Engaging Retail Lenders in Home Renovation

2023

Turning Sustainable Finance Commitments into Household Energy Savings and Climate Resilience

Prepared by

CLIMATE STRATEGY & PARTNERS

About Climate Strategy & Partners

Climate Strategy & Partners ("Climate Strategy") is a leading policy advisory and consulting firm in the areas of climate finance, innovation, energy efficiency investments, as well as the corporate strategies and government policies required to effectively accelerate the transition to a net-zero emissions economy. For 14 years, the Climate Strategy team has been providing global companies, banks and Governments advice on how to deliver the economic transition to a low carbon economy. Climate Strategy's chief executive, Peter Sweatman, has authored or co-authored 20 white papers, and was the rapporteur to the EU Commission and UN Environment Finance Initiative's Energy Efficiency Financial Institutions Group (EEFIG), leading a decade of ground-breaking work from 2013-23. Climate Strategy has supported energy transition policy development at the G20 and in Spain, Mexico, France, and the UK. Launched in 2016, Climate Strategy's subsidiary Energy Efficiency Capital Advisors (EECA) has structured and executed ten energy efficiency placements totalling over Euro 50 million for Spanish cities, companies and buildings for international investors.

About this Report

This report is written by Peter Sweatman, Chief Executive of Climate Strategy, with the support of Mauricio Yrivarren as lead researcher and for graphic design. The report builds upon the inputs of multiple experts, stakeholder meetings, and survey data, yet the views and conclusions expressed herein are attributable only to Climate Strategy & Partners, and not to the supporting organisations nor reviewers. The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the European Climate Foundation nor Climate Strategy & Partners nor the authors concerning the legal status of any country, territory, city or area or of its authorities, or concerning delimitation of its frontiers or boundaries.

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Executive Summary

Executive Summary

The most cost-effective way to reduce emissions, improve resilience, address energy poverty and reduce dependence on imported fossil fuels is to invest in energy efficiency. Investing to save energy creates local jobs, saves money, delivers longer and more healthy lives for fragile communities and provides the base of Europe's energy transition by placing energy efficiency first.

Buildings are in the spotlight because they are collectively the most significant energy users in Europe and are highly inefficient. As energy prices increase, and renovation receives more public financial support, the demand for energy efficiency investments is rising, and yet retrofit rates are still far below those anticipated by the EU Green Deal, or in most Member States' renovation plans.

"Lack of finance" is frequently cited by building owners and policymakers as one of the most important barriers to action, and yet **many banks offering finance for home renovations are underwhelmed by customer demand**. In a world where consumers are smothered in financing options for cars (hire purchase), white goods (0% interest, buy now & pay later) and many other competing investments, it's a surprise that so few attractive "point of sale" renovation finance options exist, and how little financial support would-be renovators have.

There are over one hundred thousand bank branches in the European Union and retail lenders process "millions of daily customer interactions[1]" online. **Over a quarter[2] of EU homes have a mortgage and this channel to discuss energy savings is underused. Lenders could offer and process the millions of energy renovation loans, or green mortgage top-ups, annually required to deliver the finance needed to upgrade and modernise the EU's buildings.** With limited public funding rightly being prioritised for the most needy, the EU's building renovation and energy efficiency targets will be wholly unachievable without the engagement and alignment of mortgage lenders. The required step-change in energy renovation rates will be impossible without mortgage lenders hosting informed and engaged dialogues with building owners on their energy performance and how to resolve this.

This report looks at the role of financial institutions in building renovation in Europe, through their sustainable finance and mortgage operations, and is supplemented by responses to a detailed 2023 sustainable finance questionnaire. The work approaches the offer of buildings' renovation finance through the prism of lenders' existing sustainable finance activities, climate risk management and decarbonisation commitments. Further, it provides **a new way of segmenting EU homeowners to improve the market's understanding of the need to offer different financial blends of public and private components to deliver a renovation wave**, and through that a resilient and energy secure and efficient housing stock.

European banks with net-zero targets[3], clear transition plans or science-based emissions reductions trajectories have already identified their mortgage books as containing material climate risks and opportunities. They have also seen the evidence that shows mortgage arrears and defaults in Europe decrease as property energy performance improves[4]. In fact, **over 30% of Europe's largest banks have already begun to implement a voluntary Mortgage Portfolio Standard** as a result of regulatory changes and to operationalise their overall climate targets, identify data gaps and provide a framework for action for renovation.

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[1] EUSEW INTERACTIVE. (2023). *Fredrik Nilzen intervention in panel: Strengthening energy efficiency for the clean energy transition and energy independence*.[Website]. Retrieved from https://interactive.eusew.eu/eusew-2023/sessions/3305191a-6c82-44c1-802f-145d622bfdc5

[2] Statista. (2023). *Share of the population in European countries who are owner-occupants in 2021, with or without a mortgage*. [Website]. Retrieved from https://www.statista.com/statistics/957803/homeowners-with-and-without-an-outstanding-mortgage-in-eu-28-per-country/

[3] NZBA Signatories commit to setting sectoral decarbonisation targets for 2030 or sooner in line with pathways that limit global warming to 1.5 degrees above pre-industrial averages. This includes residential and commercial real estate.

[4] European Commission, Directorate-General for Energy, *The quantitative relationship between energy efficiency improvements and lower probability of default of associated loans and increased value of the underlying assets – Final report on risk assessment*, Publications Office of the European Union, 2022, https://data.europa.eu/doi/10.2833/532126

Lenders to buildings, their owners and occupants need better data. Fortunately a host of AI-powered, proxy-based, and innovative solutions are emerging to resolve these data gaps[5]. An ambitious recast of the EU Buildings Directive (EPBD) can introduce minimum energy performance standards, accelerate the uptake of Mortgage Portfolio Standards and help improve buildings data through improving Energy Performance Certificates (their quality, coverage and visibility), introducing building passports and digital logbooks, and requiring disclosure of embodied carbon emissions in the construction and renovation sectors.

Over 70% of EU homeowners own the homes they live in. The majority of these homeowners can borrow against their homes if they wish to improve their comfort and energy performance - and be paid back through energy savings and value increases. However, many of these homeowners do not meet the income, age or loan-to-value tests required to qualify for more mortgage debt. Private sector lenders therefore need public support to deliver attractive funding to these tens of millions of homeowners. This is potentially **a trillion euro opportunity where EU-level guarantees can be deployed with private capital to better serve the needs of an often older and precarious market segment** who need a new blended public-private financial instrument to renovate.

In 2023, the EU adopted an updated Energy Efficiency Directive that contains an economy-wide final energy consumption target which represents a 21% reduction by 2030 on 2021's actual energy use. Meeting this target will be historic and requires actions that are over and above what has gone before. Success will deliver significant economic and security benefits to countries, yet it cannot be met unless building renovation rates increase significantly. This is why **2023 also needs to see an ambitious agreement in the recast of the EU Buildings Directive (EPBD) that combines new standards with the financial resources to deliver the EU Renovation Wave**. The report concludes with four key recommendations to policymakers and financial institutions.

[5] EEFIG. (2023). *Collecting and monitoring data on energy efficiency investments and financing across EU Member States and targeted economic sectors.* [Website]. Retrieved from https://op.europa.eu/en/publication-detail/-/publication/f8d98e5e-fdd2-11ed-a05c-01aa75ed71a1/language-en/format-PDF/source-287360293

This report recommends the recast EPBD strengthen the following four areas:

1	Member States need to establish minimum energy performance standards through a framework with clear and measurable interim targets to improve the energy performance of their commercial and residential buildings.	These must be established in line with the collective EU targets, and national energy and climate plans and buildings renovation strategies, with a focus on the worst-performing buildings.
2	Governments need to increase grant funded renovations to the energy poor and increase levels of technical and project development assistance to all residential segments. In addition, an EU-level guarantee facility should be made available to retail lenders engaging in providing home renovations to the elderly and homes with poor economics.	The launch of an EU Renovation Loan would immediately increase the resources available to Member States and offer specific tailored retrofit funding to homeowners unable to refinance or extend their mortgages for renovation. It will also level the playing field across the EU by helping resolve issues of scale, fiscal headroom and speed to market.
3	Mortgage lenders in the EU must play a more proactive role in unlocking the trillions of home equity stored in the buildings owned by their clients. By implementing a voluntary Mortgage Portfolio Standard, these lenders can more easily identify the low-hanging fruit and the climate risks in their property backed loans, and will be able to more efficiently deliver their own sustainable finance and net-zero commitments.	A Commission-led Delegated Act process can convene Europe's leading lenders and experts to build from the many existing best practices and help define technical standards and guidance to achieve these goals.
4	All necessary policy levers must ensure that more and better quality energy use and performance data is surfaced to the buildings renovation supply chain, and homeowners, to help residential and commercial buildings owners prioritise cost effective renovations, add value to their properties and reduce operating costs.	The complexity of renovation must be resolved by the contractors, financiers and trusted project managers. Digital logbooks, building renovation passports, AI, proxies and improved and advanced EPCs all have a role to play, but fundamentally building owners need support and simplicity. .

Reading Guide

This report builds on almost fifteen years of work led by Climate Strategy on finance for energy efficiency and building renovation. It provides a snap-shot of the critical policy tools that the author believes are necessary to make financing energy savings a wide-scale retail phenomenon. It draws directly from a decade of working in a multilateral setting with over a hundred financial institutions investing in clean energy, emissions reductions and energy savings, and also includes input from a 2023 sustainable finance questionnaire. Its timing is designed to coincide with the closing political discussions around the recast Energy Performance of Buildings Directive, to ensure that negotiating parties understand, and Member States have the access to, the financial tools they need to deliver on EU climate and energy efficiency objectives.

