

A partnership built on trust

Berlin Hyp

Sustainability-Linked Bond Framework

February 2021



**Berlin Hyp
Sustainability-Linked
Bond**

Contents

1) Berlin Hyp's Sustainability Agenda	2
2) Rationale for Sustainability-Linked Bond Framework	4
3) Sustainability-Linked Bond Principles	5
3.1 Selection of Key Performance Indicators (KPIs)	5
3.2 Calibration of Sustainability Performance Targets (SPTs)	6
3.3 Bond characteristics	6
3.4 Reporting	8
3.5 Verification	8
Summary Carbon Footprint Assessment Methodology	9
Disclaimer	10
Berlin Hyp Carbon Footprint Assessment Methodology	12

1) Berlin Hyp's Sustainability Agenda

Climate change is one of the biggest challenges of our times – maybe even the biggest. To combat this change is not an exclusive task for real estate related businesses, however the sector plays a significant role in order to achieve the Paris Agreement's goal of reducing global warming to less than 2° Celsius above pre-industrial levels by 2050. Berlin Hyp AG ("Berlin Hyp") aims to play an active part in the necessary green transformation of the European building sector. Therefore, the bank integrated ESG (Environmental, Social, Governance) in the core of its corporate strategy and business operations.

In 2013, the bank resolved to incorporate its existing approaches and processes in a sustainability management system covering numerous ESG aspects. Financing energy-efficient green buildings represents the part of Berlin Hyp's ESG measures that is closest to its core business: commercial real estate lending. As of 2015, when the bank issued its inaugural Green Pfandbrief, which was the first green covered bond world-wide to be issued, loans for energy-efficient green buildings are refinanced by issuing green bonds. To further strengthen its green finance franchise, the bank introduced pricing incentives for eligible business in 2016. Since then, loans for energy-efficient green buildings enjoy a discount of 10 bps in pricing. In 2017, having a leading position in green finance was added to Berlin Hyp's overall strategic goals. An expansion of its green finance portfolio to 20 percent of its overall loan portfolio was set as a strategic performance target (SPT). The bank achieved this target, a year in advance, at the end of 2019. As of year-end 2020, the bank's green finance portfolio amounts to EUR 6.0bn representing 22 percent of its total loan book.

In August 2020, Berlin Hyp published its new and ambitious Sustainability Agenda¹, in line with the 2050 climate neutrality goal of the Federal Republic of Germany, which includes ambitious climate protection targets for the building sector. Depending on the respective calculation, buildings account for 30 to 40 percent of total carbon emissions in Germany.

Due to the major impact of the real estate sector to reach the German and European climate neutrality goals, building developers, owners and financing banks are currently seeing a completely new dimension of evaluation criteria and standards arising in order to meet the challenges associated with achieving the climate targets. The high relevance of the sector and the disruptive nature of new standards such as the EU Taxonomy's buildings and construction criteria are key reasons why Berlin Hyp has not only set itself another new sustainability target, but a far-reaching Sustainability Agenda. The Sustainability Agenda represents a comprehensive set of measures enabling Berlin Hyp to proceed with its own green transformation and to play an important role in its core business sector's necessary environmental transformation. It consists of four building blocks:

1. Commitment to the Paris Agreement and the Climate Paths of the Federal Republic of Germany

- Paris Agreement: Reduce global temperature increase to less than 2° C above pre-industrial levels
- Climate Paths of the Federal Republic of Germany: national set of measures to achieve the objectives of the Paris Agreement. This includes a path towards climate neutrality of the building sector and defines interim targets, e.g. a 40 percent reduction of carbon emissions caused by this sector between 2020 and 2030². The climate paths' legal basis is the German Climate Protection Act (Klimaschutzgesetz, KSG) which came into force in December 2019.
- Berlin Hyp chooses to play an active role in reaching the Paris and national German targets. In order to do so, Berlin Hyp not only seeks the climate neutrality of its own operations but also links carbon reduction targets to the buildings it finances.

