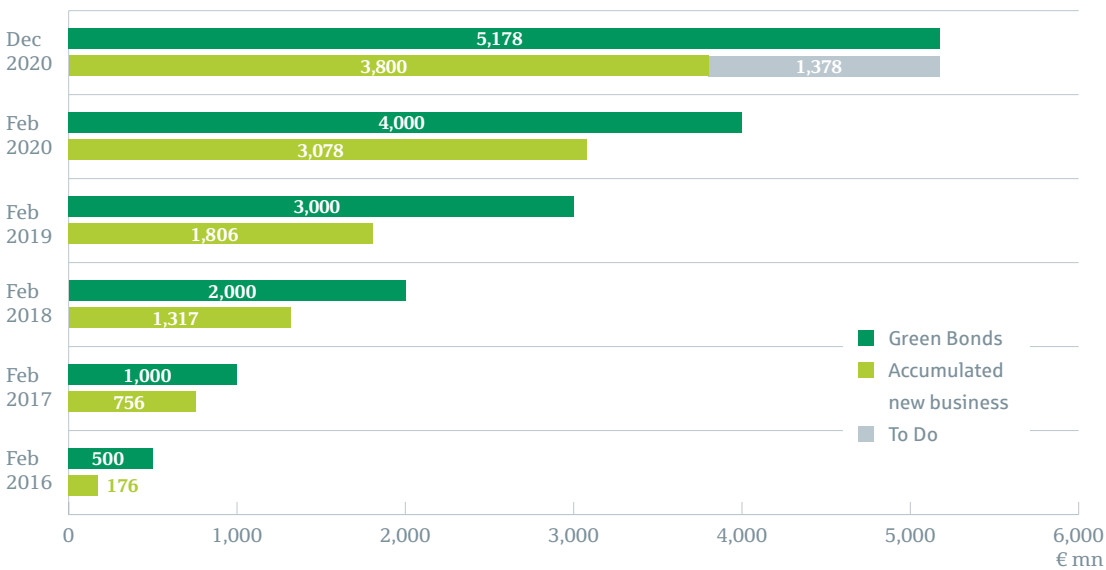


C – New Lending Report

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 two new Green Pfandbriefe, its ninth and tenth (maturity 07/28 and 09/30) and made a debut on the Swiss capital market when it

issued its first CHF denominated Green Senior Preferred Bond (maturity 09/28). In addition the bank issued privat placements for the first time. The chart below shows that € 3,800 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 2020. Accordingly, it is necessary to invest another € 1,378 million to meet the commitment for the issued bonds.

Fulfilment commitment



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 2021.

All calculations are based on loan data as of 31 December 2020 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 14 out of 238 buildings. If information regarding heating sources was not available (34 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.

Second, 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 in the amount of the financing share.

In order to provide a maximum of 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").¹⁰ 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 financing.
- Carbon impact is allocated proportionally to Berlin Hyp's initial share in financing.

The results are provided in the table below.

The CO₂ savings per million euros invested have decreased compared to the previous year in the case of EnEV. This is mainly due to the switch to a more up-to-date source⁵ of the now lower

³Published on <https://www.berlinhyp.de/en/investors/green-bonds>

⁴Joint 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

⁵AIB European Residual Mixes 2019, <https://www.aib-net.org/facts/european-residual-mix>



Avoided tCO₂/€ 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) | 26.60 (PY 39.89) | 14.52 (PY 22.58) |
| against the European average (heating energy only) | 23.56 (PY 24.77) | 12.92 (PY 13.93) |

conversion factors for electricity and a higher outstanding bond volume. The CO₂ emissions of the portfolio decreased overall to 116,304 tCO₂ from 134,301 tCO₂ in the previous year.