There are two preceding reports which define and more fully explain two of the key tools referred to in this report and they are: *"Underwriting the Renovation Wave with Mortgage Portfolio Standards for Energy Efficiency*[6]*"* (published in October 2021); and *"The EU Renovation Loan: a new instrument to fund the EU Renovation Wave*[7]*"* (published in November 2022). Building from them, this report provides new primary perspectives from leading EU mortgage lenders to update policymakers on the state-of-play of retail energy efficiency investments in the built environment in Europe, and how to align private sector financial institutions with the building renovation goals of the EU Green Deal.

The first section is written to quickly bring a reader who is unfamiliar with the importance of energy efficiency in buildings, or our prior work, up to speed. The chapter offers a snap-shot of the quantities of energy involved and the amounts of investment needed to meet EU Climate and Energy targets for 2030. It summarises the recent limited progress of the carrot-and-stick approach to connecting mortgage lenders to the energy efficiency agenda. It develops the innovative concepts of voluntary Mortgage Portfolio Standards, and the introduction of a new public-private financial instrument: an EU Renovation Loan. It also contains a new segmentation analysis of EU homeowners for the reader to better appreciate the investment sums required and how the public-private grant and instrument mix changes based on needs.

The middle section provides a summary of the insights gleaned from a sustainable finance questionnaire sent to major retail mortgage lenders across Europe in 2023. These questions (included in Annex B) were designed to connect financial institutions' high level sustainability commitments and climate risk processes to the specific, consequential and necessary actions within their mortgage lending businesses. There were nineteen responses (partial and complete) to the questionnaire and the findings from these responses are documented and summarised. Through review of the public disclosures of Europe's 30 largest banks (by assets), this section ends with a map of which net-zero, and related initiatives, these banks form a part of, and their overall alignment status in their mortgage operations. It seems that twelve of the top-30 banks in Europe are already actively working on implementing a voluntary Mortgage Portfolio Standard, or equivalent.

Finally, the report draws together the threads of its primary findings, the major breakthroughs in sustainable finance and multiple bilateral and multi-stakeholder engagements in 2023 to provide a set of recommendations to EU policymakers, Member States and conclusions for the financial sector. These recommendations and conclusions are echoed in the executive summary, but appear with greater detail and analysis in the final chapter.

[6] Climate Strategy & Partners. (2021). *Underwriting the Renovation Wave with Mortgage Portfolio Standards for Energy Efficiency*. Retrieved from https://climatestrategy.com/en/informe_20.php
[7] Climate Strategy & Partners. (2022). *The EU Renovation Loan: a new instrument to fund the EU Renovation Wave*. Retrieved from https://www.climatestrategy.es/press/ERLReport03112022.pdf

The Opportunity to align Building Renovation and Sustainable Finance

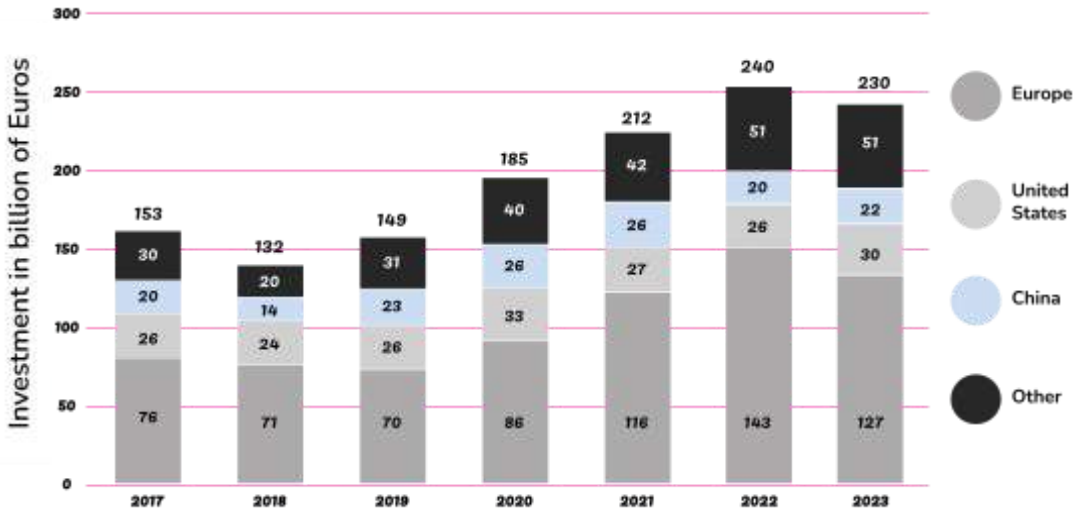
Characterising Energy Efficiency Investments in EU Buildings

Financing Europe's energy transition urgently requires a substantial realignment of investment flows into clean assets - **a doubling of energy efficiency investments and a tripling of the deployment rate for renewables**, in fact. To support this, countries need to reallocate scarce public budgets away from fossil subsidies, and into schemes that promote and support energy efficiency investments.

Globally, the €7 trillion, or 7.1% of GDP, spent on subsidising fossil fuels[8] is more than ten times the €582 billion[9] that was invested in energy efficiency in 2023. This juxtaposition is further exaggerated as energy savings projects: pay for themselves, increase building rental and sale values, create local jobs, reduce emissions, enhance air quality, deliver positive health outcomes, and improve resilience and quality of life.

Energy efficiency sits at the heart of Europe's energy security, as it imports nearly 60% of its primary energy resources[10], a factor which is worse for fossil fuels (83%[11] for gas, 97%[12] for oil, and 70%[13] for coal). When Russia invaded the Ukraine, Europe's energy import costs doubled to €660 billion (from 2019 levels to August 2022[14]). **Europe now pays more to import fossil fuels than was globally invested in energy efficiency in 2023.** This is why the EU is calling for a "doubling of energy efficiency" at COP28[15], and why its 2030 targets require an EU energy demand reduction of over 20%, electrification on an unprecedented scale, and a build-out of renewables, grids and storage at rates considerably higher than previously seen.

Annual investment in energy efficiency in the buildings sector worldwide from 2017 to 2023, in selected regions[16]



[8] IMF. (2023). *Fossil Fuel Subsidies Surged to Record $7 Trillion*. [Website]. Retrieved from https://www.imf.org/en/Blogs/Articles/2023/08/24/fossil-fuel-subsidies-surged-to-record-7-trillion
[9] IEA. (2023). *Energy Efficiency - The Decade for Action Ministerial Briefing IEA 8th Annual Global Conference on Energy Efficiency*. Retrieved from https://iea.blob.core.windows.net/assets/f475eb45-f14f-4a6f-9217-51eadef32763/EnergyEfficiency-TheDecadeforAction.pdf
[10] European Environment Agency. (2023). *Energy Modified 25 Oct 2023.* [Website]. Retrieved from https://www.eea.europa.eu/en/topics/in-depth/energy?activeTab=07e50b68-8bf2-4641-ba6b-eda1afd544be
[11] Hat, K. et al. 2023, Research for REGI Committee – The impact of the gas supply crisis on the Just Transition Plans, European Parliament, Policy Department for Structural and Cohesion Policies, Brussels. Retrieved from https://www.europarl.europa.eu/RegData/etudes/STUD/2023/733134/IPOL_STU(2023)733134_EN.pdf
[12] Ibid.
[13] Bruegel. (2022). *Can Europe manage if Russian oil and coal are cut off?.* [Website]. Retrieved from https://www.bruegel.org/blog-post/can-europe-manage-if-russian-oil-and-coal-are-cut
[14] EIB. (2023). *INVESTMENT REPORT 2022/2023: Resilience and renewal in Europe.* Retrieved from https://www.eib.org/attachments/lucalli/20220211_economic_investment_report_2022_2023_en.pdf
[15] European Parliament. (2023). *COP28 climate change conference in Dubai*. Retrieved from https://www.europarl.europa.eu/RegData/etudes/ATAG/2023/754590/EPRS_ATA(2023)754590_EN.pdf
[16] Statista. (2023). *Annual investment in energy efficiency in the buildings sector worldwide from 2017 to 2023*, in selected regions (in billion U.S.). [Website]. Retrieved from https://www.statista.com/statistics/1350138/building-energy-efficiency-investment-worldwide-by-region/

Over the thirteen years from 2007 to 2020, final energy consumption in the EU reduced around 9%. In the seven years from 2024-2030[17], the EU is pledged in law to deliver over twice that reduction. The formal 11.7% binding energy savings target agreed in the Energy Efficiency Directive is equivalent to a reduction of the total energy consumption of Spain. This level of ambition is healthy, achievable and will on-shore jobs, reduce dependency on fossil fuels and provide a healthier and more competitive and resilient EU economy. It will also require an investment of around Euro 2 trillion, the majority of which needs to be private investment.

Buildings use the most energy, as a sector, and have the most opportunity to reduce. 40%[18] of the energy consumed in the EU and 36%[19] of energy-related greenhouse gas emissions come from buildings in Europe. Three quarters of buildings standing in Europe were built when no, or minimal, energy codes[20] were in place and are considered energy inefficient. Most of these buildings could deliver the same (or better) levels of comfort and services with a fraction of the energy, and cost.

On average, residential buildings in the EU use 180 kWh/m^2/year[21] of energy, and non-residential buildings average 40% more than residential buildings at 250 kWh/m² per annum. **Experts believe that most buildings can be renovated to achieve energy intensities of 60-80 kWh/m²/year[22] which would bring average energy consumption down by over two-thirds.** Climate change is increasing weather uncertainty across the EU and posing threats to the European energy system[23]. However, there are no weather related reasons why Sweden's buildings require 18% less energy per m² than Finland's[24] and Cyprus has over twelve times the amount of solar water heating per capita than Spain[25] [26].

