

The background of the slide is a close-up photograph of vibrant green moss. The moss is composed of numerous small, rounded tufts that vary in focus, creating a sense of depth and texture. The lighting is bright, highlighting the individual blades of the moss. The image is framed by white diagonal lines that create a central white space for the text.

**GREEN BOND**  
*Reporting 2019*

*(as of April 2019)*

# 1/ INTRODUCTION

2/ DEUTSCHE HYPO'S GREEN BOND PROGRAMME	3/ ASSET POOL REPORTING	4/ IMPACT REPORTING
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# 5/ DISCLAIMER AND CONTACT



# 1/ INTRODUCTION

Deutsche Hypo is well aware of the effect of its actions on the environment and the responsibility it has regarding society as a whole and future generations. The Board of Management of Deutsche Hypo has decided to prioritise its target to establish a professional sustainability management system of the bank. The sustainability management team, which is part of the Communications department, is responsible for realising these targets as one of its core tasks. Sustainability management is also in charge of implementing sustainability standards, coordinating sustainability measures and developing the sustainability strategy. It is supported by the sustainability committee, which includes representatives from all of the bank's departments which are relevant in terms of sustainability.

Deutsche Hypo firmly believes that many aspects of global development imply risks and rewards for both the bank itself and for its customers and investors, and therefore have an impact on business activities.

The sustainability strategy focuses on the aspects of global development which are relevant to Deutsche Hypo and its customers and investors and shows how opportunities can be realised effectively and risks managed properly. By taking on a systematic approach to sustainability issues, Deutsche Hypo ensures that the required sustainability aspects can be incorporated into its business activities across the board – in other words both lending and deposit business.



Transactions which clearly violate the fundamental principles of sustainable development, such as those related to weapons or pornographic materials, are identified and rejected by means of exclusion criteria.

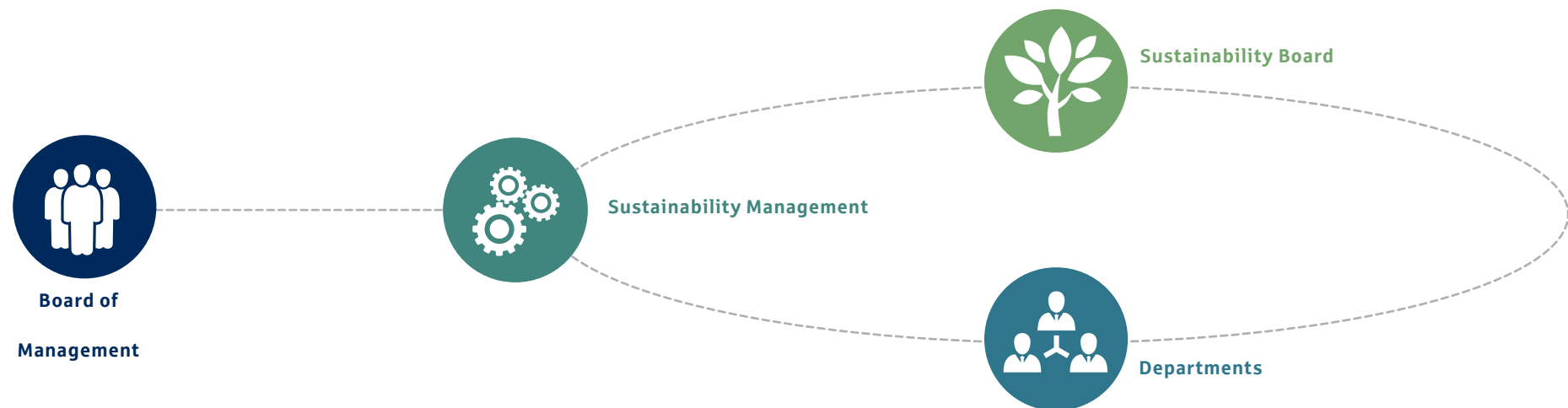
Sustainability guidelines link the individual transaction to the specific sustainability standards relevant to Deutsche Hypo, such as the German Sustainability Code or the UN Global Compact. This allows sustainability to be managed in a targeted and case-by-case manner.

Through its employees, Deutsche Hypo sees itself as a means to help customers and investors anchor their business activities and investment decisions more firmly within the context of sustainable development. Deutsche Hypo is an established, experienced institution on national and international markets. At the NORD/LB Group, it is the designated centre of competence for commercial real estate financing business and currently has total financing

volume of EUR 12 billion. In business with professional real estate investors, Deutsche Hypo offers tailor-made, complex financing structures with a broad range of different products. Deutsche Hypo's business operations are centred on high-quality properties. The majority of its focussed financing activities relate to commercial real estate from the office and retail, multi-storey residential, hotel and logistics sectors.

By financing energy-efficient properties and issuing Green Bonds, Deutsche Hypo is able to act as a financial intermediary and to help project developers, tenants and professional and private investors alike to structure their business in a manner that is compatible with the environmental concerns of our society. It actively promotes the reduction of carbon emissions and the responsibility for protecting the environment. The quarterly reporting process is an expression of this responsibility.

