



MünchenerHyp

Impact Reporting 2022



Sustainability at Münchener Hypothekenbank eG

Münchener Hypothekenbank (short: MünchenerHyp) issued the first sustainable ESG Pfandbrief in Germany back in 2014. It was based on the idea of sustainable management in line with our tradition as a cooperative long-term financier. As such, we are committed to the principles of solidarity, identity, regionality and subsidiarity. We only take on acceptable risks that do not jeopardize the trust of our owners and our customers.

Last year, MünchenerHyp adopted its own sustainability strategy with the aim of becoming an even more sustainable bank. The focus here is on our core business of real estate financing, as this is where the greatest potential lies. The sustainability activities in the core business are to be understood as a cycle: sustainable real estate financing on the assets side is sustainably refinanced on the liabilities side. This cycle is constantly receiving new impetus from MünchenerHyp's sustainability management.

MünchenerHyp's commitment on the product side and in refinancing is characterized by the further development and introduction of sustainable products, participation in national working groups (BVR, vdp working group green Pfandbriefe, and the Association for Environmental Technology, VfU). MünchenerHyp has thus set a forward-looking course with regard to the effects of change in society, environment and economy.

With the green loan, the family loan and the green family loan, MünchenerHyp has developed various social and ecological sustainability loans for its private customers. Loans in the sustainable green loan and family loan categories demonstrate the success that MünchenerHyp has established by developing its own products. For commercial real estate, the bank is following very high standards for sustainable certificates.

The high level of granularity in the bank's overall loan portfolio is thus also reflected in the green portion of the portfolio to the delight of investors.

On the assets side (loans), the sales channels at the Volksbanken and Raiffeisenbanken were significantly expanded with our sustainable products, and on the liability side many new dedicated sustainable investors were acquired in refinancing.



Criteria for sustainable loans

MünchenerHyp's Green Bond Framework sets out in writing the eligibility criteria for sustainable loans in private and commercial real estate financing.

Residential	Commercial
Green loans	Certified environmental loans
Criteria	
residential buildings in Germany with maximum annual primary energy demand of 70 kWh/sqm (till April 2020) <i>and</i> residential buildings in Germany with maximum annual primary energy demand of 55 kWh/sqm (since May 2020) <i>or</i> old and new KfW promotional programmes for energy-efficient construction <i>or</i> Top 15% of national building stock by energy performance in Switzerland or Minergie Certificate <i>Info:</i> Grandfathering for green loans granted since November 2015	DGNB (min. Gold or Platinum) <i>or</i> BREEAM (min. Very Good, Excellent or Outstanding) <i>or</i> LEED (min. Gold or Platinum) <i>or</i> HQE (min. Excellent or Exceptionnel) <i>or</i> BREEAM NL (min. 40% or better) <i>or</i> Energy Performance Certificate (EPC) (min. Level A or better) <i>or</i> Top 15% of national building stock by energy performance

The granting of interest rate discounts for green loans, even up to a term of 30 years, reflects MünchenerHyp's commitment to sustainability, which is focused towards the long term. This is in line with the objectives of the EU Sustainable Finance Action Plan.

When granting sustainability loans in the commercial sector, properties must have a recognized sustainability certificate with additional minimum criteria or meet strict energy efficiency requirements.

Furthermore, MünchenerHyp has also defined controversial business areas for the commercial sector.

If the borrower, the beneficial owner or the (main) tenant is related to the following business, the granting of a sustainability loan is excluded:

- Coal/fossil energy (companies that generate more than 30% of their revenue from coal extraction or power generation, or from the extraction of oil from oil sands)
- Armaments (companies that produce or trade in controversial weapons (mines/anti-personnel mines, cluster bombs, nuclear/biological/chemical weapons, ammunition containing uranium))
- Tobacco (companies that derive more than 5% of their turnover from tobacco)
- Gambling (companies operating controversial forms of gambling, e.g. casinos, betting shops, gambling halls, manufacturing of gambling machines; state-owned casinos are allowed)
- Red light (companies with revenues from pornography or prostitution)
- Environmental violations (companies related to serious environmental violations)
- Human rights (companies related to human rights violations)



The following is the structure of the portfolio as of the impact reporting date:

Assets	Notional value in EUR m 30/06/2022		Liabilities
Cover pool residential	1,534.1	1,500.0	Green & ecological ESG Pfandbriefe
Cover pool commercial	926.2		
Number of green loans: total 9,702; thereof residential 9,647 and commercial 55			
Residential not in cover pool	590.8	1,613.9	Green Senior Bonds
Commercial not in cover pool	506.2	0	Green CP & term money
Balance green portfolio	443.4		

Conversion into EUR with the ECB Euro foreign exchange reference rates

Sustainable refinancing of green assets

MünchenerHyp has a Green Bond Framework that meets the requirements of the ICMA Green Bond Principles. In this framework, the bank has set itself clear goals and presents a range of sustainable refinancing products.

Sustainable refinancing can draw on the following sustainable products in the money and capital markets:

- Green AT1
- Green Tier 2
- Green & ESG Pfandbriefe
- Green Senior Bonds (preferred and non-preferred)
- Green Commercial Paper (CP)
- Green Customer Deposits
- Green term deposits

On the liabilities side for refinancing, there were 18 sustainable bonds in EUR and CHF outstanding as of the reporting date. The total outstanding volume amounts to approximately EUR 3.1 billion.



