

Green Bond Report 2023



Executive Summary

OTP Jelzálogbank Zrt. (hereinafter: OTP Mortgage Bank or Company) aims to contribute to the achievement of the UN Sustainable Development Goals¹ by financing the energy renewal of the Hungarian housing stock, primarily by increasing the share of affordable and clean energy and reducing the per capita adverse environmental impact of settlements. We believe that, in addition to the direct environmental benefits of financing green real estate, the initiative's awareness-raising effect will also indirectly contribute to the achievement of sustainability goals.

The purpose of the Green Bond Report (hereinafter: Green Bond Report or Report) is to present the key metrics illustrating the expected environmental impact of the portfolio of green bonds issued and green loans granted, as well as of the green lending activity.

Green bonds issued and in circulation

2021 marked the first time OTP Mortgage Bank issued green bonds. In 2023, a total face value of HUF 25 billion green bonds were issued. The nominal value of the portfolio at the end of the year was HUF 120 billion.

Portfolio of green loans meeting the criteria of the Green Bond Framework

At the end of 2023, OTP Mortgage Bank's retail mortgage loan portfolio comprised 238 thousand transactions, representing a total of HUF 1,692 billion in receivables from customers. The loan portfolio was secured by 233 thousand properties.

At the end of 2023, the number of transactions meeting the criteria set out in OTP Mortgage Bank's Green Bond Framework was 32 thousand, representing a total of HUF 375 billion in receivables from customers. These transactions are considered to be green loans.

Environmental impact of the green lending activity

The main sustainability metrics related to green lending activities and green bond issuance are summarised below.

- The estimated annual energy consumption of the properties financed by the total customer loan portfolio is 1,619 GWh, which brought about 268 thousand tonnes of carbon dioxide equivalent greenhouse gas (GHG) emissions.
- The total estimated financed annual energy consumption of energy-efficient properties is 63 GWh, resulting in 12 thousand tonnes of carbon dioxide equivalent greenhouse gas emissions.

- According to OTP Mortgage Bank's portfolio data for the end of 2023, green lending will save 149 GWh of energy consumption and 23 thousand tonnes of carbon dioxide equivalent greenhouse gas emissions.
- The loans financed by the issuance of green bonds will help to avoid 48 GWh of energy consumption and nearly 7 thousand tonnes of carbon dioxide equivalent greenhouse gas emissions per year.

Quantifying the emissions associated with the financed portfolio faces several difficulties, including the lack of data, and where data are available, the options for verifying such data are limited. When assessing sustainability indicators, it is expedient to consider the outdated condition of the Hungarian real estate stock and the fact that without dedicated energy modernisation programmes, only moderate success can be achieved in the energy renewal of used housing stock.

Table 1: OTP Mortgage Bank green loans – estimated annual energy savings

Portfolio	Volume of green loans	Part financed by green bonds	Average remaining term	Annual energy consumption avoided		Annual GHG emissions avoided
	milliárd HUF	milliárd HUF	év	GWh	TJ	t CO ₂ eq
High energy efficiency	375	120	20.0	149	535	23,027
Significantly improving energy efficiency	-	-	-	-	-	-
Total green loans	375	120	20.0	149	535	23,027
Impact of the HUF 1 billion financing				0.4	1.4	61.4
Effect of green bonds				48	171	7,373

¹ Sustainable Development Goals (<https://sdgs.un.org>)



Introduction

Incorporated in Hungary, OTP Mortgage Bank is a specialised credit institution engaged in mortgage lending and is a member of OTP Group. As a core activity, it is involved in the financing of the modernisation, the purchase and construction of residential properties and the provision of general-purpose mortgage loans. In 2021, the Company created its Green Strategy² and Green Bond Framework³ with the aim of contributing to the achievement of environmental and climate objectives through its own efforts.

The objective of the Green Bond Framework is to define what the Company considers to be green bonds. This document presents all the concepts, procedures and commitments that define green bonds: eligibility criteria of green bonds in the course of the lending activity; selection process of green instruments, use of proceeds from green bond issuance and the related reporting commitments.

Establishing the Green Bond Framework, the Company took into consideration all recommendations that are included in the Green Bond Principles⁴ issued by the International Capital Market Association.