In 2020, Eurostat reported that **11% of buildings had some renovation that year, yet only 1% of buildings have renovations impacting their energy performance, and a mere 0.2% optimise for energy efficiency**[27]. Market research[28] values the European building renovation market at around Euro 900 billion annually out to 2030. Studies also suggest that cost-effective deep renovation of poorly performing buildings can deliver energy savings on average of 61%[29], while some studies point to energy savings potentials as high as 97%[30]. Clearly, for a full transition to a net-zero economy by 2050, shallow renovations, or "just heat-pumps" to electrify are insufficient. The following table provides a list of practical examples with the savings achieved in different Member States:

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[17] Sweatman, P. *Concerted Action for Energy Efficiency in Europe*. [Linkedin post]. Retrieved from https://www.linkedin.com/pulse/concerted-action-energy-efficiency-europe-peter-sweatman/
[18] European Commission. (2020). *In focus: Energy efficiency in buildings.* [Website]. Retrieved from https://commission.europa.eu/news/focus-energy-efficiency-buildings-2020-02-17_en
[19] Ibid.
[20] Ristori, D. (2013). JRC Conference on "Scientific Support to EU Growth and Jobs: Efficient buildings, vehicles and equipment. [Introductory Remarks]. Retrieved from: http://ec.europa.eu/dgs/jrc/index.cfm?id=2470&obj_id=4330&dt_code=EVN
[21] European Commission. (2023). *Energy EU policies aim to deliver secure, sustainable and affordable energy for citizens and businesses.* [Website]. Retrieved from https://ec.europa.eu/energy/eu-buildings-factsheets_en
[22] Roberts, et al. "Altering Existing Buildings in the UK." Energy Policy, Elsevier, 31 Oct. 2008, www.sciencedirect.com/science/article/abs/pii/S0301421508004692?via%3Dihub.
[23] European Commission. (2023). *Consequences of climate change.* [Website]. Retrieved from https://climate.ec.europa.eu/climate-change/consequences-climate-change_en
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[26] Bandekas, D.V; Fantidis, J; Potolias, C; & Vordos, N. (2012). Financial Analysis of Solar Water Heating Systems during the Depression: Case Study of Greece. October 2012: Engineering Economics 23(1):33-40. DOI:10.5755/j01.ee.23.1.1222
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[29] Boussaa,Y.; Dodoo, A; Rupar-Gadd, K; & Nguyen, T. (2023). *Integrating Passive Energy Efficient Measures to the Building Envelope of a Multi-Apartment Building in Sweden: Analysis of Final Energy Savings and Cost Effectiveness.* MDPI: Buildings 2023, 13, 2654. https://doi.org/10.3390/buildings13102654
[30] Chen, J; Hong, T; Lin, Z; & Wang, W. (2023). *Evaluating energy retrofits of historic buildings in a university campus using an urban building energy model that considers uncertainties*. Lawrence Berkeley National Laboratory. https://doi.org/10.1016/j.scs.2023.104602

Member State	Name of programme/ initiative	Description	Average energy savings per home
Lithuania	Lithuanian Public Investment Development Agency (VIPA[31])	Renovation of 50 multi-apartment buildings in Lithuanian cities	60%[32]
Estonia	Estonian Business and Innovation Agency (Kredex)	KredEx offers loan guarantees with a state guarantee for the purchase and the energy renovation of Etonian homes.	44%[33]
Germany	Pilot: Erste Energiesprong-Sanierung in bewohntem Zustand	Project sponsored by Interreg NWE´s E=0 project and KfW for the energy modernization of 32 apartments in Bochum Germany.	50%[34]
Spain	Orcasitas, Madrid	Community initiative where 40 out of 107 city blocks have been retrofitted. 26 additional blocks are currently undergoing renovation works[35].	60%[36]
Italy	Cà Granda, Milan	Six residential towers (384 apartments) were deeply renovated from 2021 delivering energy savings, earthquake safety and resilience to heat waves.	62%[37]
Spain	Navarre	EIB funded energy upgrades for 1,900 housing units.	70%[38]

The EU Renovation Wave strategy was presented alongside the EU Green Deal in 2020. It targets 35 million building renovations by 2030 with an anticipated annual investment requirement of €275 billion. Yet, current EU renovation progress remains a far cry from the high expectations of the EU Renovation Wave. **With 7 years to go, and given initial investment underperformance, an aggregate 2023-2030 renovation budget of around Euro 2 trillion is the order of magnitude of the renovation investment challenge**. Home energy renovation is clearly the permanent solution to a structural energy problem, whereas price caps or energy-use subsidies will just delay this structural problem.

In this context, electricity bills increased on average by 67% across EU member states from January 2021 to January 2023[39], and as a result an estimated 35 million EU households (8% of Europeans), can't afford to keep their home adequately warm[40]. Some analysts believe that the hike in EU household energy bills will total as much as Euro 2 trillion[41]. **These are energy expenses which could have been avoided by placing energy efficiency first in building renovations.**

[31] EBRD. (2023). *EBRD lends €10 million to boost energy efficiency improvements in Lithuania*. [Website]. Retrieved from https://www.ebrd.com/news/2023/ebrd-lends-10-million-to-boost-energy-efficiency-improvements-in-lithuania.html
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[41] Bloomberg. (2022). *Goldman Sees $2 Trillion Surge in Europe Energy Bills by 2023*. [Website]. Retrieved from https://www.bloomberg.com/news/articles/2022-09-06/goldman-sees-2-trillion-surge-in-europe-energy-bills-by-2023#xj4y7vzkg

Context for a €2 trillion investment to Renovate EU Buildings

Buildings and real estate[42] represent over 60% of the €567 trillion real global assets[43] in 2022[44] and they are worth more than the sum of all global equity and debt securities. In Europe, land and buildings continue to be significant stores of family wealth, and the following bullets summarise 2023's financial context for EU27 residential buildings:

- **EU residential buildings are worth around Euro 20 trillion**. The European Real Estate Forum values the European[45] residential real estate at €29.9 trillion[46]. Subtracting Savills' £9 trillion value of UK homes[47] from this overall European figure gives an estimate of the value of EU27 homes of around Euro 20 trillion.
- **71% of people living in the EU live in a home they own**[48], and most (44%) do not have a mortgage[49]. Owner-occupants with a housing loan or mortgage represent around 27%[50] of EU homes.
- **25 million[51] (or 12%) of the 198 million[52] homes in Europe are publicly owned**.
- **EU27 residential mortgages are around Euro 7 trillion[53].** The European Mortgage Federation reports that the volume of EU27 outstanding mortgage loans was €6.7 trillion in 2022, a 3.6% increase over 2021.
- **Institutional real estate investments in the EU27 are around Euro 3 trillion[54]**. Buildings are owned by pension funds and asset managers, who traditionally have been more active in the non-residential segments.

Subtracting the EU's mortgage debt from the estimate of aggregate EU home value suggests that the total stored equity in the EU is around Euro 13 trillion: This is the amount of stored wealth against which up to 20% (or €2 trillion) needs to be borrowed by 2030 to renovate the most wasteful buildings to deliver savings, resilience, jobs and green value.

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[43] McKinsey Global Institute. (2022). *Discussion paper Global balance sheet 2022: Enter volatility*. Retrieved from https://www.mckinsey.com/~/media/mckinsey/business%20functions/strategy%20and%20corporate%20finance/our%20insights/global%20balance%20sheet%202022%20enter%20volatility/global-balance-sheet-2022-enter-volatility.pdf

[44] Savills. (2023). *Total global value of real estate estimated at $379.7 trillion – almost four times the value of global GDP*. [Website]. Retrieved from https://www.savills.com/insight-and-opinion/savills-news/352068/total-global-value-of-real-estate-estimated-at-$379.7-trillion---almost-four-times-the-value-of-global-gdp#:~:text=The%20value%20of%20all%20global,most%20significant%20store%20of%20wealth.

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[46] European Real Estate Forum. (2023). *REAL ESTATE KEY FACTS*. [Website]. Retrieved from https://www.europeanrealestateforum.eu/key-facts/

[47] Savills. (2023). *UK housing value hit a record high of £8.68 trillion in 2022 with gains favouring owner-occupiers rather than landlords.* [Website]. Retrieved from https://www.savills.com/insight-and-opinion/savills-news/340229/uk-housing-value-hit-a-record-high-of-%C2%A38.68-trillion-in-2022-with-gains-favouring-owner-occupiers-rather-than-landlords

[48] Statista. (2022). *Share of the population in European countries who are owner-occupants in 2019, with or without a mortgage*. [Website]. Retrieved from https://www.statista.com/statistics/957803/homeowners-with-and-without-an-outstanding-mortgage-in-eu-28-per-country/#:~:text=42.6%20percent%20of%20the%20total,a%20mortgage%20or%20housing%20loan

Eurostat. (2023). *House or flat – owning or renting: Over two-thirds of people in the EU lived in households owning their home*. [Website]. Retrieved from https://ec.europa.eu/eurostat/cache/digpub/housing/bloc-1a.html

[49] Ibid.

[50] Ibid.

[51] Housing Europe. (2023). *About Us*. [Website] .Retrieved from https://www.housingeurope.eu/

[52] Eurostat. (2023). *Household composition statistics*. [Website]. https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Household_composition_statistics#:~:text=Highlights&text=In%202022%2C%20198%20million%20households,members%20per%20household%20on%20average.

[53] ECBC. (2023). *EMF HYPOSTAT 2023: UNITED IN DIVERSITY – MULTIDIMENSIONAL PATTERNS IN EUROPEAN HOUSING AND MORTGAGE MARKETS IN 2022.* [Website]. Retrieved from https://hypo.org/ecbc/press-release/emf-hypostat-2023-united-in-diversity-multidimensional-patterns-in-european-housing-and-mortgage-markets-in-2022/#:~:text=In%202022%2C%20the%20total%20volume,a%20new%20all%2Dtime%20high.