Transparency and reporting

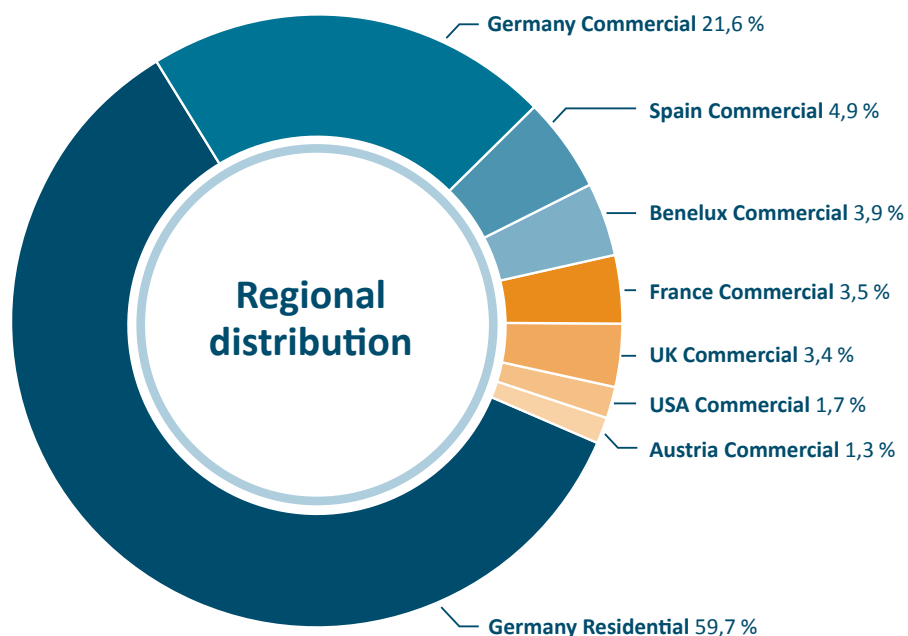
In order to ensure transparency for the entire green portfolio (and not only for assets that are already in the cover pool), investors are informed about the growth of the entire portfolio on a quarterly basis in the allocation reporting. This means that every investor is kept up to date at short intervals on the steady growth of Münchener Hyp's sustainable loans.

The following information for investors can be found on our website:

- Green Bond Framework
- Second Party Opinion
- Impact Reporting
- Allocation Reporting
- Green & ESG Pfandbrief Reporting (based on §28 PfandBG)

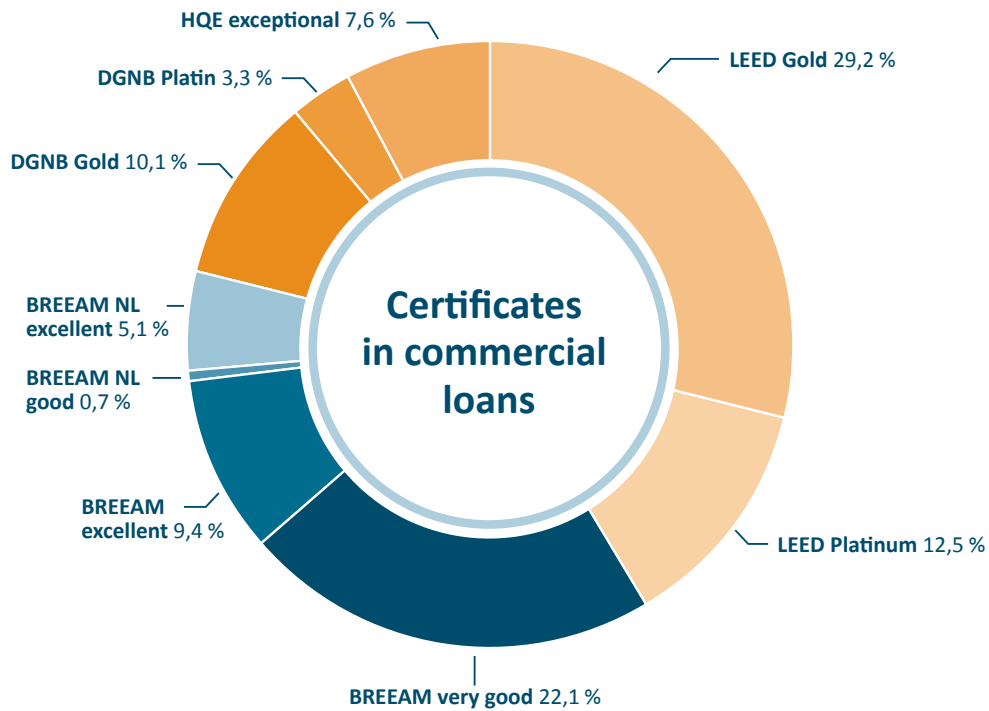
As of the impact reporting date of June 30, 2022, the bank's total green portfolio amounted to EUR 3,557.3 million. The number of sustainable loans is divided into 9,647 green loans for retail customers with a volume of EUR 2,124.9 million and 55 sustainably certified commercial real estate loans with a volume of EUR 1,432.4 million.

The following chart illustrates the geographical distribution of the green portfolio with a clear focus on Germany.





With regard to sustainably certified commercial loans, the distribution in terms of certificates issued is as follows:



In addition to the annual impact reporting, MünchenerHyp also offers investors a comprehensive service for the green portfolio on a quarterly basis, which is based on the requirements of §28 PfandBG.