It is the primary intention of OTP Mortgage Bank to support, within the limits of its own capabilities, the international and domestic efforts aimed at sustainable development. One of its strategic goals is to facilitate energy-efficient retail real estate investment projects by offering appropriate credit instruments and thus, to contribute to improving the energy efficiency of Hungary's stock of buildings. OTP Mortgage Bank intends to issue green bonds, the proceeds will be allocated for the purpose of financing green mortgage loans.

In 2021, OTP Mortgage Bank, as a pioneer amongst mortgage banks, issued green bonds for the first time. Using its green proceeds, the Company ensures the source of green loans to support energy-efficient mortgage lending.

The Green Bond Framework is intended to comply with the requirements of the four components set out below, as well as the recommendations on the Green Bond Framework and the External Review.

- 1. Use of Proceeds**
- 2. Process for Project Evaluation and Selection**
- 3. Management of Proceeds**
- 4. Reporting**

To ensure compliance with investors' requirements and with the recommendation included in the Green Bond Principles, OTP Mortgage Bank publishes an annual Report on the allocation of proceeds from Green Bond issuance into suitable green instruments.

It is the Company's intention to provide adequate information to investors to enable them to assess the sustainability impacts of their investments. The Report is published in parallel with the publication of the Annual Report of OTP Mortgage Bank.

This document is the Company's Green Bond Report for 2023. The aim of the Report is to present the portfolio of green bonds and green loans in circulation in such a way as to comply with the recommendations set out in the 'Harmonised Framework for Impact Reporting' handbook⁵ published by the International Capital Market Association.

In addition to key data on the portfolio of green bonds issued and in circulation, and on the key data on the portfolio of green loans that meet the criteria of the Green Bond Framework, the Report also presents the main metrics of the expected environmental impact of green lending activity. The stock figures in the Report are as at 31 December 2023.

The Report was approved by the Company's Green Bond Committee on 25 April 2024.

OTP Mortgage Bank publishes the Report – along with all other documents related to green bonds, including the Green Bond Framework – on its website⁶.

OTP Mortgage Bank has commissioned Deloitte Könyvvizsgáló és Tanácsadó Kft. to conduct an independent external review – providing assurance – regarding the Green Bond Report. The independent auditor's report of Deloitte Könyvvizsgáló és Tanácsadó Kft. will be published on the website of OTP Mortgage Bank.

2 OTP Mortgage Bank Green Strategy 2021 (https://www.otpbank.hu/static/otpjelzalogbank/sw/file/OTPMortgageBank_GreenStrategy.pdf)

3 OTP Mortgage Bank Green Bond Framework 2021 (https://www.otpbank.hu/static/otpjelzalogbank/sw/file/OTPMortgageBank_GreenMortgageBondFramework.pdf)

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

5 ICMA Handbook Harmonised Framework for Impact Reporting (https://www.icmagroup.org/assets/documents/Sustainable-finance/2022-updates/Harmonised-Framework-for-Impact-Reporting-Green-Bonds_June-2022-280622.pdf)

6 <https://www.otpbank.hu/otpjelzalogbank/fooldal>

Meeting green targets in 2023

OTP Mortgage Bank has identified four areas through which it can contribute to sustainable development. These areas are: green lending, green bond issuance, green operation and corporate social responsibility.

Green lending and green bond issuance

OTP Mortgage Bank is committed to facilitating energy-efficient retail real estate investment projects by offering appropriate credit instruments and thus, to contribute to improving the energy efficiency of Hungary's stock of buildings. The strategic objective set out in the Green Bond Framework is to continuously increase the share of green mortgage loans in the retail mortgage loan portfolio and to support this process by issuing green bonds on the funding side.

To this end, in 2023 the Company carried out the following tasks.

The identification of green loans in OTP Mortgage Bank's portfolio, as defined in the Green Bond Framework, has continued. The volume of green loans identified in the Mortgage Bank's loan portfolio exceeded the volume of green bonds issued throughout the year.

The disbursement of customer claims under the Green Home Programme, created by the Magyar Nemzeti Bank (the National Bank of Hungary), continued. In 2023, the Company introduced a new product called Green Mortgage Loan for energy-efficient purchases and for upgrading existing properties. OTP Mortgage Bank encourages these types of loans by offering a green interest rate discount.