¹ <https://www.berlinhyp.de/en/about-us/sustainability/management-instruments>

² https://www.umweltbundesamt.de/sites/default/files/medien/384/bilder/dateien/2_abb_thg-emissionen-zielpfade-de_2020-02-19.pdf

2. 1/3 share of loans for energy-efficient green buildings in Berlin Hyp's loan portfolio by 2025

- Eligible business is defined in the bank's green bond framework³ and will take into account the EU Taxonomy's buildings and construction criteria once the EU Commission's delegated regulation on the taxonomy is finalized.
- The 1/3-target ensures continued consideration of energy efficiency in Berlin Hyp's future lending decisions and demonstrates the growing importance of financing green buildings within its portfolio. The target is enhanced by the maintenance of a 10 bps discount for loans for energy-efficient green buildings.

3. Portfolio transparency by 2023 – systematic determination of energy performance, carbon and climate risks within Berlin Hyp's overall loan portfolio

- Recording of all energy performance certificates (EPC) in Berlin Hyp's loan monitoring system and their analysis. Due to its achievements as a regular green bond issuer, the bank's loan monitoring system already contains energy efficiency data of all constituents of its green finance portfolio. Until year-end of 2023, it also aims to complete the collection of EPCs for all financed buildings that are not included in the green finance portfolio.
- Based on loan-book-wide EPC-based energy efficiency data, Berlin Hyp thereafter will be enabled to calculate its overall loan portfolio's carbon emissions more precisely. Precise knowledge of CO₂ emissions is a vital prerequisite for an accurate determination of transitory and physical risks via scenario analyses.

4. Introduction of another sustainability product: Transformationskredit (transformation loan)

- The transformation loan is intended to enable the financing of ESG real estate transformation measures. These include among others renovations leading to a decrease of energy demand by at least 30 percent, in line with the EU Taxonomy's requirement.
- Berlin Hyp will incentivize this product and support its borrowers to transform their properties towards 'green'.



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

2) Rationale for Sustainability-Linked Bond Framework

Being the issuer of the first ever green covered bond, Berlin Hyp is a pioneer within the ESG capital markets. Following its 2015 inaugural Green Pfandbrief, the bank issued nine more EUR denominated benchmark-sized green bonds. In 2020, it successfully launched its first CHF-denominated benchmark-sized green bond. In the same year, it started issuing green private placements. Green bonds have helped Berlin Hyp to broaden its investor base substantially. Its outstanding green bonds exceed EUR 5bn and consists of covered bonds, senior preferred and senior non-preferred issuance. As per the end of 2020, Berlin Hyp remains the most active issuer of green bonds among all European commercial banks. The green bonds' proceeds refinance loans for energy-efficient green buildings and represent the bank's efforts in expanding its green lending on the liabilities side of its balance sheet. The instruments' use-of-proceeds nature provides for a direct and strong link between the bank's green bonds and the eligible assets. With the issuance of sustainability-linked bonds (SLBs), Berlin Hyp aims to broaden its role as an issuer on the ESG capital market and to extend its ESG refinancing instruments from its formerly pure asset-based approach to an approach that takes into account the bank's overall ESG performance.

With its Sustainability Agenda, Berlin Hyp commits itself to carbon neutrality by 2050. The application of the Federal Republic of Germany's government's climate paths provides for strong interim targets, in order to align the bank's loan portfolio to the overarching Paris-goal, and for a good basis of its SLBs. Due to the high energy demand of buildings and the fact that buildings are responsible for 30 percent of total energy related carbon emissions worldwide, Berlin Hyp already contributes to the avoidance of carbon emissions by financing energy-efficient green buildings and refinancing these loans by green bonds. With the issuance of SLBs it aims to

- I. further increase its contribution to combat climate change,
- II. embed ESG further into the core of its business operations,
- III. share its progress in achieving its ESG targets defined by its Sustainability Agenda in a consistent and transparent manner,
- IV. raise awareness for the carbon reduction necessities in the real estate sector,
- V. inspire capital market participants to provide the financial means necessary to achieve the required carbon reductions and thus, support the Paris goal of reducing global warming to less than 2° C, and
- VI. to broaden and strengthen its investor base.

Berlin Hyp considers the issuance of SLBs as a logical further step of connecting ESG aspects of its core business and its overall refinancing operations via capital markets. SLBs will represent an additional class of funding instruments within the bank's ESG related funding mix, and will also be an important tool in addition to Berlin Hyp's commitment to the green bond market.