Comparison to EnEV reference values (heating and electricity)

Compared to EnEV reference values, annual savings of 444 GWh are achieved. 213 GWh out of these are based on heating energy savings.⁶ On average, financed green buildings have an energy demand for heating of 61 kWh/m² per year, which is 46 percent lower than the weighted average EnEV reference values (112 kWh/m² per year).⁷ In addition, a total of 231 GWh of electricity is saved every year. Financed green buildings have an average energy demand for electricity of 35 kWh/m² per year, which is 61 percent lower than the weighted average EnEV reference values (89 kWh/m² per year). **This results in avoided carbon emissions of 137,500 tonnes per year in absolute terms.**

Comparison to European average (heating only)

In terms of the European average, financed green buildings generate savings of 547 GWh concerning their energy demand for heating.⁴ The buildings have an average energy demand for heating of 61 kWh/m² per year, which is 68 percent lower than the European average (188 kWh/m² per year). This results in avoided carbon emissions of 122,000 tonnes per year in absolute terms.

D.2 Principles of methodology

The methodology is based on a two-phase process:

I. 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/m² per year
European average: Final energy demand for heating savings in kWh/m²a

II. 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)⁸
- 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 CO₂ per year)

⁶The calculation of the average is based on the 224 out of 238 buildings with available energy demand data
⁷ $\sum [m^2 \text{ Building} * (\text{Benchmark} - \text{kWh per m}^2)]$
⁸See 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 2016.⁹

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 |
| Hotel | 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 existing building stock have been modelled in the European project ENTRANZE¹⁰.

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 offices¹¹ 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

153 out of the 238 Green Buildings are based in Germany, 43 in the Netherlands and 18 in Poland and 18 in France. In addition, three are situated in the Czech Republic, two in Luxembourg and one in Belgium.

The following carbon emissions factors split into respective energy sources originate from the standard reference work of the European Commission¹² and have been included in the calculation for all countries.

⁹Deutsche Energie Agentur (publisher): dena Report on Buildings: Energy efficiency in the building stock – statistics and analyses (2016)

¹⁰ENTRANZE, 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

¹¹This 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.

¹²Joint Research Centre of the European Commission (Hrsg.): „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 |
| Liquefied gas | 0.281 |
| Wood | 0.42 |
| Biogas | 0.284 |
| Biopetroleum | 0.182 |

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 | 0.125 |
| Cologne | 0.074 |
| Duisburg | 0.126 |
| Frankfurt am Main | 0.175 |
| Düsseldorf | 0.078 |
| Böblingen | 0.089 |
| Offenbach am Main | 0.317 |
| Oberhausen | 0.080 |
| Mannheim | 0.182 |
| Bonn | 0.141 |
| Neubrandenburg | 0.194 |
| Essen | 0.178 |
| Hamburg | 0.146 |
| Dortmund | 0.200 |
| Karlsruhe | 0.077 |
| Saarbrücken | 0.123 |
| Berlin | 0.129 |
| Stuttgart | 0.196 |
| Leipzig | 0.224 |
| Hanau | 0.232 |

| | |
|-------------|-------|
| Mainz | 0.092 |
| Bochum | 0.189 |
| Sandersdorf | 0.071 |
| Welden | 0.097 |
| Münster | 0.224 |

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 | 0.033 |
| Netherlands | 0.178 |
| Poland | 0.352 |
| Czech Republic | 0.308 |
| Belgium | 0.074 |
| UK | 0.103 |

The following country-specific emissions factors¹³ were used to calculate emissions from energy demand for electricity.

| Electricity by country | kg CO ₂ / kWh final energy demand |
|------------------------|--|
| Germany | 0.345 |
| France | 0.045 |
| Netherlands | 0.306 |
| Poland | 0.841 |
| Czech Republic | 0.592 |
| Belgium | 0.145 |
| UK | 0.280 |
| Luxembourg | 0.217 |