During the year, the Company expanded its activities with green refinancing. This involves refinancing loan transactions in the

portfolio of its commercial banking partners that meet the criteria for green loans set out in the Company's Green Mortgage Bond Framework. Through green refinancing, OTP Mortgage Bank is now contributing not only directly but also indirectly to improving the energy efficiency of the domestic building stock by promoting green real estate investments.

OTP Mortgage Bank set up its XX. Mortgage Bond Programme in 2023. The main pillar of the Base Prospectus of OTP Mortgage Bank's Mortgage Bond Programme is the investor information on green mortgage bonds.

Green operation and corporate social responsibility

OTP Bank implements net carbon neutrality from 2022 on, using green electricity and carbon credits.

To draw the attention of our customers to sustainability aspects from the very beginning of the housing loan application process, OTP Bank Plc., acting as an intermediary for OTP Mortgage Bank, has developed a module on its website⁷ presenting the housing loans available to customers. The module's main function is to direct interested parties to the sustainability page of OTP Mortgage Bank, distinctly from the main content of the website, visually highlighting key information. In addition to the above, OTP Mortgage Bank also pays special attention to providing as much information as possible to its customers in the course of the loan application process, touching in particular on the sustainability aspects related to mortgage borrowing. During the loan application, the personal customer documentation already includes information on where customers can become familiar with the sustainability criteria, as well as OTP Mortgage Bank's Green Strategy and Green Bond Framework.



As part of its corporate social responsibility, in addition to mitigating environmental damage, our Company helps its customers purchase energy-efficient properties through its lending activity. Thanks to the modern technical solutions complying with green standards, the energy consumption of the top 15% of the domestic real estate stock can be lower, thus offering customers significant savings, especially in the context of today's soaring energy prices.

Further information on OTP Group's environmental, social and corporate governance contribution to sustainability is available on the website of OTP's ESG Programme⁸ and in its annually published Integrated Annual Report 2023⁹.

The Green Strategy of OTP Mortgage Bank is aligned with OTP Group's initiative to promote sustainable development, the cornerstones of which were set out in OTP Bank's Environmental Policy. OTP Group's ESG Strategy adopted in 2021 defines the bank's priorities at the group level, which were specified in 2023 in the areas of business development, risk management and non-business sustainability initiatives. OTP Group's commitment to sustainable development is visible in all markets served by the Banking Group, for example, through the introduction of green products and its corporate social responsibility for sustainability. In 2024, Global Finance Magazine selected OTP Bank as the world's best bank for Sustainability Transparency, as the best Hungarian bank in the Sustainable Finance category and gave four other awards in the Central and Eastern European regional categories.

⁷ <https://www.otpbank.hu/porta/hu/Lakashitel>

⁸ <https://www.otpbank.hu/porta/hu/IR/ESG>

⁹ https://www.otpbank.hu/porta/hu/IR_Fenntarthatosagi_jelentesek

Green bonds

Changes in the volume of green bonds issued by OTP Mortgage Bank

2021 marked the first time OTP Mortgage Bank issued green bonds. In 2023, a total face value of HUF 25 billion green bonds were issued. The nominal value of the portfolio at the end of the year was HUF 120 billion.

Table 2: Changes in the volume of green bonds issued by OTP Mortgage Bank

2023 opening portfolio	HUF 95,020,000,000
Issuance	HUF 25,000,000,000
Maturity	HUF 0
Repurchased mortgage bonds withdrawn from circulation	HUF 0
Currency revaluation effect (in case of denominations other than HUF)	HUF 0
Total turnover	HUF 25,000,000,000
2023 closing portfolio	HUF 120,020,000,000