3) Sustainability-Linked Bond Principles

Berlin Hyp's Sustainability-Linked Bond Framework is aligned with the five core components of the Sustainability-Linked Bond Principles published by the International Capital Markets Association (ICMA) in June 2020⁴:

1. Selection of Key Performance Indicators (KPIs)
2. Calibration of Sustainability Performance Targets (SPTs)
3. Bond characteristics
4. Reporting
5. Verification

This Sustainability-Linked Bond Framework allows Berlin Hyp to issue SLBs in various formats. SLBs of Berlin Hyp may be issued as covered bonds or senior unsecured bonds (including senior preferred and senior-non preferred debentures). Both public and private placements are possible under the bank's Sustainability-Linked Bond Framework. Berlin Hyp's SLBs are to be issued as bearer bonds under its Offering Program, described in the current version of its base prospectus, which is published on the bank's website⁵. The issuer may also issue SLBs in the form of a registered bond (Namenschuldverschreibung) or assignable loan (Schuldscheindarlehen).

3.1 Selection of Key Performance Indicators (KPIs)

Based on the first pillar of its Sustainability Agenda, Berlin Hyp selects as the Key Performance Indicator for its SLBs **the carbon intensity reduction rate of its loan portfolio**⁶, expressed in percentage (%) compared to the baseline 2020.

The carbon intensity of Berlin Hyp's loan portfolio is the ratio of the aggregated CO₂ emissions from all commercial real estate financed by Berlin Hyp by total financed areas.

The chosen KPI expresses the bank's commitment to the Paris Agreement and to the German government's climate path. In addition, achievements on this KPI directly contribute to the United Nation's Sustainable Development Goals (SDGs) 11 (sustainable cities and communities) and 13 (climate action).

The principles of the carbon footprint assessment methodology are presented in the Appendix and are aligned with Berlin Hyp's green bond impact calculation methodology⁷:

- CO₂ Scope 1 and 2 emissions from buildings' energy demand for heating and electricity are included;
- Carbon footprint assessment is implemented on a building by building basis;
- Carbon footprint assessment is based on the buildings' energy demand (collected or estimated by Berlin Hyp) and geographies- and energy-sources-specific carbon conversion factors;
- Carbon footprint assessment is based on the best quality data available: Berlin Hyp intends to update its carbon footprint assessment (even retroactively, if appropriate) at any time it is updated and/or if better quality data is available (including replacing estimated energy demand by collected EPC data and/or update of carbon conversion factors);
- Public governmental databases are preferred for the calculation of carbon conversion factors.

Berlin Hyp's KPI will be reported annually in its Annual Sustainability-Linked Bond Report and published on its website (see section 3.4 Reporting).

Berlin Hyp's carbon footprint methodology and annual KPI values are reviewed by an independent third party (see section 3.5 Verification).



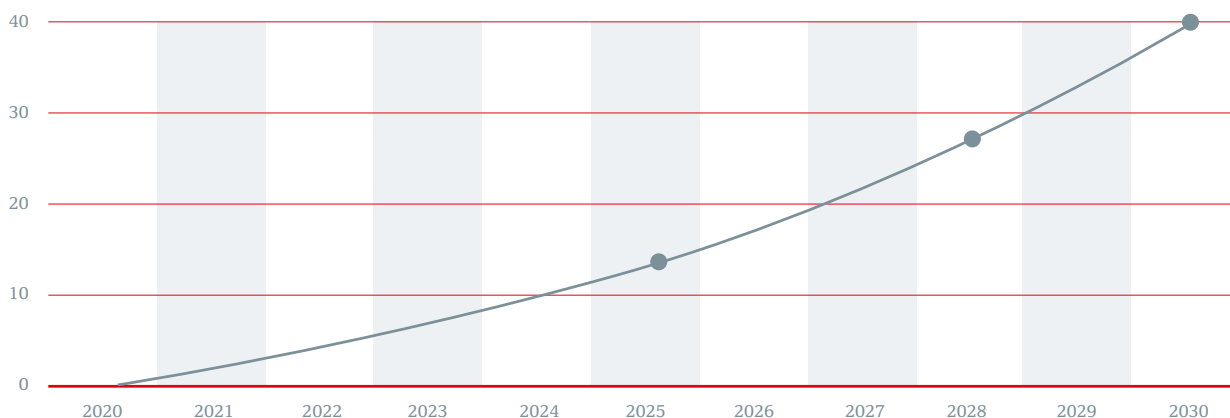
⁴ <https://www.icmagroup.org/sustainable-finance/the-principles-guidelines-and-handbooks/sustainability-linked-bond-principles-slb/>