The transparency details of the cover pool eligible part of the green portfolio as per reporting date of June 30, 2022 highlights following criteria:

- Pfandbriefe outstanding
- Loan-to-mortgage-value ratio
- Maturity structure
- Volume
- Regions



outstanding Green & ESG Pfandbriefe and related cover assets

€ thousand	nominal value June 30 th , 2022	net present value June 30 th , 2022	risk-adjusted pv* June 30 th , 2022
Green & ESG Pfandbriefe	1,500,000	1,440,157	1,271,733
cover pool residential assets	1,534,136	1,619,638	1,136,722
cover pool commercial assets	926,235	1,426,563	1,354,712
over-collateralisation	960,371	1,606,044	1,219,700

* stress test applying the dynamic approach in accordance with section 5 (1) no 1 Pfandbrief-Net Present Value Directive (PfandBarwertV)

cover assets by loan to mortgage value ratios

LTMV as per June 30 th , 2022		< 30%	30% – 60%	> 60%*
		€ thousand	T € thousand	€ thousand
cover pool	residential	57,031	824,541	652,564
	commercial	0	84,733	841,502

* in the category loan to value > 60% only the cover pool eligible part up to 60% is reported

cover assets by maturity

maturity	June 30 th , 2022 € thousand residential cover pool	June 30 th , 2022 € thousand commercial cover pool
≤ 0,5 year	0	31,810,767
> 0,5 year and ≤ 1 year	364,487	26,317,311
> 1 year and ≤ 1,5 years	117,400	107,237,719
> 1.5 years and ≤ 2 years	195,584	89,233,018
> 2 years and ≤ 3 years	358,596	176,121,929
> 3 years and ≤ 4 years	5,692,826	222,903,633
> 4 years and ≤ 5 years	19,212,005	118,080,000
> 5 years and ≤ 10 years	117,019,156	154,530,907
> 10 years	1,391,176,050.00	0

cover assets by volume

volume	June 30 th , 2022 residential			June 30 th , 2022 commercial		
	€ thou.	in %	number of loans	€ thou.	in %	number of loans
up to 300,000 Euros	1,211,891	79.00	6,943	0	0.00	0
more than 300,000 Euros up to 1mn Euros	322,245	21.00	815	0	0.00	0
more than 1mn Euros up to 10mn Euros	0	0.00	0	30,229	3.26	4
more than 10mn Euros	0	0.00	0	896,006	96.74	29
Total	1,534,136	100.00	7,758	926,235	100.00	33



cover assets by region

countries and regions	June 30 th , 2022 residential		June 30 th , 2022 commercial	
	€	in %	€	in %
Baden-Württemberg	278,569,247	18.16	0	0.00
Bavaria	643,847,220	41.97	81,829,018	8.83
Berlin	3,973,337	0.26	56,830,907	6.14
Brandenburg	2,040,086	0.13	0	0.00
Bremen	1,360,086	0.09	0	0.00
Hamburg	18,049,490	1.18	0	0.00
Hessen	52,325,695	3.41	320,807,215	34.64
Mecklenburg-Western Pomerania	1,510,990	0.10	0	0.00
Lower Saxony	168,550,941	10.99	0	0.00
North Rhine-Westphalia	194,122,667	12.65	34,183,750	3.69
Rhineland-Palatinate	62,172,658	4.05	0	0.00
Saarland	10,935,223	0.71	0	0.00
Saxony	18,948,654	1.24	0	0.00
Saxony-Anhalt	12,061,223	0.79	0	0.00
Schleswig-Holstein	60,223,205	3.93	0	0.00
Thuringia	5,445,383	0.35	0	0.00
France	0	0.00	62,581,128	6.76
UK	0	0.00	80,812,382	8.72
Luxembourg	0	0.00	31,400,000	3.39
The Netherlands	0	0.00	68,280,000	7.37
Austria	0	0.00	41,125,000	4.44
Spain	0	0.00	108,161,864	11.68
USA	0	0.00	40,224,020	4.34
Total – all states	1,534,136,104	100.00	926,235,283	100.000

MünchenerHyp would like to thank Wuppertal Institut für Klima, Umwelt, Energie gGmbH for the pleasant and constructive cooperation. In dialog, we always find starting points for improving the data quality for determining CO₂ emissions and preparing for future requirements.

The Wuppertal Institute was provided with the details for each individual sustainable loan for the analysis.

Report | February 2023

Impact analysis of the MünchenerHyp Green Portfolio #2022

Results of the evaluation of greenhouse gas emissions avoided through the green mortgage loan programme and certified commercial buildings

Authors:

Jens Teubler, Hannah Brauneis

On behalf of



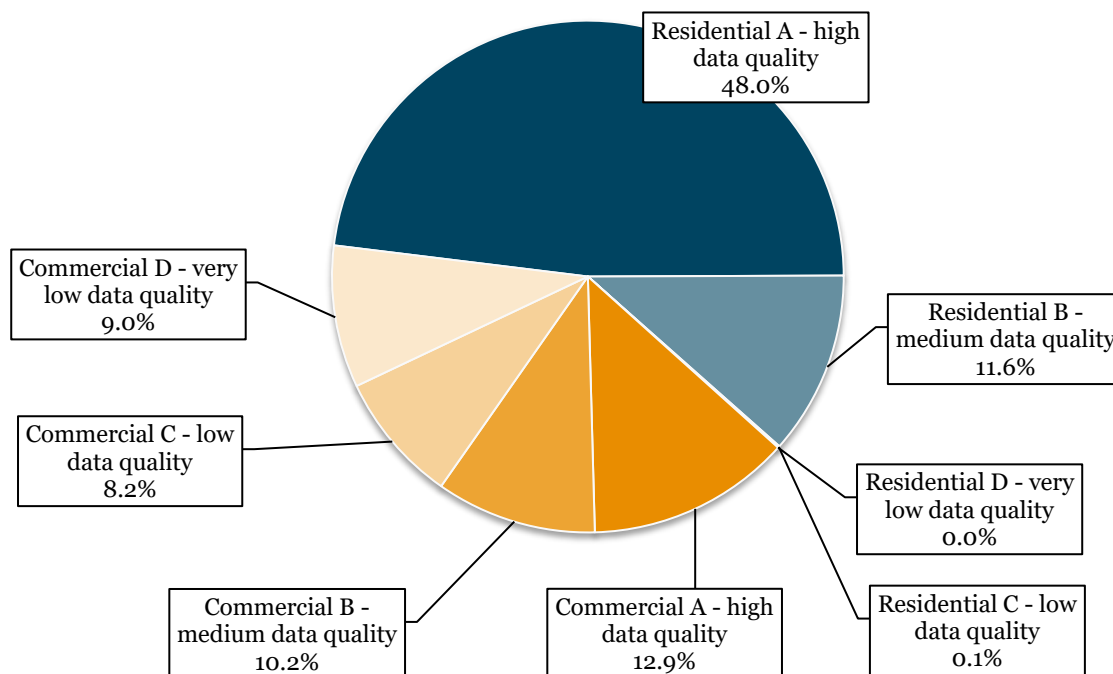
MünchenerHyp

This report is based on the results of a study conducted on behalf of the MünchenerHyp. The authors are responsible for the content.

Please cite as: Teubler, T.; Brauneis, H. (2023). Impact analysis of the MünchenerHyp Green Portfolio #2022. Wuppertal Institut für Klima, Umwelt, Energie gGmbH. Wuppertal, 2023.

On behalf of Münchener Hypothekenbank e.G. (MünchenerHyp hereafter), the Wuppertal Institute has analysed the impact of the bank’s Green Mortgage Loan Programme as well as the financing of certified commercial buildings, which are already partly re-financed by the *ESG and green Pfandbriefe* as well as *Green Senior Bonds*¹. Overall, EUR 3,557m (reporting date 30th June 2022) were assessed and EUR 3,555m quantified (99.9%) in terms of potential annual greenhouse gas (GHG) emission reductions. Green residential loans amount to 60% or EUR 2,125m and certified commercial buildings make up 40% or EUR 1,432m of the quantified assets. The following figure shows the loan share of all assets analysed according to their type (residential or commercial) and the availability of data for their assessment (ranging from A for best to D for weakest data availability). Assets with the highest data quality (A) make up 61% of the green portfolio and 84% of the quantified GHG savings.

Loans in the Portfolio analysed in this report (EUR 3,555m*)



* Shares were rounded up and might therefore not correspond to 100.0%

The loans cover new and refurbished buildings with high energy efficiency standards that are expected to avoid greenhouse gas (GHG) emissions compared to current heating standards in Germany and other countries in Europe and the USA. The eligibility of the underlying green bond framework² as well as the criteria of the current asset pool has been verified by ISS-ESG³. Buildings financed under the residential green mortgage programme (RES) achieve a maximum annual primary energy demand of 70 kWh per square-metre until the end of April 2020 and below 55 kWh from the 1st of May 2020 onward. Commercial objects (COM) in the asset pool are certified with top level DGNB, BREEAM, LEED, HQE or EPC standards.

¹ see https://www.muenchenerhyp.de/sites/default/files/downloads/2022-07/gr%C3%BCnes%20Allokationseporting_30.06.2022.pdf for green allocation reporting

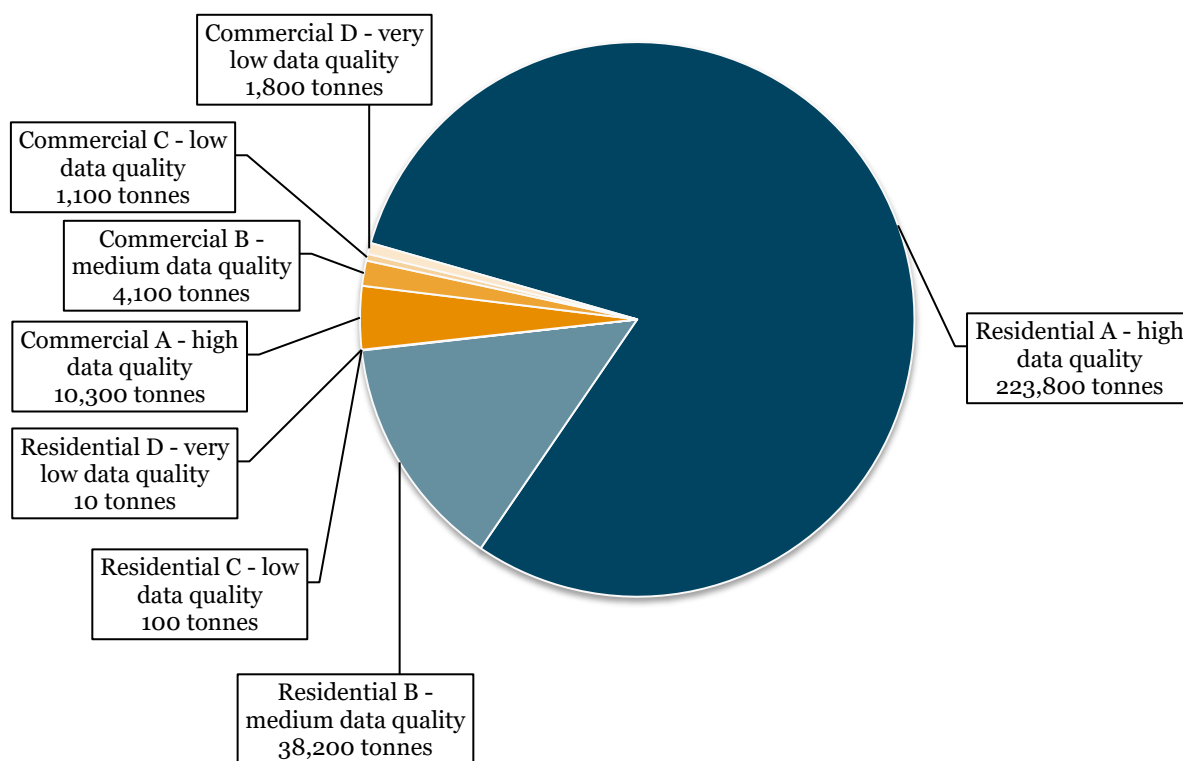
² see https://www.muenchenerhyp.de/sites/default/files/downloads/2022-03/mhyp_Green_Bond_Framework_2021_de_04_links_final.pdf