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

¹³AIB 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 ¹⁴ | 0.235 | 0.270 |
| France ¹⁵ | 0.120 | 0.135 |
| Netherlands ¹⁶ | 0.240 | 0.264 |
| Poland ¹⁷ | 0.364 | 0.467 |
| Czech Republic ¹⁸ | 0.264 | 0.411 |
| Belgium ¹⁹ | 0.222 | 0.206 |
| UK ²⁰ | 0.239 | 0.246 |
| Luxembourg ²¹ | 0.242 | 0.239 |

¹⁴ Facts and figures Energy data 2020. https://www.bmwi.de/Redaktion/DE/Binaer/Energiedaten/energiedaten-gesamt-xls.xlsx?__blob=publicationFile&v=129

¹⁵ Bilan énergétique de la France 2018: <https://www.statistiques.developpement-durable.gouv.fr/bilan-energetique-de-la-france-pour-2018?rubrique=19&dossier=170>

¹⁶ CBS: <https://opendata.cbs.nl/statline/#/CBS/en/>

¹⁷ Statistics Poland 2019: <https://stat.gov.pl/en/topics/environment-energy/energy/>

¹⁸ 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 pocket-book and country datasheets

¹⁹ Statbel: <https://statbel.fgov.be/fr/themes/energie/statistiques-de-lenergie-par-secteur-economique-et-par-source-denergie>

²⁰ Dukes: <https://www.gov.uk/government/statistics/energy-chapter-1-digest-of-united-kingdom-energy-statistics-dukes>

²¹ Portail des Statistiques: https://statistiques.public.lu/stat/ReportFolders/ReportFolder.aspx?IF_Language=eng&MainTheme=1&FldrName=4



E – Client Interview: **WARBURG-HIH INVEST,** **MesseCity Köln**

Interview with Iris Hagdorn – Head of Sustainability, Andreas Strey – Co-Head of Fund Management, Peter Müffelmann – Head of Treasury

In 2016, work began on “MesseCity Köln”, a 130,000-square-metre development in a prominent location in Cologne city centre. The development site encompasses seven plots in total, with a mixture of offices and hotels. There are several phases of construction still to go, and the whole project is due to be completed by about 2024. The first section, consisting of three office buildings with a rental area of around 69,000 square metres, was purchased by Warburg-HIH Invest in 2016 as part of a forward funding transaction. Berlin Hyp is providing Warburg-HIH Invest with long-term financing for one of the properties. Having been given Gold certification by DGNB (Deutsche Gesellschaft für Nachhaltiges Bauen, or German Sustainable Building Council), the building is eligible for Berlin Hyp’s Green Building portfolio. We spoke to Iris Hagdorn, Andreas Strey and Peter Müffelmann from Warburg-HIH Invest about the project and the role played by ESG in the real estate industry and at Warburg-HIH Invest.



Andreas Strey – Co-Head of Fund Management

MesseCity Köln – a development site in Cologne city centre

With MesseCity Köln, a brand new business district is being created in the heart of the city. What is it that makes this project so special from an ESG point of view?

Andreas Strey

There are several factors which make the MesseCity Köln development site a sustainable investment. For one thing, the site benefits from its urban location and offers a great experience for visitors, with an attractive mix of offices, hotels and eateries. Via Cologne’s Deutz railway station, MesseCity Köln is directly connected both to local public transport and to the ICE long-distance rail network, which was an important criterion in our tenants’ choice of location. During the construction and development phases, careful attention was paid to a range of sustainability aspects. In addition to the very good life cycle assessment, high ethical standards during the construction phase, and high level of energy efficiency (partly due to excellent heat recovery), sustainable management of the property throughout its life cycle was also a top priority. The architectural concept, which features a low ratio of window surfaces to façade surface, is designed to reduce heating and cooling consumption over the long term, and thus saving energy. MesseCity Köln was awarded a Gold sustainability certificate by the DGNB.

A look at the refinancing market

For years now, sustainability has been increasingly important to banks and capital market investors too. This has led to the emergence of a sort of green value chain, which to some extent is even reflected in pricing. How much influence do you think ESG will have on refinancing in the future? Can you already see changes in the behaviour or processes of relevant actors?