Green Bond transactions in 2023

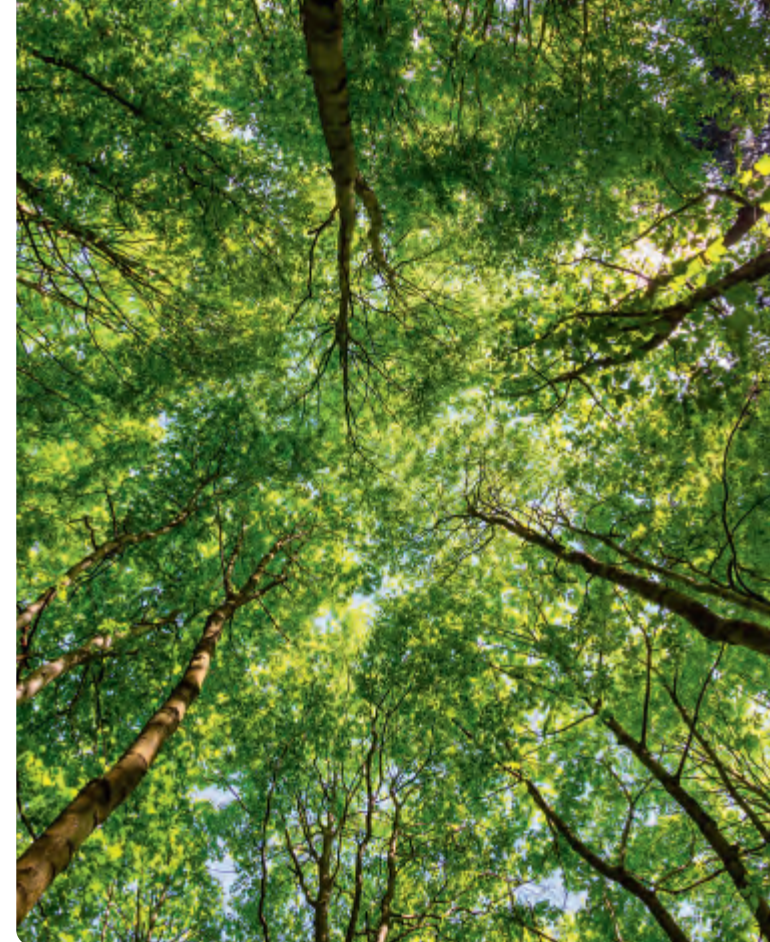
Issuance on the 20th of September 2023: The company issued green mortgage bonds in HUF25 billion nominal value.

Name of series:	OJB2032/A
Series part:	1.
ISIN identifier:	HU0000653621
Type of issue:	auction
Time of auction:	14-18 September 2023
Financial settlement date:	20 September 2023
Maturity:	24 November 2032
Interest:	floating, payable monthly, yearly 1M BUBOR + 0,25%
Face value issued:	HUF 25.000.000.000

Summary data of OTP Mortgage Bank's green bonds in circulation as at 31 December 2023

Table 3: OTP Mortgage Bank green bonds in circulation

Series	ISIN identifier	Currency	Face value	Maturity
OJB2031/I	HU0000653456	HUF	95,020,000,000	22 October 2031
OJB2032/A	HU0000653621	HUF	25.000.000.000	24 November 2032



Green real estate and green loans

Based on its Green Bond Framework, green loans in the Company's view are loans where the property(ies) serving as collateral for the loan meet at least one of the criteria of the following two categories:

- 1. high energy efficiency real estates: buildings falling within the best 15% of Hungary's total stock of buildings based on their energy efficiency rating; and**
- 2. real estates with significantly improving energy efficiency: properties undergoing refurbishment or modernisation using the loan provided by the Company in order to improve their energy performance.**

Hereafter, properties meeting either of the above two criteria are referred to as green properties.

High energy efficiency real estate

OTP Mortgage Bank considers properties with high energy efficiency when they fall within the best 15% of Hungarian residential property stock based on their energy efficiency rating.

In determining the energy efficiency of properties, the Company relies primarily on the building's energy quality rating in letters as specified in its energy certificate and the scaled value of consolidated energy characteristics. In determining the best 15% of Hungary's real estate stock, OTP Jelzálogbank primarily relies on data included in the energy performance certificate of the collateral properties, or in the absence thereof, publicly available energy data published by the Lechner Knowledge Centre¹⁰, a professional background institution of the Prime Minister's Office specialising in architecture, construction, land records and electronic spatial planning, data on the national building stock published by the

Hungarian Central Statistical Office¹¹, and other publicly available official sources.

As of 1 of November 2023, the regulatory regime for determining the energy performance of buildings has changed significantly. As a result, energy performance certificates issued after 1 of November 2023 certify the aggregate energy performance of a property on the basis of a changed energy rating scale. At the end of 2023, the Company's loan portfolio already included green loans with this new energy performance certificate tied to the property collateral.