⁵ <https://www.berlinhyp.de/en/investors/base-prospectus-final-terms>

⁶ The term 'carbon intensity reduction rate of its loan portfolio' is chosen as a short description of what is basically meant by this term: The reduction rate of the carbon intensity of all buildings financed by the total of all loans granted by Berlin Hyp, outstanding at reporting dates, and together forming the bank's loan portfolio.

⁷ Berlin Hyp's green bond impact calculation is described in the latest version of its Annual Green Bond Reporting and published on <https://www.berlinhyp.de/en/investors/green-bonds>

Figure 1: Berlin Hyp's carbon intensity reduction trajectory



3.2 Calibration of Sustainability Performance Targets (SPTs)

Aligned with its Sustainability Agenda and benchmarked against the German plan to reach the Paris Agreement, Berlin Hyp sets up the following Sustainability Performance Target: **to reduce its loan portfolio's carbon intensity by 40 percent between 2020 and 2030.**

Intermediate targets have been defined and are displayed in the graph in Figure 1:

- Reducing its loan portfolio's carbon intensity by 14 percent by 2025;
- Reducing its loan portfolio's carbon intensity by 27 percent by 2028.

The trajectory's convexity reflects three effects, which Berlin Hyp estimates to accelerate its potential to reach the envisaged 40 percent carbon intensity reduction by 2030 within the defined ten-year period:

- Political action in Europe is underway and many regulations targeting the reduction of carbon emissions are still in an implementation phase. The political pressure will significantly increase during the coming years in order to reach the update objectives such as the 55 percent carbon reduction by 2030 (vs. baseline 1990) and carbon-neutrality by 2050. Consequently, laws, regulations and other standards are to be updated and technical/engineering solutions will be material.
- Berlin Hyp expects a significant increase of refurbishment projects in the real estate sector over the coming years. Renovated buildings will play a more significant role in Berlin Hyp's loan portfolio, following the launch of its transformation loan product. Building up a sizeable portfolio of transformation loans outstanding will be achieved over time.

→ The transition in the energy sector, i.e. the decarbonization of energy production, will contribute to the energy transition in the real estate sector. Newly constructed and refurbished buildings will consume less energy, which will be less "carbonized". This creates a cumulative effect in the medium to longer future, which will be fueled by new guidelines and standards on the real estate sector such as the EU Taxonomy's construction and buildings criteria.

Berlin Hyp may select one or several SPTs according to the maturity of the SLB issued. Applicable SPT(s) and corresponding observation dates are to be specified in the final terms of each SLB (cf. next section "Bond characteristics").

3.3 Bond characteristics

The financial and/or structural characteristics of Berlin Hyp's SLBs may vary depending on whether or not the selected KPI reaches the predefined SPT(s). They are to be specified in the final terms of each SLB issued and may include the following:

1. Coupon step-up(s)

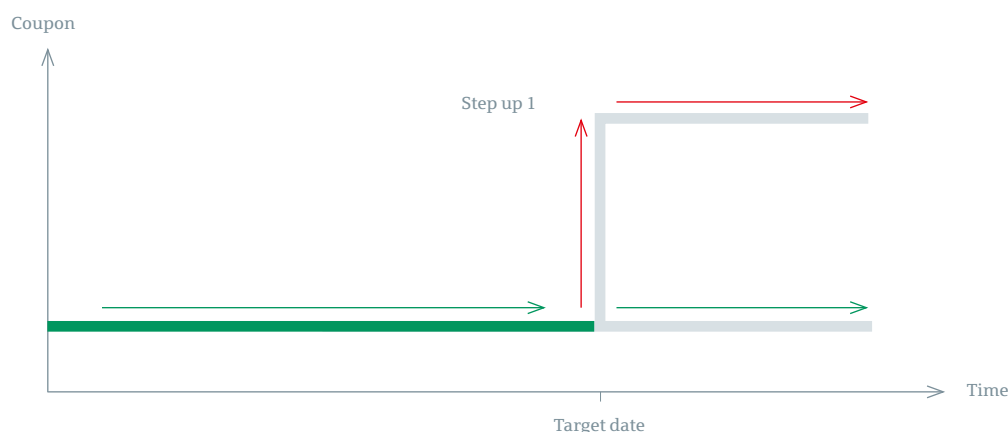
An increase of the bond coupon by a percentage expressed in bps per annum and specified in the final terms of the SLB, payable from the first coupon payment date following the SPT observation date until maturity or at the point of maturity, as specified in the documentation (or until the next target observation date if multiple observation dates have been defined, see Figure 2).