³ see https://www.muenchenerhyp.de/sites/default/files/downloads/2022-03/M%C3%BCnchner%20Hypo%20SPO_3_2022.pdf

The report at hand estimates GHG savings based on heating energy used and saved in the portfolio on an annual basis⁴. The results are calculated with bottom-up models for heat savings in buildings. Reference for GHG savings is the current heat demand in the buildings stock and the GHG emissions of the current energy provision. The results tables in the annex describe the main assumptions and data requirements for the assessment. For a more detailed look, a method paper has been published (see <https://wupperinst.org/en/p/wi/p/s/pd/1975>). In opposition to the report of the previous year, buildings classified as buildings for commerce and storage are no longer considered to be generic commercial buildings. This change results in slighter lower quantities of avoided GHG emissions on a square-metre basis.

It has been estimated that the buildings investigated will avoid greenhouse gas emissions of 625 kilotonnes⁵ CO₂ equivalents until the end of their loan term. The MünchenerHyp finances these buildings with an overall share of approximately 45% on average, thus inducing savings of approximately 279 kilotonnes CO₂-equivalents (see figure below).

Financed Potential GHG savings until end of term (279,000 tonnes*)



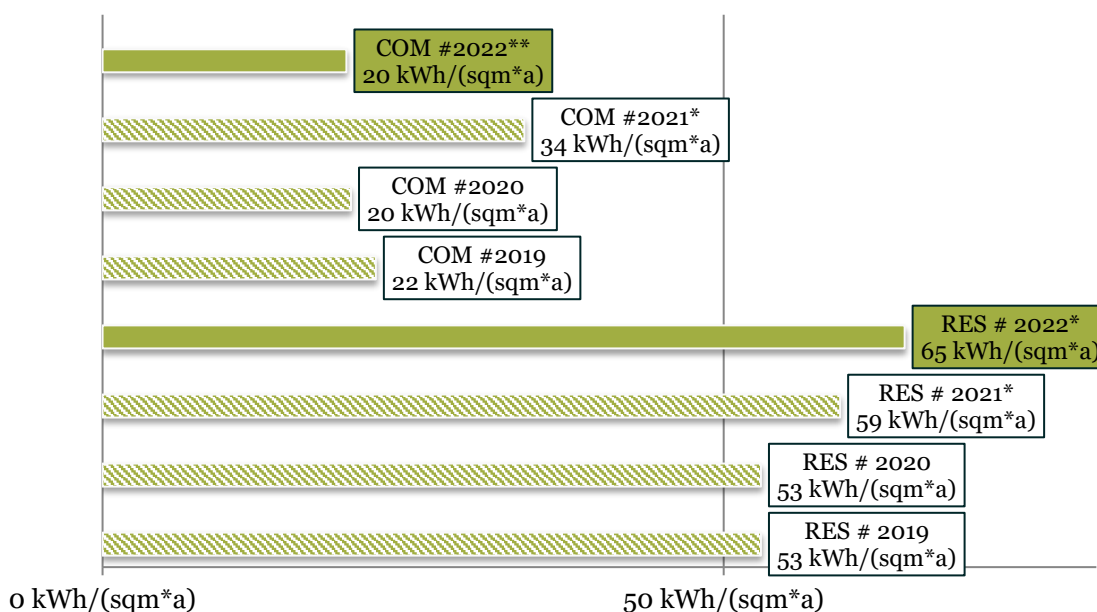
* Quantities in tons were rounded up and might not sum up to 279 kt.

It is also possible to evaluate the efficiency of the impacts (see figure below, referring to overall effects regardless of share of financing). On average, annual energy savings for the buildings in the portfolio amount to 20 kWh per square metre (kWh/sqm*a) for commercial mortgages and 65 kWh per square-metre for residential mortgages (building efficiency compared to the current building stock).

⁴ Effects of electricity use, building construction, renovation and demolition have not been investigated.

⁵ All information regarding mass is given in metric tonnes.

Impact Efficiency: Heat Savings per Building (average of all buildings)