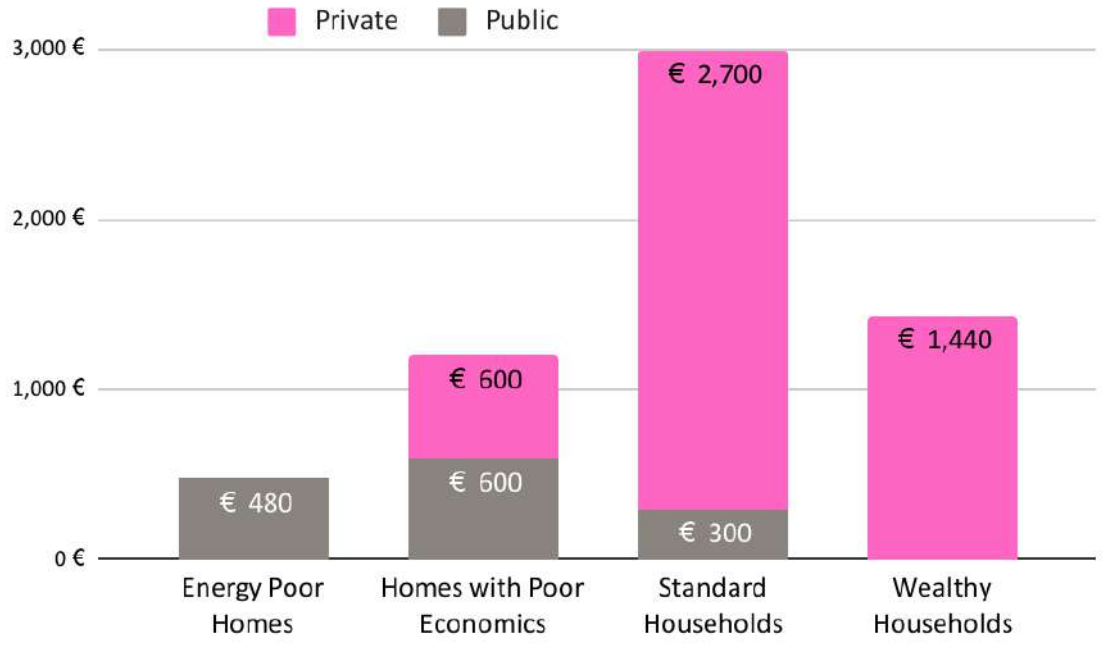
[54] INREV. (2023). *About INREV*. [Website]. Retrieved from https://www.inrev.org/news/press/european-investors-plan-decrease-allocations-real-estate

Striking the Right Blend of Public and Private Renovation Finance

The allocation of the right amounts of public support to catalyse additional private finance has been a continued challenge for EU Member States, and one that has been insufficiently addressed in the research. Performing simple needs-based segmentation, **the entire budget required to deeply renovate all EU homes and residential buildings is in the order of Euro 6 trillion**, or 30% of the value of those buildings invested back in their resilience and longevity, to be repaid with energy savings and "green value". **The rough split of public versus private funding is 25/75: €500 billion of public funding (and guarantees, accounted for within that budget) to lever €1.5 trillion of private finance by 2030.**

The following chart summarises how public and private investments could be distributed among the homeowner segments in the EU based upon a financial "needs-assessment":

Breakdown of €6 trillion of home renovation finance by household economics (2023-50 in € bn.)



Each of the four segments described in the above chart approximate the characteristics and help define the financial instrument mix for the 200 million households[55] in the EU. This rudimentary set of estimations provides a basis to plan and consider a financial approach to the activation of each segment through the right blend of grants, guarantees and private finance and helps frame and size the investment challenge. This is a description of each of the four cohorts and the financial instruments which best serve them:

1. **Energy poor homes (16 million, €480 billion social investment need)**: 8% of the EU's 200 million households cannot adequately heat their homes[56], this means there are 16 million energy poor homes. These are the most vulnerable households in Europe and they will not be able to make an economic case for renovation (as they already can't afford their heating). For these 16 million households, renovation and energy resilience investments can be characterised as "social investments" whose returns are delivered in improved

[55] Eurostat. (2023). *Household composition statistics*.[Website]. Retrieved from https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Household_composition_statistics
[56] Eurostat. (2021). *8% of EU population unable to keep home adequately warm*. [Website]. Retrieved from https://ec.europa.eu/eurostat/web/products-eurostat-news/-/ddn-20211105-1

quality of life, lower health system costs, comfort and the returns to the local economy of the increased renovation activity. If each energy poor home received a €30,000 upgrade investment as a 100% public grant, the total grant funding needed for this segment would be €480 billion. **If this "social renovation programme" were undertaken over 10 years, with 1.6 million renovations per year, the cost would be €48 billion per annum, or just over 1% of the €4 trillion annual social expenditure of the EU**[57]. Many studies have shown that the returns on this form of social investment will generate long-term positive returns to the public purse through increased economic activity, reduced health service costs and alleviated social pressures.

2. **Homes with poor economics (40 million, €1.2 trillion public-private investment need):** Banks report that up to 20% of their customers do not meet the income / wealth thresholds to be able to increase their mortgages or take-on additional debt. By extension, this suggests that the next segment of households, those who are unable to privately finance a home renovation, contains around 40 million homes in the EU. Roughly 30%, or 12 million, of these households will be renting, and 28 million will own their own homes. For this segment a mix of grants and public support (via guarantees and EU Renovation Loans) will be required. The energy savings for this segment are real, but each building occupancy type (eg. multifamily, single occupancy, detached etc) in different Member States will likely require a different public-private funding mix. For the sake of approximation, we assume that in this segment the funding mix will be 50% public and 50% private, as a rule of thumb. Another way to think about it is that around half the €30,000 upgrade investment budget can be repaid in energy savings (aligning with the typical projects listed in the prior chapter) and the remainder is part social resilience investment and part poverty alleviation, with returns to the state over the long-term.

3. **Standard households (100 million, €3 trillion mainly private investment need):** Half of EU households can be considered "standard". 70 million (70%) of these households are homeowners, and they are not energy poor, nor have poor home economics. These 70 million households are living in a home they own and are able to finance a €30,000 renovation with an extension of their mortgage, renovation loan or an EU Renovation Loan (in cases where other long-term, low cost financing instruments are not available - e.g. for elderly homeowners). To catalyse this segment Governments may want to provide tax incentives (like the Superbonus in Italy - see case study below) to improve the economic case, or guarantees (for elderly owners who no longer qualify for mortgages) to reduce funding costs, and technical assistance to support the development of a renovation project. Essentially the investments in the standard EU household can be repaid through the private benefits to the household of reduced energy bills, higher property value, and higher thermal and acoustic performance.

4. **Wealthy households (48 million, €1.5+ trillion private investment needs):** The remaining 28% of EU households can be considered "wealthy". The gross financial assets held by EU citizens is €35 trillion[58], with aggregate debt of Euro 9 trillion[59], meaning that EU households have €29 trillion of net financial investments - excluding their debts and the value of their homes. Wealth is unequally distributed and it is not unreasonable to assume that over 60% of the net financial wealth sits with these 48 million households, meaning they each have over €360,000 net savings on average. With such savings, and an aggregate wealth which covers the renovation investments by a factor of 10-20 times, no public support is warranted. The energy savings and higher asset prices delivered through

[57] Eurostat. (2022). *Social protection statistics - social benefits*. [Website]. Retrieved from https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Social_protection_statistics_-_social_benefits
[58] Eurostat. (2022). *Households - statistics on financial assets and liabilities*. [Website]. Retrieved from https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Households_-_statistics_on_financial_assets_and_liabilities
[59] Ibid.

a deep renovation of their homes will compensate for much of these investments, and the increased investment sizes for larger and more valuable homes is progressive in nature and will support local communities and innovative renovation start-ups.

The above estimations suggest that the aggregate investment needed to renovate EU homes is in the order of €6+ trillion, of which €1.4 trillion (25%) of public support in the form of grants, tax incentives and guarantees is likely required. The renovations in colder climates will spend more on thermal insulation and improved envelope performance, and those in warmer climates and temperate regions may focus on heat-pumps, onsite solar water heating and electricity generation.

In the context of aggregate European household energy bills of €2 trillion per annum, a renovation investment amount of €6 trillion which saves say half of the energy use of each home, would be paid back in around 6 years. However, given the uneven energy use, transaction costs, cost of finance and the way in which energy is billed, each individual deep renovation project is likely only to be profitable over 10-30 years[60].

Case Study - Superbonus, Italy's tradeable tax credit for home renovation

Over the years, Italy's policies to foster energy efficiency levels have resulted in a decrease in energy demand in its buildings. The country's super bonus scheme offers tax reductions for energy efficiency works[61], and since its introduction, it was modified to reach low-income sectors particularly in the economically deprived southern part of the country[62]. The estimated tax deductions for energy efficiency works completed by 2024 are around €6 billion.

Measures taken

The 2021-2026 National Resilience and Recovery Plan (NRRP) allocates about €14 billion to support the bonus scheme[63]. In order to prevent regressive effects where high income homeowners and households benefit from the programme, in early 2023 the Italian government introduced a new income requirement:

- A one-person household wishing to take advantage from the scheme ought to earn under €15,000 annually[64].
- The income threshold increases with every additional household member.