Peter Müffelmann

Warburg-HIH Invest works with over 30 domestic and foreign financial institutions which provide financing for our vehicles. We’ve been seeing an increase in the importance of ESG for several years now. There are different focuses depending on whether we’re talking about ‘E’ or ‘S’.

Some institutions, for example, do not offer financing for properties that include certain usage types, or where the tenants have links to problematic business sectors such as the arms industry. Here, ‘S’ is front and centre and tends to be specified by exclusion criteria.

Where ‘E’ is the main focus, building quality requirements are key. Here, the most important thing is to provide evidence of the appropriate certification (BREEAM, DGNB). At the same time, through pricing (=refinancing), incentives are created to purchase ESG-compliant properties and to keep them that way.

We predict that this trend will become even more marked in the future. Particularly in the ‘E’ segment, we expect to see increasingly stringent requirements on the part of banks which offer ESG-compliant financing for various reasons, or which have an interest in the properties remaining ESG-compliant throughout the term. At the moment, the main drivers are regulatory requirements and investors who are seeking ESG bonds and have defined these as a minimum standard for their investments.



Peter Müffelmann – Head of Treasury



Iris Hagdorn – Head of Sustainability

Challenges within the industry

The German government’s Climate Paths stipulate that the real estate sector should be aiming to cut its CO₂ emissions by 40 percent between 2020 and 2030. What challenges is the industry facing, and how well placed are you to meet them?

Iris Hagdorn

Increasingly stringent requirements on the part of investors and regulators – that’s one challenge. And another is the economic risks resulting from climate change, as well as market risks due to reduced demand for premises with below-average energy efficiency. We also have higher energy costs to contend with. Thanks to our ESG strategy, which is applied both during the investment phase and at the operational level, we believe we are well prepared for these challenges. The creation of a reliable database is an important building block in this regard.

The role of existing properties

A large proportion of the buildings that will be used in 10 or 20 years’ time already exist. How do you see the role of existing properties?

Iris Hagdorn

ESG is part of a forward-looking strategy. It’s not enough to think about ESG aspects only in relation to project developments. When you consider that the bulk of the real estate industry involves existing properties, it makes perfect sense that we as a company and portfolio holder should engage closely with this issue.

The long-term sustainability goals of both the company itself and our investment management are embedded in our business strategy. One key element is the investment philosophy “measure, analyse & manage-to-green”. This means that ESG is integrated into active asset and fund management and reflected in our ongoing dialogue with new and existing tenants.

Andreas Strey

Specifically, we want to make sure the latest energy standards are upheld when carrying out age-related maintenance – when replacing old windows, for example (triple glazing) or lighting systems (LED). We often offer our tenants subsidies for the installation of charging points – usually as part of contract negotiations. At the moment there are construction works going on at several of our properties, all in line with ESG principles. These works include the electrification of the underground car park and the installation of additional bicycle racks. To this end, specialist planners were tasked with creating a concept for renewing building systems in line with environmental/energy considerations.

Implementing ESG principles at Warburg-HIH Invest

Can you describe how ESG principles are reflected in the daily work of Warburg-HIH Invest?

Andreas Strey

At fund level, in consultation with investors, more and more property portfolios are being reviewed for an improved attitude to sustainability, and fund managers are suggesting alternative courses of action in order to give portfolios a value-stabilising and sustainable direction.

Iris Hagdorn

ESG has already arrived in the real estate industry. We have a holistic approach which maps out the life cycle of our properties, from ESG due diligence to work on existing buildings to asset and property management. ESG plays a role in each of these areas.

What exactly does ESG due diligence look like?

Andreas Strey

Due diligence is carried out as part of all real estate purchases. As well as analysing the energy efficiency of a building, it also includes aspects like reviewing green lease clauses in rental agreements, analysing the potential of ESG optimisation measures, and looking at concrete energy consumption in order to better assess a building's carbon footprint.