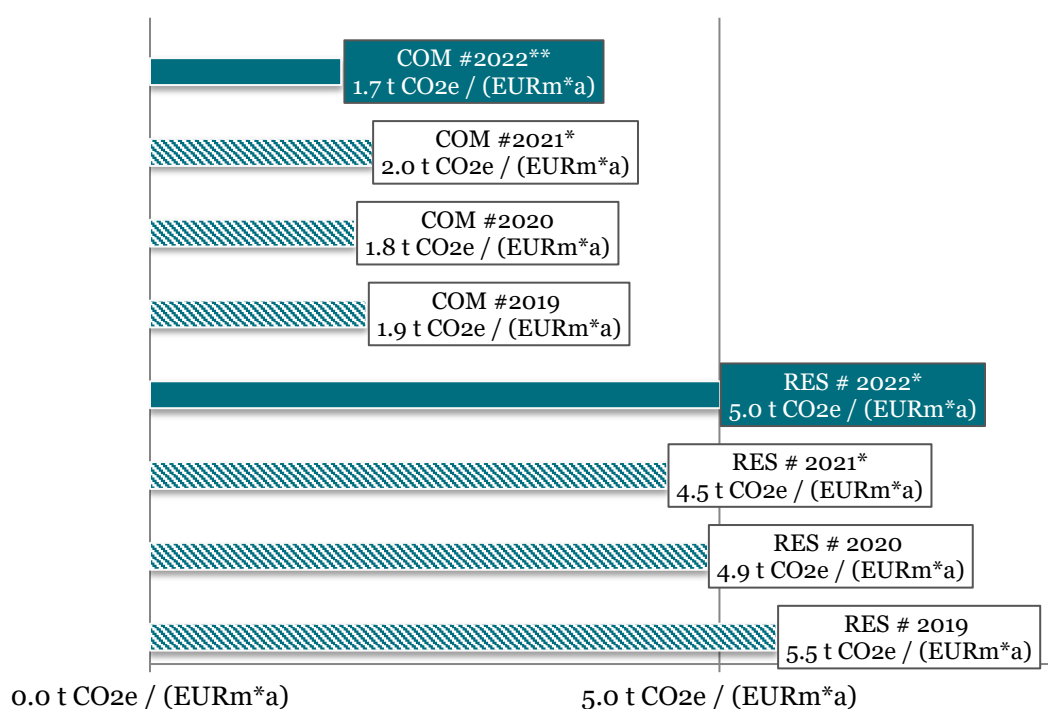
* Results from the previous and current report are based on improvements for reference data and methodology.

** The reference data for commercial storage and mercantile buildings was newly adjusted in the report at hand.

From the point of view of investments into the loan programme (only financed impacts), 1.7 tonnes of CO₂-equivalents are saved per year and million Euro for commercial mortgages (t CO₂e / (EURm*a)), compared to 5.0 tonnes for residential mortgages (see figure below). In total, 3.7 tonnes of CO₂-equivalents are saved per year and million Euro invested in 2022 (compared to 3.5 tonnes in 2021). The annual financial performance of residential buildings has decreased over the period between 2019 and 2021, although building efficiency as well as share of financing has improved. The main reason for the decline is an increase in apparent building costs. However, the data available has greatly improved in the meantime as well, leading to a share of quality A buildings in the current residential portfolio of 80% (compared to 78% in the previous year) and a share of quality B buildings of 19% (compared to 14% in the previous report). This, in turn, better reflects the actual energy performance of the buildings and thus led to a slight increase in both building and investment efficiency.

For commercial buildings, both building and investment efficiency are slightly lower, but in line with previous assessments. This is expected, as many of the buildings in this much smaller sample have remained in the portfolio for several years now. The improvements in data availability led to higher GHG savings for some buildings, but the overall effect of newly acquired data is neglectable. In addition, storage buildings are now compared to reference building with an overall lower energy demand and thus are considered to avoid less GHG emissions per square-metre and year.

Investment Efficiency: Estimated GHG savings per million EUR financed (average of all buildings)



* Results from the previous and current report are based on improvements for reference data and methodology.

** The reference data for commercial storage and mercantile buildings was newly adjusted for the report at hand.

Residential Mortgage Loans (RES)

The residential mortgages analysed in this report are financed with a share of approximately 46% (EUR 2,123m) on average and a loan period of 25 years. Most loans continue to finance new and refurbished single-family homes (60% of buildings). The loans induce (financed) GHG savings of circa 10.6 kilotonnes per year or 262 kilotonnes until the end of loan term (in reference to the building stock in the TABULA⁶ dataset)⁷. However, all buildings are expected to save further GHG emissions until the end of their lifetime.

Some buildings might exhibit a higher efficiency in terms of electricity use, generating further GHG savings compared to the reference buildings. Many of the buildings might also have more GHG efficient heating systems installed in the future (all buildings are assumed to be heated with gas), thus inducing further emissions savings compared to the building stock and its conventional fossil fuel heating mix.

⁶ see <https://webtool.building-typology.eu/#bm>

⁷ The very low primary energy demand of some buildings indicates that renewable energy is produced at site.

Commercial Mortgage Loans (COM)

The commercial mortgages assessed in this report account for approximately EUR 1,432m. With a financed share of 32% on average, these loans help to induce GHG savings of 2.4 kilotonnes per year or 17 kilotonnes until the end of loan term.

The effects were calculated based on estimations for heat savings without considering electricity consumption. Reference data for comparison was drawn from the *Heat Roadmap Europe*⁸ that contains heating demands on a per country basis as well as sample data for final energy shares in several European cities in the ENTRANZE⁹ dataset. It is assumed that the actual GHG savings for these buildings are higher compared to the conservative approach in the report at hand because data availability was low for about 42% of the buildings (buildings of type C or D). In addition, and by comparison with residential buildings, specific heating systems were used for each building and its reference in the stock.

Case-study: Additional Effects from data accuracy

About 39% of the financing and 16% of the potential GHS savings required additional assumptions in the assessment (referring to data qualities B,C and D). To show this effect in lack of data availability, a best-case scenario was developed. The following table shows the effects if one assumes that all buildings of type B, C and D lead (on average) to the same energy savings as the respective sample of type A buildings. In this optimistic scenario, financed savings of 307 kilotonnes CO₂-equ. could be achieved (compared to 279 kilotonnes). By comparison with the previous report, the scenario for residential buildings now clearly reflects the improvement in data quality (smaller additional saving potentials then before). The scenario for commercial buildings on the other hand (larger additional potentials), reflects both the changes to the reference building stock for storage buildings as well as missing data for some of the larger buildings in the sample.