Milestones:

- It is expected that for 2022 and 2023, the Superbonus will be responsible for:
  - Around one third of the yearly residential sector energy savings efforts of the NECP[65].
  - One third of the annual m² renovation efforts are based on Italy's Long-Term Renovate Strategy (LTRS).
- 1.7 million people with medium-low income have benefited from the measure[66].
- Families can save up to € 964 euros per year[67]
- As properties renovated that move up two energy classes they see energy savings of 30.9%, while those properties that move up three energy classes they see energy savings of 46.4%[68].

[60] Detailed modelling on returns to deep renovations across four European regions is available in Section 1 of the report below: Climate Strategy & Partners. (2022). *The EU Renovation Loan: a new instrument to fund the EU Renovation Wave*. Retrieved from https://www.climatestrategy.es/press/ERLReport03112022.pdf

[61] IEA. (2023). *Italy's progress on energy efficiency provides foundation for meeting broader energy and climate goals, new IEA policy review says*. [Website]. Retrieved from https://www.iea.org/news/italy-s-progress-on-energy-efficiency-provides-foundation-for-meeting-broader-energy-and-climate-goals-new-iea-policy-review-says

[62] Ufficio parlamentare di bilancio. (2023). *Audizione sugli effetti macroeconomici e di finanza pubblica derivanti dagli incentivi fiscali in materia edilizia*. [Website]. Retrieved from https://www.bancaditalia.it/media/notizia/audizione-sugli-effetti-macroeconomici-e-di-finanza-pubblica-derivanti-dagli-incentivi-fiscali-in-materia-edilizia/

[63] Ibid.

[64] IEA. (2023). *Italy 2023 Energy Policy Review*. Retrieved from https://iea.blob.core.windows.net/assets/71b328b3-3e5b-4c04-8a22-3ead575b3a9a/Italy_2023_EnergyPolicyReview.pdf

[65] Housing Europe. (2023). *Recovery and Resilience Plan Italy*. Retrieved from https://www.housingeurope.eu/file/1161/download

[66] Source: Nomisma found in Civico 5.0. (2023). *Vivere in Clase A*. Retrived from https://www.legambiente.it/wp-content/uploads/2023/04/Vivere-in-classe-A_2023.pdf

[67] Ibid.

[68] Forum Disuguaglianze Diversita. (2023). *ForumDD pubblica il Rapporto "La sfida dell'efficienza energetica alla prova delle disuguaglianze"*. [Website]. Retrieved from https://www.forumdisuguaglianzediversita.org/forumdd-pubblica-il-rapporto-la-sfida-dellefficienza-energetica-alla-prova-delle-disuguaglianze/

How Retail Banks in Europe are Engaging in sustainable finance

The Climate Alignment of Mortgages is a Direct and Urgent Consequence of EU banks' net-zero targets and Sustainable Finance commitments

This section describes existing bank climate and sustainable finance commitments and how they impact buildings finance through the operation, maintenance and reporting of mortgages. **All banks operating in the EU27 are lending into an economy with a net-zero target, and are required to operate sustainably.** This section looks at the three main initiatives that frame these commitments and how they are slowly impacting their approaches to their retail mortgage operations.

The Principles for Responsible Banking

Launched in 2019, the United Nations Environment Programme Finance Initiative (UNEP FI) Principles for Responsible Banking (PRB) is the chief global sustainability framework for banks and provides guidance on how to draft responsible strategies and operationalise sustainable objectives[69]. **With 325 current signatories[70], representing €41 trillion in total assets, the majority (53%, or 172 members[71]) are based in Europe.** The key features[72] of PRB include:

- Provision of a comprehensive framework addressing principles at the strategic, portfolio and transaction level across all of the bank's business areas;
- The alignment with the Sustainable Development Goals and the Paris Climate Agreement for the signatory;
- Offering target-setting in the business areas of most significant positive and negative impact;
- Providing transparency and accountability through public reporting and review; and
- Guidance, expert advice and peer learning to support PRB implementation.

PRB signatories are expected to align their portfolios with a 1.5°C pathway[73], and in doing so, assess the transparency of their portfolio exposure to sustainability impacts. PRB calls for the integration of impact analysis into portfolio-allocation decisions, and the development of KPIs for portfolio adjustments with the monitoring and recording of data on new green mortgages and financing emissions targets[74].

PRB offers its signatories a "Portfolio Impact Analysis Tool for Banks"[75] which helps banks comply with PRB's Principle 2 on Impact Analysis and Target-setting. The latest version[76] features a Consumer Banking Identification Module[77] which helps banks understand ESG impacts associated with their consumer portfolios for home loans and other housing-related credit segmented by types of clients (E.g. age groups, professional activities, etc.), and income-level of clients. As of June 2023, PRB reports that over 80%[78] of its signatories have conducted an impact analysis on their portfolios.

It is clear that mortgage portfolios are material sources of climate risk and that underlying buildings can be upgraded to reduce this.

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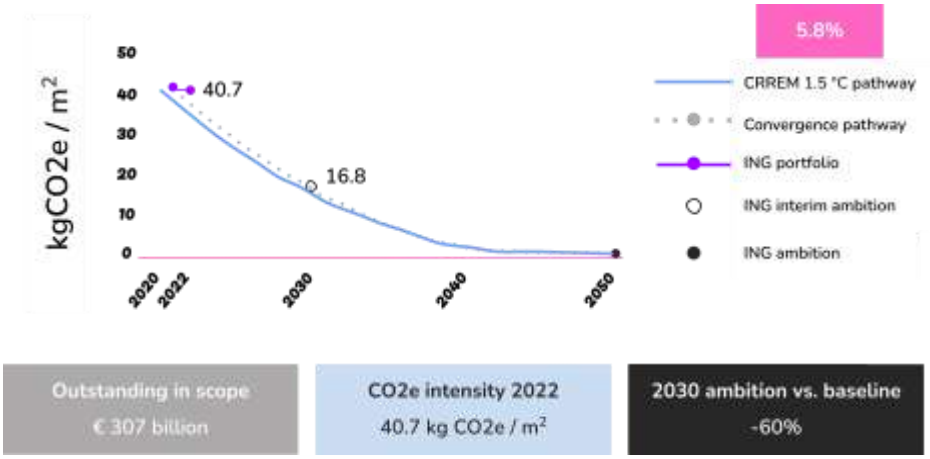
[69] UNEP FI. (2023). *Principles for Responsible Banking celebrates fourth anniversary with release of progress report*. [Website]. Retrieved from https://www.unepfi.org/industries/banking/principles-for-responsible-banking-celebrates-fourth-anniversary-with-release-of-progress-report/
[70] UNEP FI. (2023). *Signatories*. [Website]. Retrieved from https://www.unepfi.org/banking/prbsignatories/
[71] United Nations Environment Programme (2023). *Responsible Banking: Towards Real-world Impact. The second biennial progress report on implementation of the UN Principles for Responsible Banking*. Retrieved from https://www.unepfi.org/wordpress/wp-content/uploads/2023/09/PRB-Second-Progress-Report-2023.pdf
[72] UNEP FI. (2019). *The Principles*. [Infographic]. Retrieved from https://www.unepfi.org/wordpress/wp-content/uploads/2019/07/PrinciplesOverview_Infographic.pdf
[73] UNEP FI. (2019). *Principles for Responsible Banking: Guidance Document*. Retrieved from https://www.unepfi.org/wordpress/wp-content/uploads/2022/04/PRB-Guidance-Document-Jan-2022-D3.pdf
[74] UNEP FI. (2023). *Responsible Banking: Towards Real-world Impact*. Retrieved from https://www.unepfi.org/wordpress/wp-content/uploads/2023/09/PRB-Second-Progress-Report-2023.pdf
[75] UNEP FI. (2021). *Investment Portfolio Impact Analysis Tool*. [Website]. https://www.unepfi.org/impact/unep-fi-impact-analysis-tools/investment-portfolio-impact-analysis-tool/
[76] UNEP FI. (2022). *NEW: Version 3 of the Portfolio Impact Analysis Tool for Banks is now complete!*. [Website]. Retrieved from https://www.unepfi.org/impact/unep-fi-impact-analysis-tools/portfolio-tool/
[77] UNEP FI. (2022). *User Guide. Portfolio Impact Analysis Tool for Banks (v.3): Consumer Banking/ Identification Module*. Retrieved from https://www.unepfi.org/wordpress/wp-content/uploads/2023/01/Feb2023_User-Guide_Consumer-Banking-Identification.pdf
[78] UNEP FI. (2023). *Principles for Responsible Banking 2nd Biennial Progress Report*. [Infographic]. Retrieved from https://www.unepfi.org/wordpress/wp-content/uploads/2023/09/PRB-Progress-report-graphic.pdf

Case Study - ING: An example of a setting voluntary net zero pathway for its Mortgage Portfolios

Since its launch in 2019, Dutch bank ING has relied on its in-house developed Terra approach[79] as it aims to steer the most-intensive parts of its portfolio towards net zero by 2050. The Terra approach for mortgages uses the PCAF methodology and applies CRREM[80] scenarios disclose and steer greenhouse gas intensity, covering over 90% of the CO2 emissions of the bank's retail mortgage book.



As per 2022, the total intensity of ING's combined mortgage portfolio was 40.7 kg CO2e / m², which according to the bank is 'not on track[81]' when compared to the residential real estate convergence pathway (informed by applying CRREM V2.02[82] scenarios). Nevertheless, there are improvements when compared against 2021.

GHG accounting for mortgages is an ongoing process for the bank. Following PCAF's recommendation it uses energy EPCs as proxies for the energy performance of the properties in its portfolio, and in geographies where EPCs are not yet available, the bank works together with local peers and stakeholders alike in processes to determine CO2 intensities. In addition, in line with the 2023 technical guidance published by PCAF, CRREM, and GRESB "Accounting and Reporting of GHG Emissions from Real Estate Operations[83]", ING will progressively expand its focus to include emissions from the building boundary (scopes 1,2, and 3), not only the building itself under the 'whole-building approach'. In 2021 ING expanded the scope and granularity of it's pilot to assess physical climate risk to cover 99% of its mortgage portfolio, revealing that at an aggregated level it is of very low risk (12/100), and <1% of its global mortgages outstandings score is of high risk.