### Deutsche Hypo's sustainability management



# 2/ DEUTSCHE HYPO'S GREEN BOND PROGRAMME

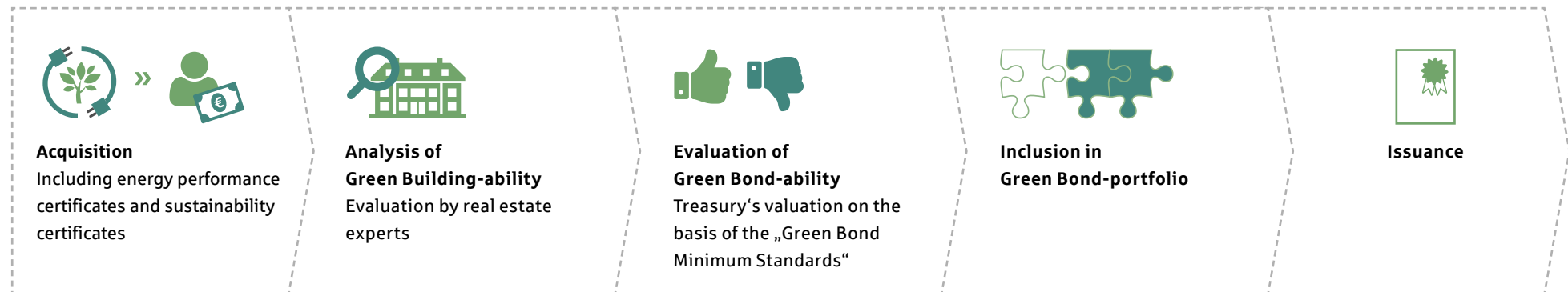
**W**hen issuing Green Bonds, Deutsche Hypo funds itself by issuing bonds (bearer bonds or registered bonds) or loans (Schuldscheindarlehen) whose raised funds are used exclusively to finance energy-efficient (i.e. green) buildings, such as new buildings, replacements of old buildings, project developments, certified portfolio financing and renovation work to improve a building's energy efficiency.

Deutsche Hypo is an official member of the Green Bond Principles (GBP). Deutsche Hypo assigned oekom research AG to review the implementation of the Green Bond Principles and the sustainability of the Bank's overall Green Bond programme.

The energy efficiency of a property to be financed, and therefore its suitability as an asset for a Green Bond, is evaluated in a multi-stage process. The requirements derived from the process in relation to acquisition, loan processing and Treasury are embedded in Deutsche Hypo's guidelines and are therefore binding for all employees.

The employees in the lending department (Credit Management) record all the necessary data (such as energy performance certificates, sustainability certificates, etc.) of the financing in the Bank's IT systems. In case of an expiration the energy performance certificate or sustainability certificate is requested again by the lending department. The Green Building will lose its Green Bond-ability if the borrower can not present a new certificate.

## Selection Process











### The Green Bond Minimum Standards (GBM):

The GBM are Treasury's binding criteria for the evaluation of the Green Bond-ability. The applicable criteria are determined by a Green Building Commission which is comprised of members of the sustainability circle that supports the sustainability management team. The Green Building Commission defines the Green Bond Minimum Standards (short: GBMS) and ensures in its regular meetings that the minimum standards required in the target markets are complied with. An asset is categorised as a Green Building if the applicable GBMS are fulfilled at the time of inclusion in the Green Bond portfolio. The primary energy demand or consumption (warmth) should be used for valuation if the use of renewable energy reduces the primary

energy demand or consumption to below the final energy figure.

Deutsche Hypo has set itself the requirement that the financed Green Buildings must at least correspond to the volume of outstanding Green Bonds. If it is not possible to directly use the proceeds from Green Bonds to finance energy-efficient real estate in accordance with this framework, they must be immediately invested in credit with a sufficiently positive rating granted by a recognised sustainability rating agency (e.g. oekom research AG with at least Prime Status) on an interim basis.

### Energy performance certificates with a maximum final energy demand or consumption (heat) in kWh/(m<sup>2</sup>\*a) by main asset class

				
<b>50 kWh/(m<sup>2</sup>*a)</b> for new residential properties	<b>75 kWh/(m<sup>2</sup>*a)</b> for old residential properties	<b>30 kWh/(m<sup>2</sup>*a)</b> for logistics buildings	<b>70 kWh/(m<sup>2</sup>*a)</b> for retail buildings (shopping malls, department stores)	<b>95 kWh/(m<sup>2</sup>*a)</b> for other retail buildings
				
<b>95 kWh/(m<sup>2</sup>*a)</b> for hotel buildings (up to 3 star hotels)	<b>105 kWh/(m<sup>2</sup>*a)</b> for hotel buildings (4 to 5 star hotels)	<b>110 kWh/(m<sup>2</sup>*a)</b> for production and storage buildings (with heating)	<b>110 kWh/(m<sup>2</sup>*a)</b> for office buildings without air conditioning	<b>135 kWh/(m<sup>2</sup>*a)</b> for office buildings with air conditioning