Type	Additional financed energy savings	Additional financed GHG savings	Additional Investment Efficiency	Additional estimated GHG effects over average loan period
RES	+2.3 GWh/a	+0.5 kt CO ₂ e/a	+5.0%	+13.1 kt CO ₂ e
COM	+10.7 GWh/a	+2.2 kt CO ₂ e/a	+93.6%	+14.7 kt CO ₂ e
Total	+13.0 GWh/a	+2.8 kt CO₂e/a	+21.3%	+27.8 kt CO₂e

Outlook

The report at hand estimated potential avoided GHG emissions in a robust manner and based on improved portfolio data compared to previous reports. As part of this project, Wuppertal Institut is discussing with the issuer how data accuracy and standardisation of calculation methods can be improved even further. Future reports will investigate how taxonomy-eligibility and alignment affect the impact quantification and reporting.

The Annex shows the result in detail according to the ICMA framework. It also provides a brief summary of the methods.

⁸ see https://heatroadmap.eu/wp-content/uploads/2018/11/HRE4_D3.3andD3.4.pdf

⁹ see https://www.entranze.eu/files/downloads/D3_2/ENTRANZE_WP3-D3.2_Energy-cost_matrices_Def_TERTIARY.xlsx

Annex

The following results are presented in accordance with the current *Harmonized Framework for Impact Reporting* (ICMA, June 2021)¹⁰. In addition to the ICMA recommendations, effects are also distinguished between overall building performance (full effect) and financed outputs (financed).

The impact analysis is confined to the avoidance of greenhouse gas (GHG) emissions during the loan period of the buildings (ex-ante). They refer to the Global Warming Potential over 100 years (GWP 100a) in form of CO₂-equivalents for all GHGs according to the characterisation factors in the IPCC reports (Intergovernmental Panel on Climate Change). Although annual effects can be multiplied with the loan periods to estimate the overall performance, this should be evaluated with caution. The surrounding systems for both energy and building systems change over time with a high probability of smaller GHG emission reductions every year. Moreover, loans are paid back during this period, which means that the attribution to these potential reductions by the issuer diminishes over time as well.

The main assumptions are directly referenced in the table. For more detail, a separate method and data paper has been published in February 2022¹¹.

ex ante estimates during use phase of buildings

Energy Efficiency (EE)	Signed Amount	Share of Total Portfolio Financing ¹	Eligibility for green bonds	EE Component (estimate)	Allocated Amount	Average Loan Period	Annual Energy Savings (heat)		Reduced/Avoided annual GHG emissions (heat)			Absolute annual GHG emissions (heat) ²	
							full effect	financed	full effect	financed	per unit of financing	full effect	financed
Residential (RES) Buildings in Green Portfolio	million €	%	%	%	million €	in years	GWh/a		kt CO ₂ -equ. / a	t CO ₂ -equ. / (a*million €)	kt CO ₂ -equ. / a		
RES A - high data quality ³	1,706	46%	100%	100%	1,706	25	85.62	39.11	19.78	9.03	5.29	8.19	3.74
RES B - medium data quality	413	47%	100%	100%	413	24	14.52	6.88	3.35	1.59	3.85	3.28	1.55
RES C - low data quality	4	34%	100%	100%	4	19	0.07	0.02	0.02	0.01	1.45	0.03	0.01
RES D - estimates (no data) ⁴	0.2	24%	100%	100%	0.2	15	0.01	0.00	0.00	0.00	2.04	0.00	0.00
TOTAL RES	2,123	46%	100%	100%	2,123	25	100.2	46.0	23.1	10.6	5.01	11.5	5.3

¹ Financing of issuer compared to the market value, or if market value is unknown, the total costs of the building. This is a change compared to previous reports, where total costs were prioritised.

² Heating systems for buildings are not known. Absolute annual emissions as well as emission savings have been calculated using emission factor for gas heating in Germany.

³ For buildings of type A, the primary energy demand per square-metre is known and below regulatory requirements. All other buildings (B, C, D) achieve at least 70 kWh/(m²*a) until April 2020 and at least 55 kWh/(m²*a) from May 2020 onward.

⁴ For buildings of type D no living area is available. The 3rd Quartile of average living area per € (total costs) in the rest of the sample was used instead.

ex ante estimates during use phase of buildings

Energy Efficiency (EE)	Signed Amount	Share of Total Portfolio Financing ⁵	Eligibility for green bonds	EE Component (estimate)	Allocated Amount	Average Loan Period	Annual Energy Savings (heat)		Reduced/Avoided annual GHG emissions (heat) ¹⁰			Absolute annual GHG emissions (heat) ⁶	
							full effect	financed	full effect	financed	per unit of financing	full effect	financed
Commercial (COM) Buildings in Green Portfolio	million €	%	%	%	million €	in years	GWh/a		kt CO ₂ -equ. / a	t CO ₂ -equ. / (a*million €)	kt CO ₂ -equ. / a		
Commercial A - high data quality ⁷	459	35%	100%	100%	459	9	11.51	3.99	3.55	1.17	2.56	0.73	0.27
Commercial B - medium data quality ⁷	361	27%	100%	100%	361	6	9.91	2.57	2.53	0.68	1.89	6.56	3.09
Commercial C - low data quality ⁸	293	27%	100%	100%	293	5	4.75	1.11	0.90	0.24	0.82	5.82	1.48
Commercial D - estimates (no data) ⁹	319	49%	100%	100%	319	6	2.66	1.29	0.64	0.31	0.97	3.24	1.03
TOTAL Retail	1,432	32%	100%	100%	1,432	7	28.8	9.0	7.6	2.4	1.7	16.3	5.9

⁵ Financing of issuer compared to total purchase price of building.