ING's Sustainable Mortgages[84]

- ING offers incentives to clients who choose homes with an A-label or with the highest energy efficiency in the Netherlands, Germany, Luxembourg, Italy and Romania.
- In Poland, the bank supports clients in making decisions that promote sustainability with a mortgage for energy-saving houses.
- In the Netherlands, the bank offers mortgage features that promote renovation, such as:
    - Higher loan-to value ratios to cover renovations cost
    - Options for existing mortgage customers to increase their borrowing capacity to cover renovation costs

[79] ING. (2023). *Terra approach*. [Website]. Retrieved from https://www.ing.com/Sustainability/Sustainable-business/Terra-approach.htm
[80] CRREM. (2023). *Carbon Risk Real Estate Monitor*. [Website]. Retrieved from https://www.crrem.eu/about-crrem/
[81] ING. (2023). *2023 Climate Report*. Retrieved from https://www.ing.com/Sustainability/Performance-and-reporting/Reporting.htm
[82] CRREM. (2023). *CRREM V2.02*. [Excel document]. Retrieved from https://www.crrem.eu/wp-content/uploads/2023/03/CRREM_Global_Pathways-V2.02_02-03-2023.xlsx
[83] GRESB. (2023). *PCAF, CRREM and GRESB release first version of technical guidance for "Accounting and Reporting of GHG Emissions from Real Estate Operations"*. [Website]. Retrieved from https://www.gresb.com/nl-en/insights/pcaf-crrem-and-gresb-release-first-version-of-technical-guidance-for-accounting-and-reporting-of-ghg-emissions-from-real-estate-operations/
[84] ING. (2023). *2023 Climate Report*. Retrieved from https://www.ing.com/Sustainability/Performance-and-reporting/Reporting.htm

Net-Zero Banking Alliance

Convened by UNEP FI, the Net-Zero Banking Alliance (NZBA) is the global banking pillar of the Glasgow Financial Alliance for Net Zero[85], and acts as the climate-focused accelerator for the PRB. **Launched in Q2 2021, NZBA's has 138 members of which 70 are based in Europe**[86] and together **they represent 41% of global banking assets (€ 70 trillion)**. In 2023, 26 out of Europe's top 30 largest banks by assets[87] were NZBA members (see table 1). NZBA's signatory banks must establish:

- 2030 and 2050 intermediate net-zero targets, within 18 months after joining; and
- Decarbonisation targets for all or a significant majority of specified carbon-intensive sectors, including commercial and residential real estate, within 36 months of joining.

In Q4 2022, NZBA signatories indicated that for 65%[88] of the sector focused targets, these covered around 80%[89] of the bank's portfolios, yet **the real estate sub-sector recorded one of the lowest coverages**. Since it was first convened in 2022, the NZBA real estate working group has been discussing the use of metrics, benchmarks, and data for bank decarbonisation efforts. Due to the different regional regulatory and reporting requirements, NZBA banks expect to adapt their strategies to respond to the jurisdictions in which they operate.

NZBA is calling for governments to develop a database at the international level for harmonised energy efficiency measurements in buildings

NZBA is calling for governments to develop a database at the international level for harmonised energy efficiency measurements in buildings, and emphasises the importance for banks to report on buildings' embedded emissions during the construction phase[90]. Scenarios used for target setting included the IEA's Net Zero Emissions by 2050 Scenario[91] (NZE) and NFGS[92] Net Zero 2050[93] (NZ2050).

[85]Glasgow Financial Alliance for Net Zero. (2023). *About us*. [Website] .Retrieved from https://www.gfanzero.com/about/
[86] UNEP FI. (2023). *Our Members: Net-Zero Banking Alliance*. [Website]. Retrieved from https://www.unepfi.org/net-zero-banking/members/
[87] S&P Global Market Intelligence. (2023). *Europe's 50 largest banks by assets, 2023*. [Website]. Retrieved from https://www.spglobal.com/marketintelligence/en/news-insights/research/europes-50-largest-banks-by-assets-2023
[88] Net-Zero Banking Alliance. (2022). *Net-Zero Banking Alliance: 2022 Progress Report*. Retrieved from https://www.unepfi.org/wordpress/wp-content/uploads/2022/11/NZBA-Progress-Report_final-1.pdf
[89] Ibid.
[90] Ibid.
[91] IEA. (2023). *Net Zero Emissions by 2050 Scenario (NZE)*. [Website]. Retrieved from https://www.iea.org/reports/global-energy-and-climate-model/net-zero-emissions-by-2050-scenario-nze
[92] Network of Central Banks and Supervisors for Greening the Financial System
[93] NFGS. (2023). *Six different scenarios to assess transition and physical risks*. [Website]. Retrieved from https://www.ngfs.net/ngfs-scenarios-portal/explore/

Net-Zero Banking Alliance Germany

The Net Zero Banking Alliance Germany (NZBAG[94]), a separate initiative from NZBA, has developed the Climate Action Portfolio Indicator (CAPI) for financial institutions to assess their portfolio alignment[95] with the Paris Agreement climate goals. CAPI[96] brings together sectoral alignment measures, including sectoral transition pathways and KPIs provided at the loan portfolio level in a single alignment KPI. CAPI is compatible with PACTA, PCAF, or SBTi FI. KfW, Germany's policy bank, has also developed Paris-aligned sector guidelines for promotional finance for the building sector[97], which draw from the minimum requirements for buildings in Germany defined according to the established KfW Efficiency House and Efficiency Building standards also used by German mortgage banks.

Germany's policy bank KfW, has developed Paris-aligned sector guidelines for promotional finance for the building sector

Case study - UK Transition Plan Taskforce (TPT) - Mortgage Transitions

In late 2021, in an effort to align with a net zero economy with financial flows, the UK government published the Greening Finance Roadmap[98]. As a response, the UK Transition Plan Taskforce (TPT) was convened to produce recommendations to outline transition plan disclosures and their requirements building on the existing frameworks and methodologies below[99].

- Assessing climate-related risks and opportunities – TCFD , CDP
- Emissions and target setting – GHG Protocol, SBTi
- Abatement and decarbonisation activities – GFANZ, VCMI, ICVCM
- Metrics and Targets – GFANZ, CFRF
- Governance and change management programmes – GFANZ

FTSE 100 financial institutions and corporates[100] were able to share their experiences on the applying the TPT framework and guidance when preparing their plans through an "Online Sandbox[101]". Using the information gathered, the Financial Conduct Authority intends to bolster its disclosure expectations for regulated asset owners, asset managers, and listed companies.

Stage 4 of the TPT's transition plan "Ensuring accountability for delivery" encourages entities to disclose metrics, targets and governance elements for the amount and the extent of its assets or business activities that are subject to transition and physical risks such as mortgage loans[102].

[94] Comprised of BNP Paribas, Commerzbank, Deutsche Bank, DKB, DZ Bank, ING Germany, and LB BW
[95] UNEP FI. (2021). *How to align with the Paris Agreement A Resource Note for Banking Associations and Banks*. Retrieved from https://www.unepfi.org/wordpress/wp-content/uploads/2022/08/How-align-with-the-Paris-Agreement-a-resource-note-for-banking-associations-and-banks-30062022.pdf
[96] NZBAG. (2023). *Guide for Sustainable Customer Dialogue*. [Website]. Retrieved from https://gsfc-germany.com/en/net-zero-banking-alliance-germany/
[97] KFW. (2023). *Background paper on the Paris-aligned sector guidelines of KfW Group*. Retrieved https://www.kfw.de/nachhaltigkeit/Dokumente/KEa4/background-paper-Paris-compatible-sector-guidelines-202303.pdf
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[100] TPT. (2023). TPT Workplan: *Market & civil society engagement.* [Website]. Retrieved from https://transitiontaskforce.net/workplan/
[101] Deloitte. (2023). *Creating a climate of change digest*. Retrieved from https://www2.deloitte.com/content/dam/Deloitte/us/Documents/financial-services/us-creating-a-climate-of-change-digest-jan-2023.pdf
[102] TPT. (2022). *CONSULTATION The Transition Plan Taskforce Implementation Guidance: NOVEMBER 2022*. Retrieved from https://transitiontaskforce.net/wp-content/uploads/2022/11/TPT-Implementation-Guidance-1.pdf

Science-based Targets Initiative in the Financial Sector

As of October 2023, 77 European financial institutions have committed to SBTi net-zero targets[103] to be achieved by 2030[104], and 10 of them have approved targets. The SBTi's financial sector project[105] focuses on the target setting within the broader portfolio transition process, providing precise shorter-term components of the high-level commitments, allowing banks to build on their analysis of financed emissions and scenarios. SBTi's steps for FIs to address climate action include:

1. Signing up to an international high-level commitment, such as: Principles for Responsible Banking, or committing to Task Force on Climate-related Financial Disclosures (TCFD) reporting[106].
2. Developing emissions metrics relying on the Partnership for Carbon Accounting Financials[107] (PCAF) to quantify financed emissions.
3. Setting targets through SBTi.

SBTi defines the scope of financial activities of signatories by evaluating the financial assets they hold and by reference to the related initiatives they subscribe to, such as Net Zero Banking Alliance[108]. This allows them to identify and scope portfolio specific targets[109], which can be later expanded in response to the upgrades to target-setting methods, or carbon accounting standards.