### Green Building certificates

**LEED**  
Gold

**BREEAM**  
Very Good

**DGNB**  
Gold

**HQE**  
Performant or above

Or:

In addition to this Dutch Buildings which are characterized by an energy consumption-level of „A“ can be categorised as Green Buildings. Furthermore a Green Building-classification without an energy performance certificate or sustainability certificate is possible:

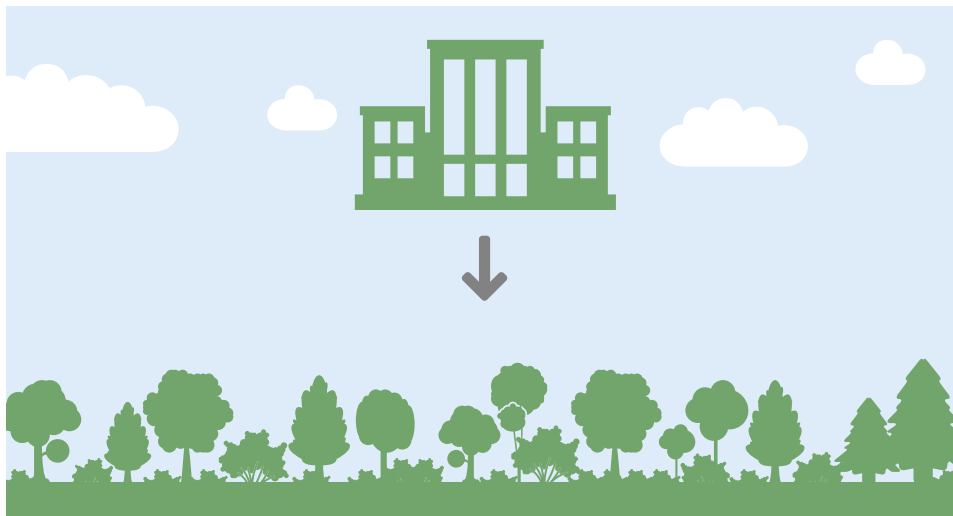
- For project developments, if the aspired energy demand or sustainability specification will be in line with the current Green Bond Mindeststandards.
- For financed buildings without an energy performance certificate or sustainability certificate, which can be compared to Green Buildings which are just part of our Green Bond asset pool. Therefore a detailed statement with an energy demand calculation by a real estate valuer is necessary.

Green Buildings financed are also analysed on the basis of a number of criteria. Besides energy consumption and distance to public transport the use of previously empty land for new

constructions (known as greenfield sites) is also examined. The aim here is to avoid building on such areas and, instead, promote construction on brownfield sites. Brownfield sites are areas of land previously used for commercial or industrial purposes and have therefore already seen ecosystem intervention (e.g. through soil sealing due to previous construction work). In addition, brownfield sites usually already have access to existing infrastructure, offering better transport links (public transport, rail, road and maritime transport) and utilities (water, electricity and gas).

An additional condition for the use of Green Buildings is that the financed real estate is only leased to uncontroversial main tenants. A main tenant contributes more than 10% to the rental incomes. The property will be excluded from the portfolio of suitable Green Buildings should it become known that a main tenant operates in a controversial business.

### Greenfield development



### Brownfield development



Besides these characteristics, energy savings offered by green buildings are also calculated both in terms of kilowatt-hours and in terms of carbon emissions and published in this impact report. Only green buildings with energy performance certificates for final energy consumption (heat) are included in this analysis. Deutsche Hypo generally calculates the energy (heat) saved by a green building by determining the difference between energy requirements (heat) and the chosen benchmark. Two different benchmarks are used here:

- a) The first is the current German Energy Savings Ordinance (EnEV; figures for heat energy consumption). Here, categories of green buildings are compared with the respective property categories determined in the framework.<sup>1</sup>
- b) The second benchmark is the individual European average, which comprises the respective national average energy consumption in Deutsche Hypo's target markets (Germany, France and Spain – no other target market figures were available). Specifically, the benchmark for all commercial asset classes is the energy consumption of office properties. A separate average exists for residential buildings.<sup>2</sup>

The energy saved by the building in kWh/m<sup>2</sup>a is then multiplied by a factor specific to each target market that takes into account the amount of carbon required to generate one kilowatt-hour of energy for the building. Then, the annual carbon emission savings per square metre are multiplied by the total floor space of the building to determine the building's total emission savings per year. Given that it may be the case that Deutsche Hypo only finances part of the building, the green building's total emission savings are also calculated as a ratio to the share of financing volume. The final step is to divide the emission savings attributable to Deutsche Hypo by the volume of the loan, giving emission savings per EUR 1 million of financing.