From 2021 onwards, for retail customers as part of the lending process the Company requires the submission of an energy performance certificate along with the keeping of records of the data contained therein, with the consent of the customer concerned. In case of refinanced loans, the refinanced institution is required to provide the energy performance certificates of the real estate collateral for the loan transactions offered for green refinancing. Among the energy performance certificate data on the Lechner Knowledge Centre website, data on ratings are publicly available, and the data identical with the unique identifiers (topographic lot number, address) of the real estate serving as collateral for OTP Mortgage Bank loans were queried from here. The energy rating of 46% of the mortgaged properties is known, covering a total of 106 thousand properties.

Prior to green bond issuance, the Company determines which quality rating in letters and aggregate energy performance scale (specific energy requirement) meets the criteria of high energy efficiency properties, i.e. falling within the top 15% of the Hungarian residential property stock.



- Green bonds issued in 2021 (HUF 95 billion nominal value), the property's scaled value of consolidated energy characteristics must not exceed the threshold of 118 kWh/m²/year.
- Green bonds issued in 2023 (HUF 25 billion nominal value) the above detailed threshold is determined of 113 kWh/m²/year.

In accordance with the above until the 1 of November 2023 all properties rated AA++, AA+, AA and BB, furthermore A++, A+, A, A and B according to the new energy rating scale, on the energy rating scale are considered green and are part of the top 15% of the Hungarian property stock. The specific energy requirement of real estates in these categories cannot exceed the above defined threshold levels. The specific energy requirement of real estates with an energy rating of CC is maximum 130 kWh/m²/year, and 121,6 kWh/m²/year according to the new energy rating scale of C, therefore this portfolio must be divided into two parts, a green and a non-green (less energy efficient) sub-portfolio.

¹⁰ <https://lechnerkozpont.hu/>

¹¹ <http://www.ksh.hu>

There are a total of 19 thousand properties rated CC in the portfolio, and the specific energy requirement is only known for 22% of these. (The energy requirements for properties with C ratings are all known.) For the remaining part, CC-rated properties are categorised at portfolio level using the statistical method, according to the following rules.

- A portfolio of properties with unknown energy requirements and a CC energy rating must be divided into two parts, a green and a non-green sub-portfolio.
- For the purposes of this division, a green portfolio is defined as a sub-portfolio that can be statistically shown to have a 99% probability of containing properties with an energy efficiency better than the specific energy requirement of 118 kWh/m²/year (green bonds issued in 2021) and 113 kWh/m²/year (green bonds issued in 2023).
- The portfolio is divided on the basis of a statistical ratio. According to the data on energy performance certificates published by the Lechner Knowledge Centre between 2016 and 2019, 68% of CC-rated properties are in the top 15% of the Hungarian property stock. Since the portfolio of OTP Mortgage Bank's real estate collateral does not necessarily have the same statistical characteristics as the national real estate stock, a sample-based statistical estimation is required to determine the appropriate statistical ratio.
- OTP Mortgage Bank has used a statistical method to determine the ratio of green and non-green properties within the CC category. The statistical method used determines with a 99% probability the ratio of energy-efficient properties within the CC category with a specific energy requirement better than 118 kWh/m²/year (green bonds issued in 2021) and 113 kWh/m²/year (green bonds issued in 2023) (or the prevailing threshold). Based on the calculation completed in 2023, 59% of the CC category properties registered among OTP Mortgage Bank's collaterals have a specific energy requirement below 113 kWh/m²/year.

- The Company has set a lower ratio (adjusted statistical ratio) in order to manage potential risks arising from the statistical method or the application thereof: the adjusted statistical ratio applied in 2021 is 60%, i.e. OTP Mortgage Bank considers 60% of the properties in the CC category to be in the top 15% of the domestic residential property stock. The adjusted statistical ratio in 2023 is 40%, i.e. OTP Mortgage Bank considers 40% of the properties in CC category to be in the top 15% of the domestic residential property stock. The coefficient does not affect the number of green properties, those that have green characteristics are categorized to be green.

Properties with an energy rating of DD or worse, along with the new rating scale category of D, as well as properties with a rating category that was in use prior to 2016, are not considered to be green real estates.

Buildings with significantly improving energy efficiency

The Company considers real estates to have significantly improving energy efficiency if they are refurbished or modernised using the loan provided by the Company in order to improve their energy performance. Loans for modernisation purposes, as detailed in the Green Bond Framework, can be considered green loans if the energy rating of the property the loan relates to, prior to and after the investment, verifies this. The Company had no loan products for which this information is available, and as such, no property with significantly improving energy efficiency has been identified until the end of 2023.