1.1 Single coupon step-up

A coupon step-up is applied from the first coupon payment date following the SPT observation date until the maturity date of the bond if the target is not achieved (red line in Figure 2). The coupon remains at its initial level

if the SPT is achieved (green line in Figure 2). If the chosen SPT observation date is scheduled within one year to maturity or at maturity of the SLB the potential coupon increase applies to the last coupon only.

Figure 2: coupon payment profile with a single coupon step-up structure (structure 1.1)



1.2 Two coupon step-ups

→ Upon the first coupon payment date following the first SPT observation date, a first coupon step-up shall be applied until the second SPT observation date if the first SPT is not achieved (orange line in Figure 3). The coupon remains at its initial level if the first SPT is achieved (green line in Figure 3);

→ Upon the first coupon payment date following the second SPT observation date, a second coupon-step (higher than the first coupon step-up) shall be applied until the maturity date of the bond if the second SPT is not achieved, irrespective of the achievement of the first SPT (red line in Figure 3). Otherwise, the coupon remains or reverts to its initial level. The latter applies if it has been increased at the first SPT observation date (in green in Figure 3).

Figure 3: coupon payment profile with a two coupon step-up structure (structure 1.2)

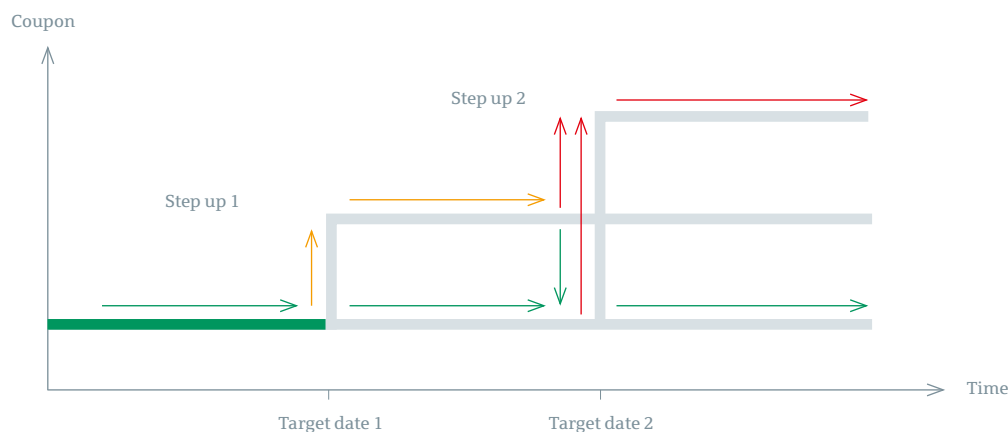
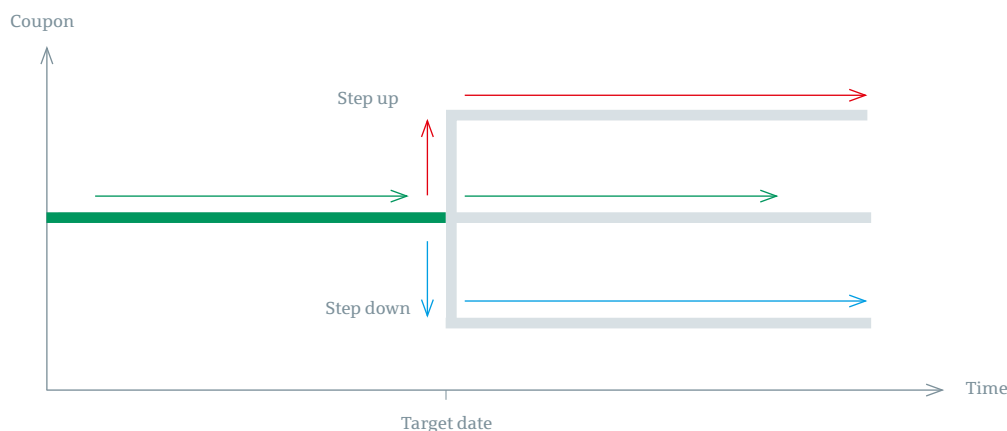