<sup>1</sup> cf. Bundesministerium der Justiz und für Verbraucherschutz (2015): Bekanntmachung der Regeln für Energieverbrauchswerte und der Vergleichswerte im Nichtwohngebäudebestand vom 07. April 2015, [https://www.bundesanzeiger.de/banzwww/wexsservlet?page.navid=to\\_bookmark\\_official&bookmark\\_id=aw0alBTBco6yYzcam0E](https://www.bundesanzeiger.de/banzwww/wexsservlet?page.navid=to_bookmark_official&bookmark_id=aw0alBTBco6yYzcam0E).

<sup>2</sup> cf. ENTRANZE (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, [https://www.bundesanzeiger.de/ebanzwww/wexsservlet?page.navid=to\\_bookmark\\_official&bookmark\\_id=aw0alBTBco6yYzcam0E](https://www.bundesanzeiger.de/ebanzwww/wexsservlet?page.navid=to_bookmark_official&bookmark_id=aw0alBTBco6yYzcam0E)

### Green Building energy savings in kgCO<sub>2</sub>/a€mn

$$\frac{\left[ \text{benchmark} \left( \frac{\text{kWh}}{\text{m}^2\text{a}} \right) - \text{energy consumption} \left( \frac{\text{kWh}}{\text{m}^2\text{a}} \right) \right] \times \text{country-specific carbon intensities} \left( \frac{\text{kgCO}_2}{\text{kWh}} \right) \times \text{building area} (\text{m}^2) \times \text{financing share} (\%)}{\text{loan volume} (\text{€mn})}$$



Given that varying levels of carbon are required to generate one kilowatt-hour of energy in each Deutsche Hypo target market, the calculation of carbon emission savings must also take into account carbon intensity per generated kilowatt-hour specific to each target market (see T1).

1. First of all, the energy mixes for commercial properties in the target markets are determined. These are published by ENERDATA and certain figures from the year 2008; more recent data was not available at the time of publication <sup>3</sup> (see T2).
2. On the basis of this information, carbon intensities are calculated according to the energy carriers used in the respective target market.

Here, carbon emissions of fossil fuels are converted from carbon to carbon dioxide <sup>4</sup> (see T3 und T4).

In addition to that different data of biomass was used (see T5). <sup>5</sup>

Data on carbon emissions of electricity and heat per generated kilowatt-hour is not available directly. Due to this, carbon emissions of electricity and heat generation per target market are calculated in relation to total electricity and heat consumption per target market (see T6):

$$\frac{\text{carbon emissions of electricity and heat generation}}{\text{total electricity and heat consumption}}$$

Figures for the carbon emissions of electricity and heat generation for each target market date back to 2015 (see T7, more recent data was not available) <sup>6</sup>.

In addition, the following figures are used for total consumption of electricity and heat for each target market. The data is from 2018 and was converted from kilotonnes of oil equivalent (ktoe) into terrawatt-hours (tWh) <sup>7</sup> (see T8).

In summary, the following carbon intensities apply to each energy carrier used in the target market (see T9).

3. Country-specific carbon intensities:

By multiplying the energy mix of the commercial properties per target market (see T2) with the carbon intensities of each energy carrier used in the target market (see T9), we determine the following average carbon intensities (see T1).

Further frameworks for the issuing of green bonds are defined in the current Deutsche Hypo Green Bond Framework ([www.deutsche-hypo.de](http://www.deutsche-hypo.de)).

<sup>3</sup> cf. ENERDATA (2017): Total unit consumption per m<sup>2</sup> in non-residential (at normal climate), <http://www.entranze.enerdata.eu/total-unit-consumption-per-m2-in-non-residential-at-normal-climate.html>

<sup>4</sup> cf. IEA International Energy Agency (2017): CO<sub>2</sub> emissions from fuel combustion highlights 2017, <https://www.iea.org/publications/freepublications/publication/CO2EmissionsfromFuelCombustionHighlights2017.pdf>, S. 146.

<sup>5</sup> cf. Covenant of Mayors Office (2017), Technical annex to the SEAP template instructions document: The emission factors, [http://www.eu-mayors.eu/IMG/pdf/technical\\_annex\\_en.pdf](http://www.eu-mayors.eu/IMG/pdf/technical_annex_en.pdf), S. 3.

<sup>6</sup> cf. IEA International Energy Agency (2017): CO<sub>2</sub> emissions from fuel combustion highlights 2017, <https://www.iea.org/publications/freepublications/publication/CO2EmissionsfromFuelCombustionHighlights2017.pdf>, S. 112.

<sup>7</sup> cf. IEA International Energy Agency (2017): IEA Headline Global Energy Data (2017 edition), [http://www.iea.org/media/statistics/IEA\\_HeadlineEnergyData\\_2017.xlsx](http://www.iea.org/media/statistics/IEA_HeadlineEnergyData_2017.xlsx).