Definition of green real estate and green loans

Of the retail housing mortgage loans and the refinanced loans in its portfolio, OTP Mortgage Bank considers loans to be green where the associated property has been identified as green.

Where several properties are linked to one loan or where several loans are linked to one property, no obvious matching is possible, thus separate matching rules need to be applied. The matching rules and legal provisions applied in banking practice establish the categorisation of loans by collateral types into groups so that:

- where a single property collateral is linked to multiple loans, the value of the property is allocated to loans in the records, and
- the principal amount of loans is assigned to the collateral in proportion to the value of the multiple properties attached to a loan.

A loan secured by multiple property collaterals, where the collaterals include both green and non-green properties, is considered as both a green and a non-green loan in proportion to the value of the properties. The principal amount allocated to green property collaterals is considered to be a green loan, and the portion allocated to non-green property collaterals is considered as a non-green loan, whose sum is equal to the total principal amount of the loan.

12 Lechner Knowledge Centre (<https://mnb.hu/letoltes/lechner-epc-database.xlsx>)

13 Renátó Ritter: Van eszköz a magyarországi ingatlanok energetikai állapotának javítására (<https://www.mnb.hu/letoltes/21-03-02-ritter-renato-a-magyarorszag-i-ingatlanallomany-energetikai-allapota.pdf>)

Allocation

OTP Mortgage Bank is responsible for assessing and selecting the loans that comply with the green criteria and for the regular review of the green portfolio.

The body responsible at OTP Mortgage Bank for the valuation and selection of green loans and for the periodical review of the Green Bond Framework is the management meeting acting as the Green Bond Committee. Preparations for the Committee's decisions are supported by the Chief Sustainability Officer, the domains in charge of collateral registration, securities issuance and property appraisal, as well as the legal and compliance domains. With the coordination of the domain in charge of collateral registration, the Green Bond Committee prepares a quarterly report for the Board of Directors, presenting the number of green bonds issued and the volume of eligible green loans.

At the end of 2023, the Company's retail mortgage loan portfolio comprised 238 thousand transactions, representing a total of HUF 1,693 billion in receivables from customers. The loan portfolio was secured by 234 thousand properties. The stock included HUF 4 billion of loans (0.5 thousand transactions, 1 thousand related properties) for which the environmental burden metrics (energy use and GHG emissions) are not applicable (e.g. loans for land development) and were not included in the analysis. In addition to residential mortgage loans, green refinancing loans to commercial banking partners were included in the calculations, amounting to HUF 3 billion (0.2 thousand transactions, 0.2 thousand related properties). This portfolio, totalling HUF 1,692 billion (238 thousand transactions, 233 thousand related properties), is presented in the analysis. At the end of 2023, the number of transactions meeting the criteria set out in OTP Mortgage Bank's Green Bond Framework was 32 thousand, representing a total of HUF 375 billion in receivables from customers. These transactions are considered to be green loans.



OTP Mortgage Bank used all the funds from the green bonds it has issued to finance green loans. No promissory notes (where the credit institution uses the proceeds from the green bonds to disburse green loans after the issue) were issued.

The portfolio of green loans exceeded the portfolio of green bonds in circulation throughout 2023. Under the Green Bond Framework, whenever the portfolio of green loans is lower than the portfolio of green bonds in circulation, such as in the case of a green bond issue with a promissory note, uncommitted green funds are required to be invested in government securities or green securities. No such investment was made in 2023, and there was no need for the temporary use of proceeds from green funds.

All green loans and green bonds are denominated in HUF, thus no foreign currency conversion was performed during the allocation.

In the future, we expect the volume of green loans in OTP Mortgage Bank's portfolio to continue to increase. The volume identified as green loans at the end of 2023 represents 22% of the total portfolio, with a significant volume of loans disbursed before 2016, typically without the energy certification required for categorisation. Incorporating the document request into the lending process helps identify the given items.

On the demand side, we expect that when customers buy a property, the energy performance of the building will be given more consideration in their decision making. Contributing to environmental protection and sustainable development will become an increasingly important consideration for both borrowers and investors.

Characteristics of the green portfolio

The examined portfolio was secured by 233 thousand properties.