Iris Hagdorn

We also look at optimisation measures we can roll out across our entire portfolio, such as switching our electricity supply to green energy for the areas managed by us as the lessor. Other measures we are putting into practice include switching to smart meters and using new technologies and innovations to carry out energy modelling for individual properties.



Impact of the EU taxonomy on the industry

And finally: the EU taxonomy provides a clear set of guidelines as to which economic activities can be classed as sustainable. The development, renovation and purchase of energy-efficient buildings all fall into this category. How do you think the taxonomy will impact the real estate industry in the future?

Iris Hagdorn

As a framework, the taxonomy will have a big impact on the property sector in the future. When it comes to firming up legislation, however, the challenge will be to make sure there is collaboration with the respective industries in order to ensure market acceptance, and to make sure market participants have the motivation to invest in a taxonomy-compliant way.

Thank you very much for these interesting insights!



Appendix

I 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 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) |
|-------------|-------------|------------------|-------------|-------------|-----------------|---------------------------------|--|--|---|
| Office | Netherlands | 01.07.20 | 15.00 | EPC | Financing | 4,985 | 71 | 41 | 35 |
| Office | Germany | 29.08.17 | 6.00 | EPC | Financing | 11,798 | 83 | 34 | 37 |
| Residential | Germany | 29.08.17 | 10.10 | EPC | Development | 7,022 | 59 | 0 | 0 |
| Office | Germany | 10.07.20 | 3.19 | EPC | Financing | 33,361 | 82 | 45 | 28 |
| Office | Germany | 10.07.20 | 11.46 | EPC | Financing | 10,929 | 80 | 70 | 25 |
| Retail | Germany | 10.07.20 | 0.60 | EPC | Financing | 1,084 | 49 | 70 | 10 |
| Office | Germany | 10.07.20 | 1.75 | EPC | Financing | 20,119 | 69 | 70 | 28 |
| Office | Germany | 10.07.20 | 2.42 | EPC | Financing | 74,938 | 63 | 73 | 20 |
| Office | Germany | 10.07.20 | 11.84 | EPC | Financing | 17,095 | 95 | 71 | 17 |
| Office | Germany | 30.01.18 | 2.95 | EPC | Development | 1,482 | 52 | 51 | 39 |
| Office | Netherlands | 12.09.18 | 2.66 | EPC | Financing | 19,883 | 14 | 10 | 53 |
| Retail | Germany | 15.01.19 | 1.19 | EPC | Financing | 3,613 | 14 | 40 | 35 |
| Logistic | Germany | 12.12.19 | 2.25 | DGNB Gold | Financing | 34,289 | 74 | 24 | -8 |
| Office | Germany | 25.07.19 | 21.97 | EPC | Development | 47,010 | 85 | 44 | 33 |
| Retail | Germany | 09.01.20 | 0.39 | EPC | Financing | 1,864 | 58 | 25 | 24 |
| Retail | Germany | 11.06.20 | 24.00 | EPC | Financing | 3,945 | 32 | 52 | 24 |
| Residential | Germany | 13.03.20 | 39.26 | EPC | Financing | 15,554 | 57 | 0 | 1 |
| Residential | Germany | 30.03.20 | 1.21 | EPC | Financing | 2,111 | 60 | 0 | 0 |
| Residential | Germany | 30.03.20 | 0.47 | EPC | Financing | 816 | 53 | 0 | 2 |
| Residential | Germany | 30.03.20 | 1.86 | EPC | Financing | 3,122 | 54 | 0 | 2 |
| Office | Germany | 28.01.20 | 5.00 | EPC | Financing | 3,717 | 42 | 33 | 42 |
| Office | Netherlands | 23.10.20 | 12.88 | EPC | Financing | 9,275 | 63 | 47 | 35 |
| Office | Netherlands | 23.10.20 | 10.44 | EPC | Financing | 8,980 | 69 | 42 | 35 |
| Office | Netherlands | 23.10.20 | 12.68 | EPC | Financing | 7,960 | 1 | 19 | 58 |
| Retail | Netherlands | 30.09.20 | 2.09 | EPC | Financing | 2,615 | 43 | 54 | 18 |