**T1/ Target market-specific carbon intensity:**

Country	kgCO <sub>2</sub> /kWh
Germany	0.345
Netherlands	0.315
Poland	0.553
France	0.149
Spain	0.284
UK	0.348

**T2/ Target markets energy mixes for commercial properties:**

Country	Gasoline	Electricity	Oil	Warmth	Biomass	Coal
Germany	40.57 %	30.26 %	16.17 %	11.34 %	1.51 %	0.15 %
Netherlands	54.91 %	32.72 %	3.23 %	7.76 %	1.38 %	0.00 %
Poland	23.12 %	48.35 %	7.69 %	8.42 %	2.43 %	9.99 %
France	32.75 %	43.55 %	16.77 %	6.93 %	0.00 %	0.00 %
Spain	7.42 %	68.77 %	22.50 %	0.00 %	1.27 %	0.04 %
UK	41.65 %	49.44 %	6.00 %	2.26 %	0.54 %	0.10 %

**T3/ Carbon emissions of fossil fuels:**

Fuel	kgCO <sub>2</sub> /kWh
Gasoline	0.202
Oil	0.279
Coal	0.354

**T4/ Carbon to carbon dioxide conversion:**

Fuel	kgC/gJ	C in CO <sub>2</sub>	kgCO <sub>2</sub> /gJ	gJ in kWh	kgCO <sub>2</sub> /kWh
Gasoline	15.300	3.670	56.151	277.778	0.202
Oil	21.100	3.670	77.437	277.778	0.279
Coal	26.800	3.670	98.356	277.778	0.354

**T5/ Carbon emissions of biomass:**

Fuel	kgCO <sub>2</sub> /kWh
Biomass	0.202

**T6/ Carbon emissions of electricity and heat generation per kilowatt hour:**

Country	kgCO <sub>2</sub> /kWh
Germany	0.515
Netherlands	0.475
Poland	0.784
France	0.072
Spain	0.351
UK	0.389

**T7/ Carbon emissions of electricity and heat generation:**

Country	mntCO <sub>2</sub> /a
Germany	322.80
Netherlands	62.60
Poland	150.00
France	32.60
Spain	81.40
UK	122.90

## T8/ Total consumption of electricity and heat:

Country	Power (ktoe)	Warmth (ktoe)	Total (ktoe)	Total (TWh)
Germany	44,267	9,593	53,859	626.39
Netherlands	8,868	2,463	11,330	131.77
Poland	10,992	5,461	16,454	191.36
France	36,543	2,347	38,890	452.29
Spain	19,955	0	19,955	232.08
UK	26,045	1,152	27,197	316.30

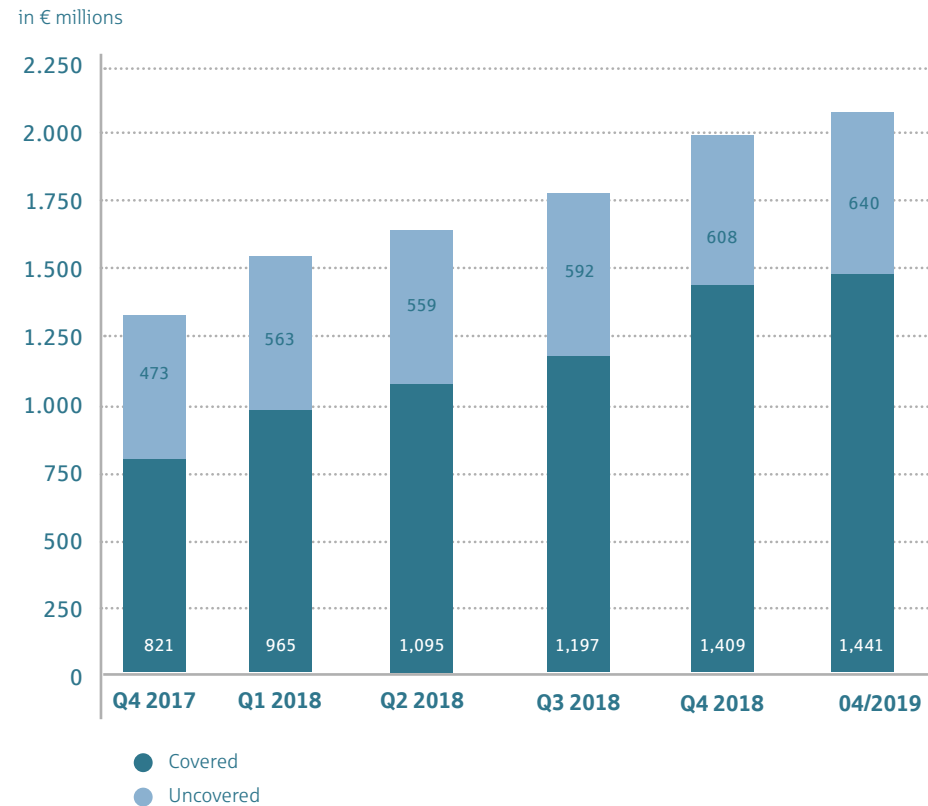
## T9/ Target market-specific carbon intensity per energy carrier:

Country	Gasoline in kgCO <sub>2</sub> /kWh	Power a. Warmth in kgCO <sub>2</sub> /kWh	Oil in kgCO <sub>2</sub> /kWh	Biomass in kgCO <sub>2</sub> /kWh	Coal in kgCO <sub>2</sub> /kWh
Germany	0.202	0.515	0.279	0.202	0.354
Netherlands	0.202	0.475	0.279	0.202	0.354
Poland	0.202	0.784	0.279	0.202	0.354
France	0.202	0.072	0.279	0.202	0.354
Spain	0.202	0.389	0.279	0.202	0.354
UK	0.202	0.351	0.279	0.202	0.354

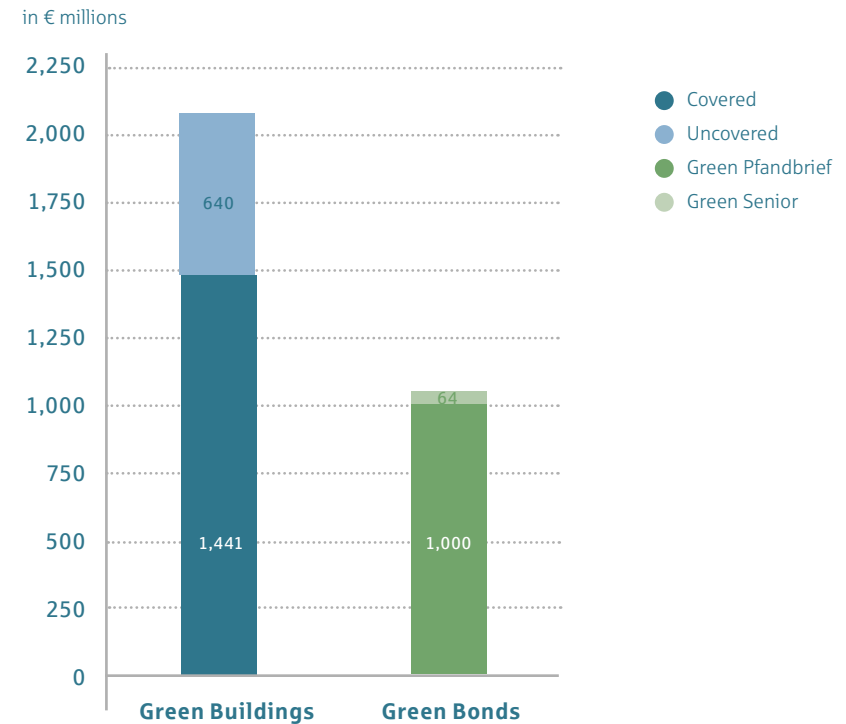
# 3/ ASSET POOL REPORTING

As at 1 of April 2019, Deutsche Hypo's green building portfolio had a total volume of EUR 2,081 million.

## A1/ Development of the green building portfolio



## A2/ Comparison of asset pool and green bonds:



**A3/ Covered maturity breakdown:**

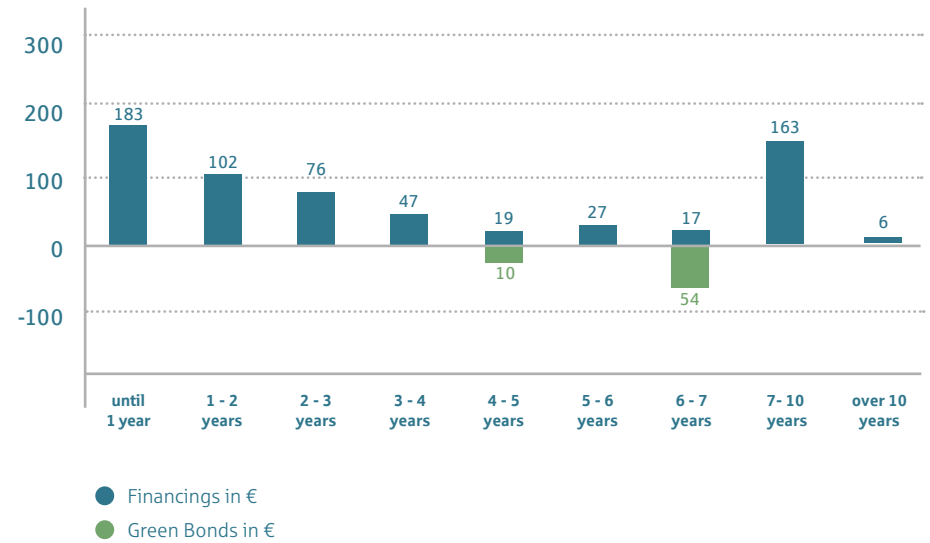
in € millions



The illustration A3 shows the maturity breakdown of the covered Green Buildings compared with the maturity breakdown of the outstanding Green Pfandbriefe.