Table 4: Energy distribution of properties

Rating in letters specified in the energy performance certificate	Number of properties (thousand properties)
Green, as of 1 st November 2023	0.0
AA++	0.4
AA+	1.0
AA	0.6
BB	9.5
CC, green	18.1
Known, not green	76.6
Not known	127.2
Total	233.4

Table 5 presents the principal capital amount of loans by property collateral with energy-ratings.

Table 5: Breakdown of customer loans by energy-efficient property collateral

Energy distribution of real estate collateral	Total portfolio (HUF billion)	Non-green principal amount (HUF billion)	Green principal amount (HUF billion)
Green, as of 1 November 2023	1.3	0.3	1.0
AA++	9.8	0.8	9.0
AA+	26.3	0.2	26.1
AA	14.8	0.2	14.6
BB	200.1	4.5	195.6
CC	214.3	85.8	128.5
DD or worse	629.4	629.4	0.0
ND	595.9	595.9	0.0
Total	1,691.9	1,317.1	374.8



Loans with green property collateral, but not specifically disbursed for the purpose of building, purchasing or improving the energy efficiency of the property (e.g. general purpose mortgage loans) are not considered green loans, meaning even the group of the highest AA++ energy-rated property collateral includes non-green principal.

The breakdown of the portfolio by year of disbursement is shown in Table 6, with the portfolio of green loans increasing year on year.

Table 6: Breakdown of portfolio by year of disbursement

Year of disbursement of the first instalment	Total portfolio (HUF billion)	Non-green principal amount (HUF billion)	Green principal amount (HUF billion)
2017 and preceding years	302.9	289.7	13.3
2018	107.6	94.6	13.0
2019	183.7	155.5	28.2
2020	221.3	186.8	34.6
2021	326.8	254.3	72.5
2022	321.5	179.7	141.8
2023	228.2	156.6	71.6
Összesen:	1,691.9	1,317.1	374.8

The majority of known loan-purpose transactions are for the purchase of used flats or for home purchase or renovation. For 86% of the loan portfolio, there is definite information that the customer took out the loan to buy or build a new property.

Most of OTP Mortgage Bank's loans are granted for a term of 20 years or longer. Lending is ongoing, meaning that loans that are being phased out of the portfolio are constantly replaced by new loans. The end of the life-cycle of the dynamically changing portfolio cannot be determined.

Within the portfolio under review, the share of consumer mortgage loans – own disbursement or refinanced – is 100%, and the loans for the development of land – agricultural – included in the Company's balance sheet are not taken into account. The share of green loans within consumer mortgages is 22%.

Environmental impact

Applied methodology – PCAF

The estimation of energy consumption and greenhouse gas emissions related to retail mortgage loans provided by OTP Mortgage Bank was carried out using the methodology of the Partnership for Carbon Accounting Financials¹⁴. The methodology has estimation guidelines for seven asset classes, one of which (Mortgages) is specifically designed to quantify energy consumption and greenhouse gas emissions associated with retail mortgage loans.

The basic formula for determining financed emissions is the attribution factor multiplied by building emissions. The attribution factor is the ratio of the outstanding amount owed by the customer at the end of the year to the property value determined at the time of loan contract conclusion, with a theoretical maximum of 100%.

Emissions from the use of buildings (greenhouse gases and energy consumed) are determined using the same methodology, in all cases based on calculations regarding available data on Hungarian properties published by PCAF. In the PCAF database available on the PCAF website¹⁵, each energy rating class has specific calculated emission data per area unit by building type (house, apartment), thus the emission value is the result of the heated area and its multiplication.

In cases where not all the main parameters defined by the PCAF (energy rating, building type, heated area) are available, dealing with the lack of data must be solved. For properties where the energy rating was not available, the national average was used, based on the statistics published by the Lechner Knowledge Centre on energy certificates issued between 2016 and 2023 were used as a baseline. For properties where the building type was not available, the

coefficients for the apartment or house were used as a weighted average of the distribution of known property types in the OTP Mortgage Bank portfolio. For properties where the area of the property was not available, the average size of the property type in the OTP Mortgage Bank portfolio was used.

In the previous year's report, calculations for the estimation of financed emissions in 2022 were also based on PCAF methodological principles, but as the PCAF benchmark database changed, therefore, the comparability of emission data in the two reports is limited.