Figure 4: coupon payment profile with a single step-up and step-down structure (structure 2)



2. Coupon step-down

A coupon step-down shall be applied from the first coupon payment date following the SPT observation date until the maturity date of the bond if the target is substantially over-achieved (i.e. 10 percent or more at the SPT observation date, e.g. 50percent carbon intensity reduction by 2030; blue line in the figure below). The coupon remains at its initial level if the SPT is achieved but not substantially over-achieved (green line in the figure below). If the chosen SPT observation date is scheduled within one year ahead of the maturity date, the potential coupon decrease applies to the last coupon only. A coupon step-down may only be applied to a Berlin Hyp SLB in combination with a coupon step-up feature.

3. Higher repayment amount

If the SPT is not achieved on its observation date, the final repayment is increased by a certain amount, which is determined before issuance and documented in the SLB's final terms.

3.4 Reporting

Berlin Hyp will communicate annually on the selected KPI and publish the verified KPI value in its Annual Sustainable Linked-Bond Report available on its website. This annual reporting will include:

- Annual KPI values as of 31 December of the reporting year
- Historical KPI values since 2019
- Calculated annual carbon intensity of Berlin Hyp's loan portfolio
- Historical carbon intensity since 2019
- Average energy demand of buildings included in Berlin Hyp's loan portfolio

- Carbon conversion factors
- Any relevant information related to methodology and/or data update

3.5 Verification

This Framework and the associated Annual Sustainability-Linked Bond Reporting will benefit from three layers of external verification:

- I. A **second party opinion (SPO)** on the alignment of the Framework and the associated documentation with the Sustainability-Linked Bond Principles to be issued by Sustainalytics. The SPO will also include an assessment of the relevance, robustness and reliability of selected KPIs, the validity of the carbon footprint assessment methodology, the rationale and level of ambition of the proposed SPT, the relevance and reliability of selected benchmarks and baselines, and the credibility of the strategy outlined to achieve them, based on scenario analyses, where relevant. The SPO is to be published on Berlin Hyp's website prior to the issuance of its first SLB under this Framework until maturity of its last SLB issued under this Framework.
- II. An **annual re-verification** by Sustainalytics, or any other ESG rating agency or an auditor on the KPI information is to be published on Berlin Hyp's website in connection to the annual publication of the issuer's Sustainability-Linked Bond Report.
- III. A **verification assurance certificate** issued by Sustainalytics, or any other ESG rating agency or an auditor confirming whether the performance of the KPI meets the relevant SPT, published on Berlin Hyp's website following a target observation date.

Summary Carbon Footprint Assessment Methodology

The assessment of the carbon footprint of Berlin Hyp's loan portfolio is the sum of the portfolio's carbon footprint from energy demand for heating (including all technology sources i.e. coal, electricity, fuel, gas, district heating and renewable) and the portfolio's energy demand for electricity. The assessment is based on line-by-line calculations for each building financed by Berlin Hyp.