**A4/ Uncovered maturity breakdown:**

in € millions



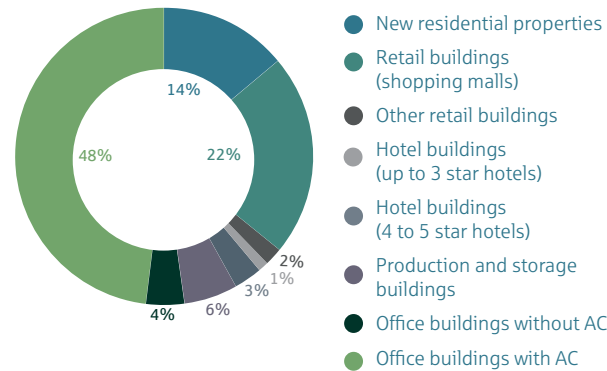
The illustration A4 shows the maturity breakdown of the uncovered Green Buildings compared with the maturity breakdown of the outstanding uncovered Green Bonds.



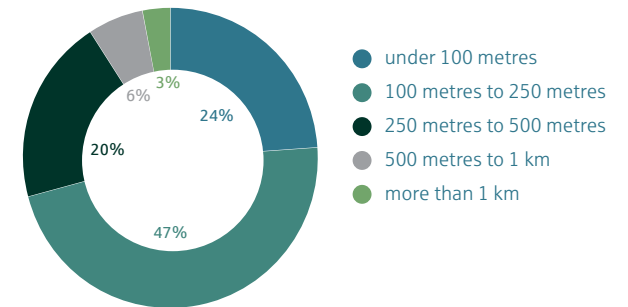
**Green buildings can be categorised as follows**

Most of the financed Green Buildings are office buildings with air conditioning (48%) and retail buildings (e.g. shopping malls) (22%). 71% of all financed Green Buildings are less than 250m away from public transport connections. The majority (80%) of all financed Green Buildings are constructed on land previously used for commercial or industrial purposes and have therefore already seen ecosystem intervention (Brownfield). Most of the on Greenfield sites constructed Green Buildings are new residential properties, e.g. development areas.