⁶ Heating systems for buildings are known for all buildings from type A to C. In case of mixed systems, a main system is selected.

⁷ For buildings of type A, the final energy use (fed, heat) is known. The final energy demand of type B buildings (primary energy demand is known) is calculated from the average portion of fed compared to ped (primary energy demand) in the ENTRANZE model.

⁸ For type C and D buildings, a primary energy demand reduction of 16% is assumed (corresponds to "light renovation" on EU level).

⁹ For buildings of type D, no heat system is known. Primary Energy Factor (PEF) of electricity is used as conservative estimate (reducing the estimate on final energy savings as a result).

¹⁰ Potential GHG savings are based on a comparison with the heat demand in the building stock. Unlike residential buildings, energy data for commercial buildings is scarce, aggregated and unreliable.

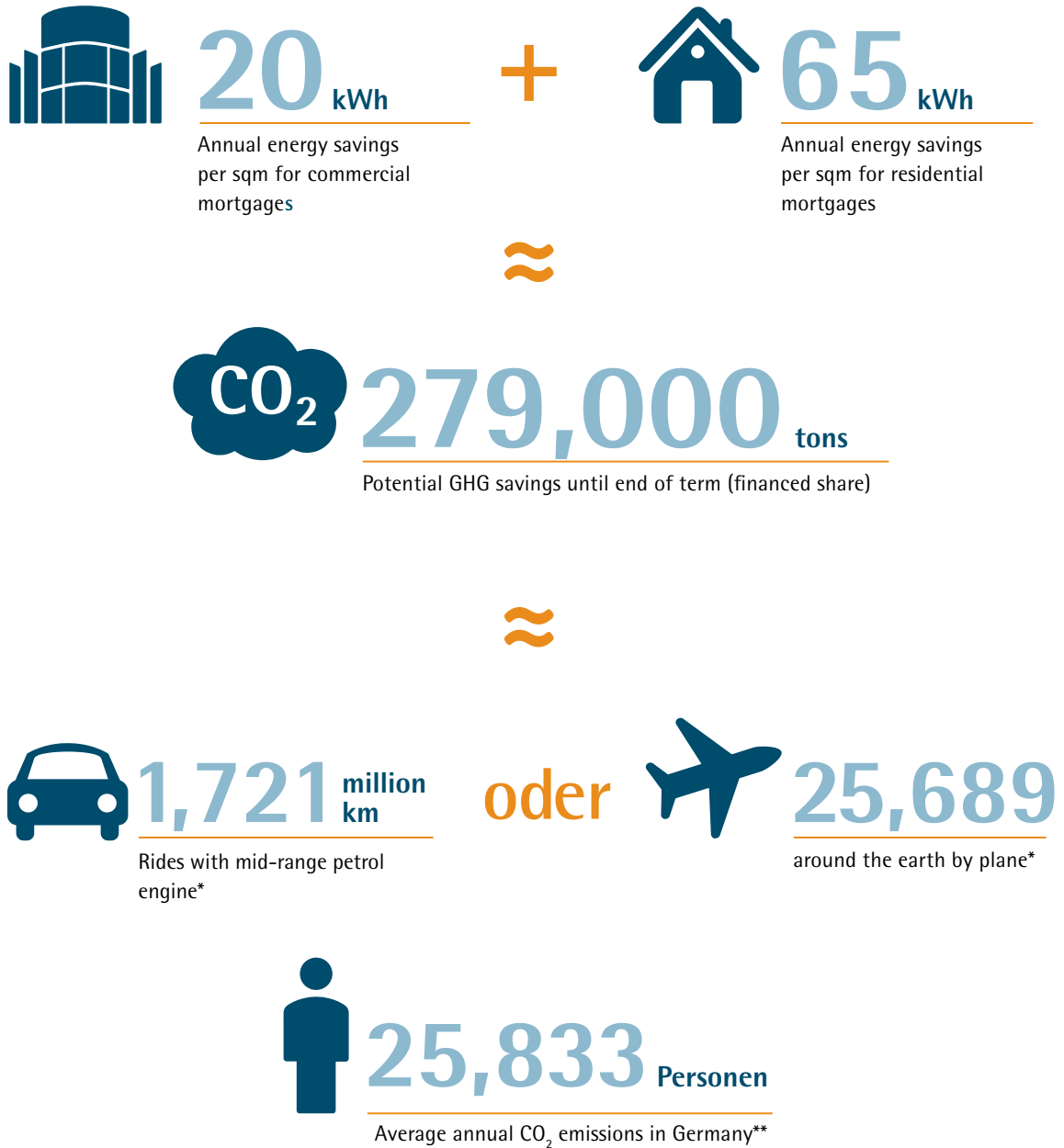
¹⁰ see <https://www.icmagroup.org/assets/documents/Sustainable-finance/2021-updates/Handbook-Harmonised-Framework-for-Impact-Reporting-June-2021-100621.pdf>

¹¹ see https://wupperinst.org/fa/redaktion/downloads/projects/MHyp_Method_Paper_v1-5.pdf



Impact reporting

The overall impact of MünchenerHyp's green portfolio focused on energy efficiency is as follows:



» 3.7 tons Saved resp. avoided CO₂ emissions per year and Euro 1 million invested

* Calculation based on assumption: 1 t CO₂ = 6,172 Pkm car ride or 3,690 Pkm flight route (TREMOD 2021)

** Calculation based on assumption: Emissions per capita in Germany (2022): 10,8 t/year (Source: BMUV)



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