According to SBTi's Sectoral Decarbonization Approach for mortgages, setting up science-based targets requires defining a baseline for emissions for the bank's residential mortgage portfolio. This calculation should rely on asset-level data as much as possible, and in the event of data gaps, these can be filled with regional proxies. The approach does not yet include a requirement to disclose embodied emissions of the buildings' materials, but SBTi intends to require measurement of buildings' embodied emissions when its members deem that robust data approaches are available, something which many experts think is already the case.

[103] SBTi. (2023). *Companies taking action*. [Website]. Retrieved from https://sciencebasedtargets.org/companies-taking-action#dashboard
[104] SBTI. (2023). *SBTi CRITERIA AND RECOMMENDATIONS FOR NEAR-TERM TARGETS*. Retrieved from https://sciencebasedtargets.org/resources/files/SBTi-criteria.pdf
[105] SBTi. (2022). *FINANCIAL SECTOR SCIENCE-BASED TARGETS GUIDANCE VERSION 1.1: August 2022.* Retrieved from https://sciencebasedtargets.org/resources/files/Financial-Sector-Science-Based-Targets-Guidance.pdf
[106] TCFD. (2023). *Task Force on Climate-related Financial Disclosures*. [Website]. Retrieved from https://www.fsb-tcfd.org/
[107] PCAF. (2023). *Enabling financial institutions to assess and disclose greenhouse gas emissions associated with financial activities*. [Website]. Retrieved from https://carbonaccountingfinancials.com/
[108] Others include Net Zero Asset Owners Alliance, Net Zero Asset Managers initiative, and the Net Zero Insurance Alliance among others.
[109] SBTi. (2023). *THE SBTi FINANCIAL INSTITUTIONS NETZERO STANDARD CONCEPTUAL FRAMEWORK AND INITIAL CRITERIA: Consultation Draft, June 2023.* Retrieved from https://sciencebasedtargets.org/resources/files/The-SBTi-Financial-Institutions-Net-Zero-Standard-Consultation-Draft.pdf

Table 1: Europe's largest banks, their affiliation to climate initiatives and offering of green products

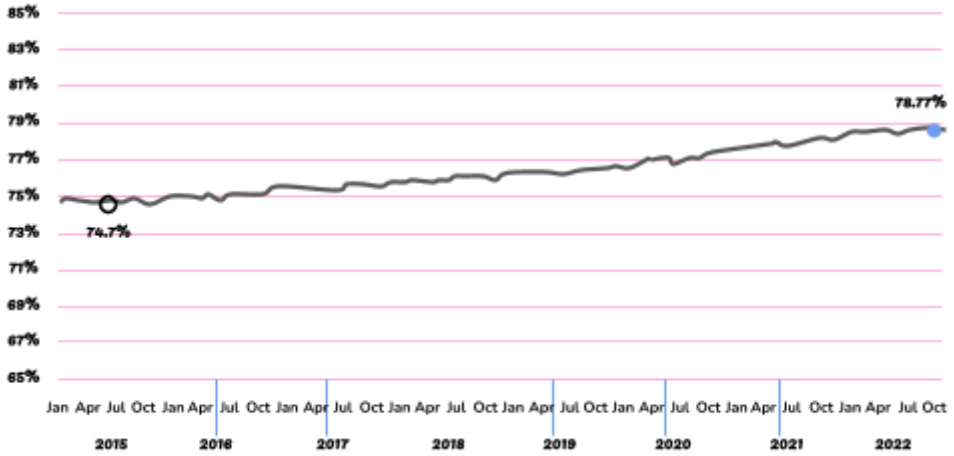
Rank	Name	HQ	Total Assets (€bn)	NZBA member	PRB Signatory	UNEP FI Banking and EU Taxonomy Project Phase II WG member	TCFD supporter	User of PACTA	Emissions disclosed using PCAF accounting	SBTi targets	Selected Green mortgage / EE loan product (s)
1	HSBC	UK	2,680.72	Yes	No	No	Yes	Yes	Disclosed Feb. 2022	No	• Green mortgage • Energy Efficiency Loan
2	BNP Paribas	FR	2,666.38	Yes	Yes	Yes	Yes	Yes	Committed	Near term - Committed	• Mutuo Green
3	Crédit Agricole Group	FR	2,379.12	Yes	Yes	Yes	Yes	Yes	Committed	Near term - Committed	• energy savings loan
4	Banco Santander	ES	1,734.66	Yes	Yes	Yes	Yes	Yes	Disclosed Jul. 2022	No	• Hipoteca verde • Préstamo verde
5	Barclays	UK	1,706.57	Yes	Yes	No	Yes	Yes	Committed	No	• Greener Home Reward
6	UBS	CH	1,571.05	Yes	Yes	No	Yes	Yes	Committed	No	• Green Mortgage
7	Groupe BPCE	FR	1,531.13	Yes	Yes	Yes	No	Yes	No	No	• Green bonds
8	Societé Generalé	FR	1,486.82	Yes	Yes	Yes	Yes	Yes	No	No	• Positive impact covered bond
9	Deutsche Bank	DE	1,336.79	Yes	Yes	Yes	Yes	Yes	Disclosed, March 2023	No	• Green mortgages and special purpose loans
10	Credit Mutuel Group	FR	1,105.10	Yes	Yes	No	Yes	Yes	Committed	No	• Prêt Avance Rénovation
11	Lloyds	UK	989.68	Yes	Yes	No	Yes	Yes	Disclosed April 2021	No	• Eco Home Reward • Energy-efficient home improvements
12	Intesa Sanpaolo	IT	975.68	Yes	Yes	Yes	Yes	Yes	No	Near term - Committed Net-zero - Committed	• Green - Mutuo Domus
13	ING	NL	967.82	Yes	Yes	Yes	Yes	Yes	Committed	Near term - Committed	• eco-mortgages
14	UniCredit	IT	857.77	Yes	Yes	Yes	Yes	Yes	No	No	• Green Mortgage Loan
15	NatWest	UK	811.80	Yes	Yes	No	Yes	Yes	Disclosed Feb 2022	Net-zero - Committed	• Green Mortgages
16	Standard Chartered	UK	767.20	Yes	Yes	Yes	Yes	Yes	Committed	Commitment removed	• Green Mortgage Plan
17	La Banque Postale	FR	745.64	Yes	Yes	No	Yes	No	Committed	**Near term 1.5°C**	• Prêt Avance Mutation (PAM) ou Prêt Avance Rénovation (PAR)
18	BBVA	ES	713.14	Yes	Yes	Yes	Yes	Yes	Committed	Near term - Committed	• Hipoteca Casa Eficiente
19	Rabobank	NL	628.51	Yes	Yes	No	Yes	Yes	Disclosed Feb 2022	No	• Groenhypotheek
20	DZ Bank	DE	627.04	No	Yes	No	Yes	Yes	No	No	• Green Bond
21	Nordea Bank	FI	594.84	Yes	Yes	Yes	Yes	Yes	Disclosed March 2022	No	• Green mortgages
22	Caixabank	ES	566.23	Yes	Yes	Yes	Yes	No	Disclosed Dic 2021	No	• MyHome
23	Sberbank of Russia	RS	530.23	No	Yes	No	No	No	No	No	• Green mortgage
24	Danske Bank	DK	505.90	Yes	Yes	No	Yes	Yes	Disclosed March 2023	Near term - Committed Net-zero - Committed	• Energy-efficiency home renovation loans • Green home loans
25	Commerzbank	DE	477.44	Yes	Yes	No	Yes	No	Committed	**Near term 1.5°C**	• Green Mortgage
26	ABN AMRO	NL	379.58	Yes	Yes	Yes	Yes	Yes	Disclosed March 2023	No	• Sustainable Living Mortgage
27	KBC Group	BE	355.87	No	Yes	No	Yes	Yes	Disclosed March 2021	Near term - Committed	• Mortgages for energy-efficient housing
28	Landesbank Baden-Württemberg	DE	324.17	No	Yes	No	Yes	Yes	No	No	• Green bonds • Residential development loan programmes
29	Erste Group	AT	323.86	Yes	Yes	No	Yes	Yes	Disclosed March 2022	No	• Sustainability bond issuance
30	Nationwide	UK	318.10	Yes	Yes	No	Yes	No	Disclosed Nov 2023	No	• 0% interest Green Additional Borrowing mortgage • Green Reward offer

**Data sourced from own disclosure, hyperlinked in all cases*

There is an Urgent Need to align Lenders' Mortgage Portfolios with the EU's Energy Transition

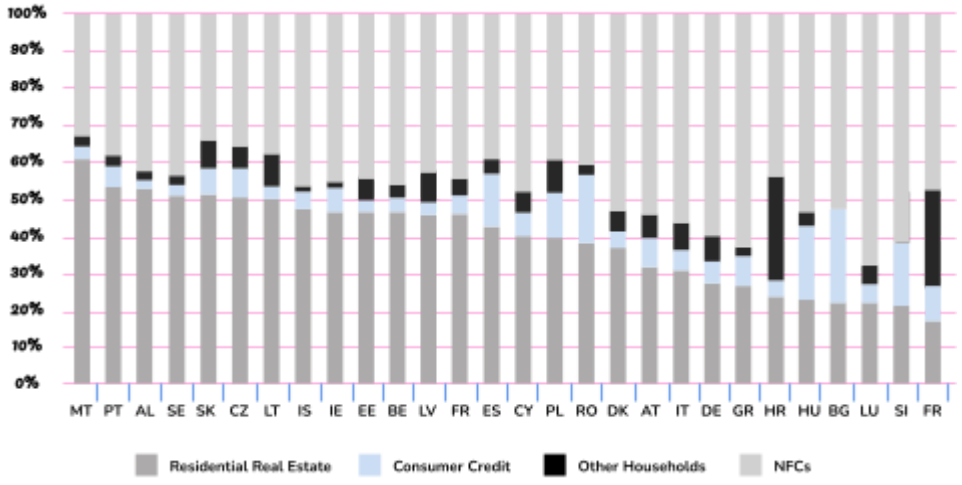
Due to their business relationships with over 25 million EU customers, mortgage lenders are the single most connected stakeholder group to Europe's buildings. Mortgages account for nearly 80%[110] of the lending to households (2022), showing a steady increase up from 75% in 2015[111].