1. Assessment of carbon footprint from energy demand for heating, using

- ED_{Heating} : The final energy demand for heating for each building in the portfolio in kWh/m² per year
- • CF: The relevant carbon conversion factor for the building estimated from an external source in gCO₂e/kWh:
 - I. CF_F : The carbon conversion factor for fossil fuel when the energy source is fossil fuel (i.e. coal, fuel oil or gas)
 - II. CF_H : The country or location-specific carbon conversion factor for district heating when the building is connected to a district heating network
 - III. CI_E : The country-specific carbon intensity of the electric grid when the building is using electrified heating sources
 - IV. CF_A : The country-specific average conversion factor when the heating sources is unknown
 - V. When the energy source is a type of renewable energy (including biomass), the carbon conversion factor is estimated to be zero

2. Assessment of carbon footprint from energy demand for electricity, using

- $ED_{\text{Electricity}}$: The final energy demand for electricity usage other than heating for each building in the portfolio in kWh/m² per year
- CI_E : The country-specific carbon intensity of the electric grid in gCO₂e/kWh

The portfolio's carbon footprint is given by the sum of both carbon footprints for all buildings in Berlin Hyp's portfolio.

Carbon conversion factors

Carbon conversion factors designed to calculate the carbon footprint of the energy demand for heating or electricity are documented in Berlin Hyp's Annual Sustainable Linked-Bond Report available on its website. Berlin Hyp commits to estimate these factors using up-to-date publicly available data and to review carbon conversion factors annually.

Disclaimer

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Berlin Hyp Carbon Footprint Assessment Methodology



The following pages show the results and methodology of the assessment of the carbon emissions related to Berlin Hyp's loan portfolio. The scope of CO₂ emissions thereby is the sum of the emissions from the individual energy demand for heating and electricity of each building financed.

The bank has analysed its loan portfolio's carbon footprint by year-end 2020. The portfolio comprised loans for 5,331 buildings in Europe. During the analysis all loans for multifamily dwellings, management buildings, offices, retail and logistic buildings have been taken into account, which stand for 97.3 per cent of the financed area.

The analysis is based on recorded EPC data out of the bank's loan monitoring system on the one hand side (26.1 per cent of the financed area, respectively 35 per cent of the nominal) and proxies for cases where EPCs are not yet in the bank's possession on the other hand side. These proxies have been developed in co-operation with an external consultant and are based on (1) the type of building and (2) the year of construction/latest refurbishment. As defined in Berlin Hyp's sustainability agenda, the bank is committed to increase the share of recorded EPCs in its loan monitoring system. Therefore, whenever a new EPC of an existing building is available, the bank will update the proxy with the correct energy value. This will also lead to an adjustment of the total carbon footprint basis value (i.e. in the baseline year 2020) in hindsight to avoid improvements that are only based on enhanced transparency.

The carbon footprint calculation of Berlin Hyp's loan portfolio is based on its Green Bond impact reporting methodology (here¹). In order to convert heating energy demand into carbon emissions, specific conversion factors are applied based on the buildings' heating sources and locations. When information regarding heating sources was not available, a country-specific CO₂ factor based on the national mix for final energy consumption of the real estate sector was used. Factors applied for converting electricity energy demand into avoided carbon emissions are based on country-specific energy electricity production mixes. The results and methodology is specified below:

Results per 31 December 2020

Results	
Financed m ²	32,046,441
Total Carbon (kgCO ₂ /a)	1,237,490,355
Carbon per m ² (kgCO ₂ /m ² /a)	38.62
Total energy demand (kWh)	4,707,625,550
Energy demand per m ² (kWh/m ²)	146

Methodological Principles

The assessment of the carbon footprint of Berlin Hyp's loan portfolio is the sum of the portfolio's carbon footprint from energy demand for heating (including all technology sources i.e. coal, electricity, fuel, gas, district heating and renewable) and the portfolio's energy demand for electricity. The assessment is based on line-by-line calculations for each building financed by Berlin Hyp.

1. Assessment of carbon footprint from energy demand for heating, using

→ ED_{Heating}: The final energy demand for heating for each building in the portfolio in kWh/m² per year

→ CF: The relevant carbon conversion factor for the building estimated from an external source in gCO₂e/kWh:

- I. CF_f: The carbon conversion factor for fossil fuel when the energy source is fossil fuel (i.e. coal, fuel oil or gas)
- II. CF_h: The country or location-specific carbon conversion factor for district heating when the building is connected to a district heating network
- III. CI_e: The country-specific carbon intensity of the electric grid when the building is using electrified heating sources
- IV. CF_u: The country-specific average conversion factor when the heating sources is unknown
- V. When the energy source is a type of renewable energy (including biomass), the carbon conversion factor is estimated to be zero

2. Assessment of carbon footprint from energy demand for electricity, using

→ ED_{Electricity}: The final energy demand for electricity usage other than heating for each building in the portfolio in kWh/m² per year

→ CI_e: The country-specific carbon intensity of the electric grid in gCO₂e/kWh

¹ <https://www.berlinhyp.de/en/investors/green-bonds>

The portfolio's carbon footprint is given by the sum of both carbon footprints for all buildings in Berlin Hyp's portfolio.