Data available for calculations

The PCAF recommends that the quality and availability of data used in the calculations should be assessed. The rating is based on a five-point scale, with Score 1 being the best rating, where comprehensive energy consumption and accurate GHG emission data are available, while at the other end of the scale, for Score 5 only the location, type and the number of properties are known and, as such, it is necessary to rely on estimates to a greater extent for the evaluation.

Calculations under the PCAF methodology require the following data: the energy rating of the property, the heated area of the property and the type of property. For properties related to the loans in OTP Mortgage Bank's retail mortgage loan portfolio, evaluation based on the rating category has been determined on the basis of data available. Properties are included in all rating categories except for Score 1 and Score 2, however, the vast majority of properties are rated with Score 3 (45%) and Score 4 (43%).



Total financed and avoided energy consumption and greenhouse gas emissions

The calculations of energy consumption and GHG emissions related to OTP Mortgage Bank's mortgage loan portfolio and energy consumption and GHG emissions avoided through green loans are based on 2023 year-end data and over a one-year time horizon.

The calculations for the energy consumption of properties take into account the attribution factor in order to quantify financing by the credit institution, which is the quotient of the outstanding principal amount of financing and the value of the property.

The estimated annual energy consumption of the properties financed by the total portfolio, totalling 6,435 thousand square metres, is 1,619 GWh. Overall, energy consumption resulted in 268 thousand tonnes of CO₂ equivalent greenhouse gas (GHG) emissions.

The estimated annual energy consumption of the properties financed by the green loan portfolio, totalling 771 thousand square metres, is 63 GWh. Overall, energy consumption resulted in 12 thousand tonnes of CO₂ equivalent greenhouse gas (GHG) emissions.

The estimated annual energy consumption of the properties financed by the non-green portfolio, totalling 5,665 thousand square metres, is 1,556 GWh. Overall, energy consumption brought about 256 thousand tonnes of CO₂ equivalent greenhouse gas (GHG) emissions.

¹⁴ PCAF (<https://carbonaccountingfinancials.com/>)

¹⁵ <https://carbonaccountingfinancials.com/en/financing-towards-net-zero-buildings>

Table 7: Financed energy consumption and GHG emissions

	Unit of measurement	Total portfolio	Non-green real estate	Green real estate
Principal receivable from customers	HUF billion	1,692	1,317	375
Real estate associated with mortgage loans	thousand units	233	206	27
Financed area	thousand m ²	6,435	5,665	771
Weighted average energy consumption	kWh/m ²	252	275	82
Total financed energy consumption	GWh	1,619	1,556	63
	TJ	5,828	5,602	227
Financed annual GHG emissions	t CO ₂ eq	267,532	255,766	11,766

Table 8: Energy consumption and GHG emissions avoided

	thousand m ²	Energy consumption		GHG emissions
		GWh	TJ	t CO ₂ eq
Green real estate	771	63	227	11,766
Non-green real estate	5,665	1,556	5,602	255,766
Non-green real estate, 771 thousand m ² equivalent	771	212	762	34,793
Energy consumption / GHG emissions avoided		149	535	23,027

Table 9: Effect of green bonds

	HUF billion	Avoided energy consumption		Avoided GHG emissions
		GWh	TJ	t CO ₂ eq
Green loans	375	149	535	23,027
Impact of HUF 1 billion financing	1	0.4	1.4	61.4
Green bonds	120	48	171	7,373



The energy consumption avoided by providing green loans can be determined as the average energy consumption and GHG emissions per square metre of green or non-green financed property.

- The estimated annual energy consumption of a non-green property equivalent to 771 thousand square metres of financed green property is 212 GWh based on averages, compared to only 63 GWh for green properties, thereby saving 149 GWh of energy consumption per year through green lending.
- For a non-green property equivalent to 771 thousand square metres of financed green property, we estimate that, based on averages, the maintenance of the property led to 35 thousand tonnes of CO₂ equivalent GHG emissions, compared to only 12 thousand tonnes of CO₂ equivalent GHG emissions for green property, which means 23 thousand tonnes less of CO₂ equivalent GHG emissions.

The portfolio of green bonds issued by OTP Mortgage Bank as at 31 December 2023 was HUF 120 billion. This accounted for 32% of the HUF 375 billion principal portfolio of green loans at the end of the year. Accordingly, by issuing green bonds, our calculation shows that 48 GWh of energy consumption and nearly 7 thousand tonnes of carbon dioxide equivalent greenhouse gas (GHG) emissions were avoided.

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