| 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 | 30.09.20 | 3.43 | EPC | Financing | 4,116 | 27 | 42 | 23 |
| Retail | Netherlands | 30.09.20 | 2.23 | EPC | Financing | 2,803 | 16 | 20 | 36 |
| Retail | Netherlands | 30.09.20 | 1.91 | EPC | Financing | 3,865 | 35 | 44 | 23 |
| Retail | Netherlands | 30.09.20 | 1.19 | EPC | Financing | 1,437 | 10 | 31 | 31 |
| Retail | Netherlands | 30.09.20 | 1.96 | EPC | Financing | 1,357 | 30,2 | 37,7 | 24 |
| Retail | Netherlands | 30.09.20 | 1.15 | EPC | Financing | 1,826 | 52 | 78 | 6 |
| Office | Netherlands | 30.09.20 | 1.28 | EPC | Financing | 2,194 | 58 | 41 | 38 |
| Retail | Germany | 18.09.20 | 1.59 | EPC | Financing | 1,115 | 49 | 31 | 24 |
| Retail | Germany | 18.09.20 | 2.36 | EPC | Financing | 1,614 | 26 | 21 | 37 |
| Retail | Germany | 18.09.20 | 1.07 | EPC | Financing | 1,809 | 23 | 39 | 32 |
| Office | Poland | 24.09.20 | 48.00 | Breeam Very Good | Financing | 29,876 | 8 | 44 | 111 |
| Residential | Germany | 13.11.20 | 39.36 | EPC | Financing | 17,230 | 56 | 0 | 1 |
| Residential | Germany | 06.10.20 | 11.85 | EPC | Financing | 4,222 | 71 | 1 | -3 |
| Residential | Germany | 19.10.20 | 14.00 | EPC | Financing | 6,554 | 55 | 0 | 1 |
| Residential | Germany | 09.07.20 | 3.92 | EPC | Financing | 2,028 | 58 | 0 | 0 |
| Residential | Germany | 09.07.20 | 3.02 | EPC | Financing | 1,751 | 58 | 0 | 0 |
| Residential | Germany | 09.07.20 | 6.32 | EPC | Financing | 4,723 | 57 | 0 | 1 |
| Residential | Germany | 11.12.20 | 20.00 | EPC | Financing | 13,732 | 62 | 0 | 0 |
| Residential | Germany | 17.12.20 | 14.36 | EPC | Financing | 7,199 | 56 | 0 | 1 |
| Residential | Germany | 17.12.20 | 10.57 | EPC | Financing | 5,252 | 62 | 0 | 0 |
| Residential | Germany | 17.12.20 | 26.76 | EPC | Financing | 12,533 | 47 | 0 | 3 |

II Heating systems 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 2018 as published by the International Energy Agency, are used to determine the emissions factor.

| Country | Heat energy produced (TWh) | Electricity produced ²¹ (TWh) | Total emissions (MtCO ₂) |
|----------------|----------------------------|--|--------------------------------------|
| France | 42,54 | 440,29 | 38,6 |
| Netherlands | 23,32 | 107,97 | 53,5 |
| Poland | 65,07 | 140,47 | 150,0 |
| Czech Republic | 23,99 | 58,00 | 53,4 |
| Belgium | 4,71 | 82,76 | 16,2 |
| UK | 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 be determined for each country first of all as follows:

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 in consideration of 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:

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

¹⁵ Bilan énergétique de la France 2018: <https://www.statistiques.developpement-durable.gouv.fr/bilan-energetique-de-la-france-pour-2018?rubrique=19&dossier=170>