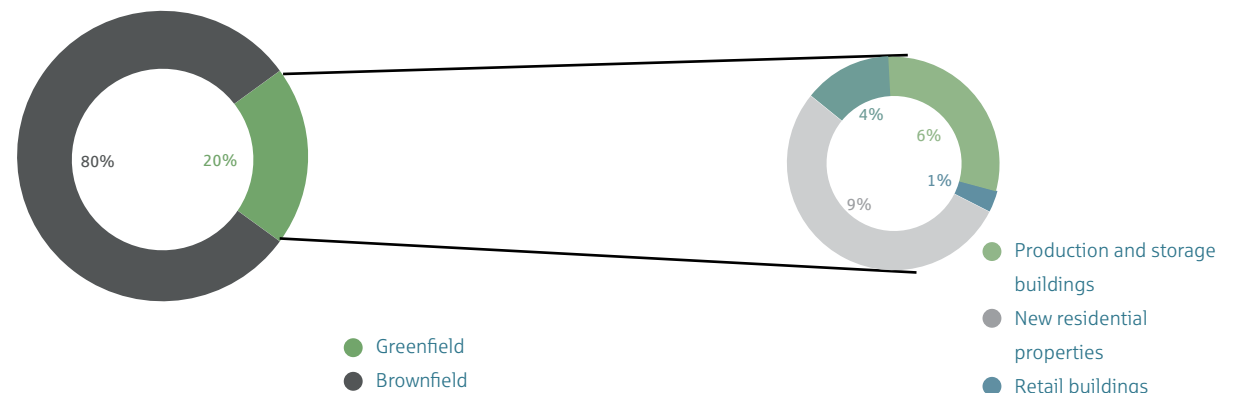
**Asset class breakdown:**



**Public transport connections:**



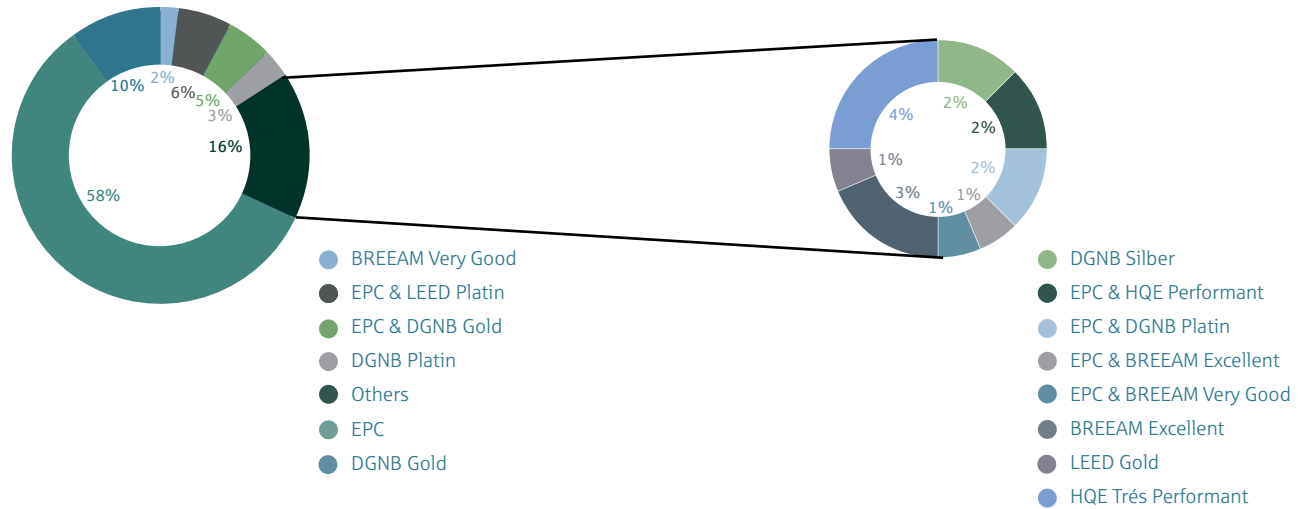
**Soil sealing character:**



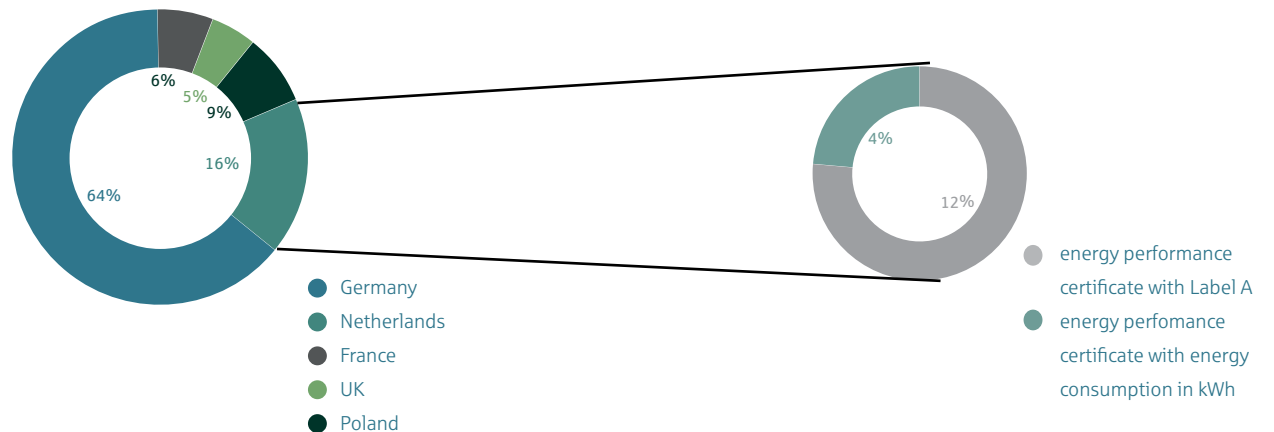
**Green buildings can be categorised as follows**

Most of the financed Green Buildings are characterized by an Energy Performance Certificate or an Energy Performance Certificate as well as an Sustainability Certificate (75%). As in Deutsche Hypo's whole commercial real estate business most of the financed Green Buildings are constructed in Germany (64%). 78% of all Dutch Green Buildings (which are 12% of the whole Green Asset Pool) are characterized by an Energy Label of A. There follows no CO2 savings calculation for these assets.

**Certificates breakdown:**



**Country breakdown:**

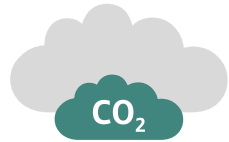


# 4/ IMPACT REPORTING

The Green Buildings, which are characterized by an energy performance certificate (EUR 1,561 million), avoid, compared to the current German Energy Savings Ordinance (EnEV), 8,254 tonnes of carbon emissions per year. Thus, per EUR 1 million of investment a total of 5.3 tonnes of carbon emissions is saved per year.

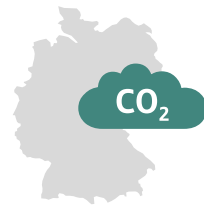
6,154 tonnes of the 8,254 tonnes of carbon emissions were avoided by Green Buildings which are located in Germany. Compared with the average energy consumption of a German four-person-household all Green Buildings which are located in Germany and characterized by an energy performance certificate avoid the energy consumption of 4,383 German four-person-households per year.

## CO<sub>2</sub>-Einsparung:



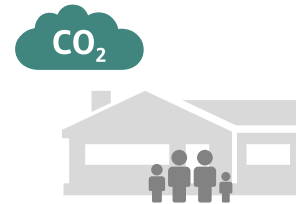
### Total Savings in tCO<sub>2</sub>/p.a.:

8,254 EnEV  
16,461.6 EU-Average



### Thereof in Germany in tCO<sub>2</sub>/p.a.:

6,154 EnEV  
11,250.4 EU-Average



### Thereof in four-person-households:

4,383 EnEV  
8,013 EU-Average



### Savings per €mn in tCO<sub>2</sub>/(€ mn. \*p.a.):

5.3 EnEV  
11.0 EU-Average

The average energy consumption of a German four-person-household is: 4.000,00 kWh = 1.40 tCO<sub>2</sub>.

Source: <https://www.die-stromsparinitiative.de/stromkosten/stromverbrauch-pro-haushalt/index.html>

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