Carbon conversion factors

Carbon conversion factors designed to calculate the carbon footprint of the energy demand for heating or electricity are documented in Berlin Hyp's Annual Sustainable Linked-Bond Report available on its website. Berlin Hyp commits to estimate these factors using up-to-date publicly available data and to review carbon conversion factors annually.

Carbon conversion factor for Fossil Fuel (CF_F)

The carbon conversion factors used for coal, fuel oil or gas are the IPCC emission factors.

Energy type	Carbon conversion factor (gCO ₂ e/kWh)
Coal	355
Fuel oil	306
Gas	240

Carbon conversion factor for District Heating (CF_H)

Carbon emissions factors for district heating systems were calculated in a similar way to the Annual Reporting of Berlin Hyp Green Bond portfolio.

Country	Carbon conversion factor (gCO ₂ e/kWh)
Belgium	71
Czech Republic	313
France	39
Germany	172
Luxembourg ²	74
Netherlands	195
Poland	364
United Kingdom	112

Carbon intensity of the Electricity (CI_E)

The carbon intensities for electricity are taken directly from the last update of the supplier mix CO₂ values in the AIB European Residual Mixes report³. To account for the volatility of the energy mix, the final carbon intensity value is a three-year average.

Country	Carbon intensity (gCO ₂ e/kWh)
Belgium	145
Czech Republic	592
France	45
Germany	345
Luxembourg	217
Netherlands	306
Poland	841
Spain	308
United Kingdom	280

Carbon conversion factor for average energy use (CF_A)

For unknown heating sources, the carbon conversion factor considered reflects the mix of the final energy consumption:

- For commercial and/or residential buildings,
- In a given country,
- Annually.

To estimate the conversion factors, Berlin Hyp is committed to use the latest available national statistics or the data collected for each country on the European level. The list of database is detailed below.

When the data was older than five years, Berlin Hyp used extrapolation to estimate more accurate values for the energy mixes.⁴

² As we could not calculate a specific value for Luxembourg, we considered it to have the same district heating carbon conversion factor than Belgium

³ AIB European Residual Mix 2019

⁴ The estimation of the trends of the electrification of buildings in the relevant European countries is based on the EU energy statistical pocketbook and country datasheets. The calculated trends have been applied to outdated energy mixes to estimate the new share of electricity in the building sector of the relevant countries.

The carbon conversion factor is calculated as the weighted product of technology-specific conversion factor by this technology part in the energy mix:

Country	Carbon conversion factor (gCO ₂ e/kWh)		Source	Extra-polated Data
	Residential	Commercial		
Belgium	222	205	Belgian statistical office (StatBel) ⁵	No
Czech Republic	264	411	EU Building Database ⁶ from the European Commission	Yes
France	120	135	Bilan énergétique de la France ⁷ from the French Ministry of the Environment	No
Germany	235	279	Energiedaten from the German Federal Ministry for Economic Affairs and Energy ⁸	No
Luxembourg	242	239	Statistics Portal of the Grand Duchy of Luxembourg ⁹	No
Netherlands	240	264	The Netherlands' Central Agency for Statistics (CBS) ¹⁰	No
Poland	364	467	Poland Central Statistical Office, Statistics Poland ¹¹	No
Spain	233	290	EU Building Database	Yes
United Kingdom	239	246	The United Kingdom Government's Digest of UK Energy Statistics (DUKES) ¹²	No

⁵ StatBel

⁶ EU Building Database

⁷ Bilan énergétique de la France 2018

⁸ Zahlen und Fakten Energiedaten 2020

⁹ Portail des Statistiques

¹⁰ CBS

¹¹ Statistics Poland 2019

¹² DUKES 2020

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