Mortgage as a percentage of loans to households in EU27 2015-2022[112]



The mortgage is the most appropriate and widely used financing tool to provide homeowners investment capital and the opportunity simultaneously to upgrade their buildings to make them resilient against energy shocks, more affordable to run and more comfortable and healthy to live in.

Distribution of loans by segments by country - 2022 Data[113]



[110] EBA. (2023). *EBA CONSUMER TRENDS REPORT 2022/23: 24 APRIL 2023, EBA/REP/2023/12*. Retrieved from https://www.eba.europa.eu/sites/default/documents/files/document_library/Publications/Reports/2023/1054879/Consumer%20Trends%20Report%202022-2023.pdf
[111] Ibid.
[112] Ibid.
[113] EBA. (2022). *EBA THEMATIC NOTE – RESIDENTIAL REAL ESTATE EXPOSURES OF EU BANKS: RISKS AND MITIGANTS, EBA/REP/2022/24: 10 OCTOBER 2022*. Retrieved from https://www.eba.europa.eu/sites/default/documents/files/document_library/Publications/Reports/2022/1040827/Thematic%20note%20on%20residential%20real%20estate%20exposures%20of%20Eu%20banks%20-%20risks%20and%20mitigants%20.pdf

Green Mortgages: Incentives for the most efficient homes

Green mortgages are mortgages which, in general, offer better financing terms to fund more energy efficient homes. According to the EU Taxonomy's technical screening criteria for new build, the home's primary energy demand needs to be 10% lower than legal requirements, and for an acquisition, an EPC Class A is required or proof that the building belongs to the top 15% of the country's building stock. For EU Taxonomy aligned renovations, these must save at least 30% of the primary energy demand of the home, before the renovation. The Taxonomy's renovation criterion is lower than what many experts see as the technical or cost-optimal potential.

Case Study - NatWest Group's Green Mortgage

NatWest group's strategy[114] plans to halve the climate impact of its financing activity in alignment with the 2015 Paris Agreement. The bank also has a target of providing £10+ billion in sustainable lending for residential properties with an EPC rating of A or B between 2023 and 2025[115].

Launched in Q4 2020 NatWest's Green Mortgage[116] product rewards clients who purchase or remortgage an energy efficient home by offering them a reduced mortgage rate on a 2-year or 5-year fixed rate. Clients purchasing or remortgaging a property with a valid EPC rating of A or B are given lower rates.

Key milestones:

- As of 2023, £2.9 billion[117] Green Mortgages have been completed since their launch.
- 502,800 m²[118] of floor space retrofitted
- £2.2 billion Retail Banking Green Mortgages were completed in 2022, representing 5.3% of the total Retail Banking mortgage completions during that year[119]

Actual energy performance data for the properties within the Green Mortgage portfolio is largely unavailable. Therefore Natwest uses EPC ratings as a proxy for actual energy efficiency of the mortgaged properties. EPC data is sourced from the Energy Performance of Buildings for England and Wales published by the Ministry of Housing, Communities and Local Government's open data source.

[114] NatWest Group. (2022) *Annual Report and Accounts*. Retrieved from https://www.fundslibrary.co.uk/FundsLibrary.DataRetrieval/Documents.aspx/?type=sl.ra.full&id=96fb2bea-053b-4c3d-9102-4dcd312b7181&user=t0FwiffhuOJscvj021FgCJB5OG0YahWWzTmDxEvo5HAPQFmYgbwNog1smmxwWFFJ&r=1

[115] NatWest Group. (2023). *Supporting our customers to achieve their climate ambitions*. [Website]. Retrieved from https://www.natwestgroup.com/news-and-insights/latest-stories/climate/2023/feb/supporting-our-customers-to-achieve-their-climate-ambitions.html

[116] NatWest Group. (2023). *Green Mortgages*. [Website]. Retrieved from https://www.natwest.com/mortgages/mortgage-comparison/green-mortgages.html

[117] NatWest Group. (2022) *Annual Report and Accounts*. Retrieved from https://www.fundslibrary.co.uk/FundsLibrary.DataRetrieval/Documents.aspx/?type=sl.ra.full&id=96fb2bea-053b-4c3d-9102-4dcd312b7181&user=t0FwiffhuOJscvj021FgCJB5OG0YahWWzTmDxEvo5HAPQFmYgbwNog1smmxwWFFJ&r=1

[118] NatWest Group. (2023). *Green, Social, and Sustainability bonds Allocation and Impact Report: A relationship bank for a digital world*. [Website]. Retrieved from https://investors.natwestgroup.com/~/media/Files/R/RBS-IR-V2/results-center/28042023/gss-bonds-allocation-and-impact-report-2022.pdf

[119] NatWest Group. (2023). *2022 Climate-related Disclosures Report*. [Website]. Retrieved from https://investors.natwestgroup.com/~/media/Files/R/RBS-IR-V2/results-center/17022023/nwg-2022-climate-related-disclosure-report.pdf

Issuance levels of green mortgages are surprisingly low. Aggregate market statistics are scarce for the EU27, yet the Energy Efficient Mortgage Label shows[120] just 250,000 green labelled mortgages issued in aggregate by its members in recent years, totalling just over Euro 35 billion. Compared to the Euro 6-7 trillion mortgages outstanding, or the total Euro 300 billion[121] of new mortgages issued during the covid recovery, this remains quite modest.

Mortgage Portfolio Standards: A holistic tool to deliver net-zero alignment from EU Mortgage Lenders

Mortgage Portfolio Standards[122] deploy globally successful regulatory best practices and apply them to mortgage lending to promote transparency and a level playing field for building renovation. Mortgage Portfolio Standards ("MPS") were introduced as a voluntary regulatory tool in the Commission's December 2021 proposed recast of the EPBD[123] and were subsequently strengthened by the EU Parliament in its March 2023 recast proposal.

Mortgage Portfolio Standards in EU Parliament's proposed EPBD recast - March 2023[124]

'mortgage portfolio standards' means mechanisms ***requiring*** mortgage lenders, ***including banks, investors, and other relevant financial institutions, such as final holders of mortgages housed in special purpose vehicles, securitisation companies and other intermediate bodies, to establish a path*** to increase the median energy performance of the portfolio of buildings covered by their mortgages ***towards 2030 and 2050, with a view*** to ***ensuring reliable, evidence-based and affordable solutions for their*** clients***, in line with*** the Union's decarbonisation ambition ***and national building renovation plans and*** relevant energy targets in the area of energy consumption in buildings, relying on the definition of sustainable economic activities in the EU Taxonomy ***and in line with energy performance certificates and the life-cycle GWP…***

Portfolio standards are proven and successful regulatory tools that have been deployed for decades to reduce transport emissions both in the EU and USA using Fleet Emission Standards (FES) for car portfolios. In Europe, these fleet emissions standards (CAFE standards in the USA) are expected to reduce car and van emissions by 15% by 2029, and over 55% and 50% respectively from 2030 to 2035. From 2035 onwards, the EU fleet-wide CO2 emission reduction target for cars and vans is 100%[125]. Renewables Portfolio Standards[126] (RPS) are in place in 29 US States and Washington D.C., and cover 58% of total U.S. retail electricity sales[127]. Cumulatively, upwards of 45% of all renewable energy capacity additions in the US since 2000 are in some form "RPS-related", representing 120 GW out of 265 GW[128].

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[120] Energy Efficient Mortgage Label. (2023). *Label Data Statistics*. [Website]. Retrieved from https://www.energy-efficient-mortgage-label.org/products

[121] EBA. (2022). *EBA THEMATIC NOTE – RESIDENTIAL REAL ESTATE EXPOSURES OF EU BANKS: RISKS AND MITIGANTS, EBA/REP/2022/24: 10 OCTOBER 2022*. Retrieved from https://www.eba.europa.eu/sites/default/documents/files/document_library/Publications/Reports/2022/1040827/Thematic%20note%20on%20residential%20real%20estate%20exposures%20of%20Eu%20banks%20-%20risks%20and%20mitigants%20.pdf

[122] European Commission. (2021). *Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the energy performance of buildings (recast).* Retrieved from https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021PC0802

[123] Climate Strategy & Partners. (2021). Underwriting the Renovation Wave with Mortgage Portfolio Standards for Energy Efficiency. Climate Strategy & Partners. Retrieved from: https://climatestrategy.es/en/informe_20.php

[124] European Parliament. (2023). *Energy performance of buildings (recast)*. [Website]. Retrieved from https://www.europarl.europa.eu/doceo/document/TA-9-2023-0068_EN.html

[125] European Commission. (2023). *CO_2 emission performance standards for cars and vans*. [Website]. Retrieved from https://climate.ec.europa.eu/eu-action/transport-emissions/road-transport-reducing-co2-emissions-vehicles/co2-emission-performance-standards-cars-and-vans_en

[126] A binding requirement on retail electric suppliers to procure a minimum percentage of generation from eligible sources of renewable electricity. Sourced from
Berkeley Lab. (2023). *U.S. State Renewables Portfolio & Clean Electricity Standards: 2023 Status Update*. [Powerpoint Presentation]. Retrieved from https://eta-publications.lbl.gov/sites/default/files/lbnl_rps_ces_status_report_2023_edition.pdf

[127] Ibid.

[128] Ibid.

In January 2023, the **European Central Bank (ECB) wrote a landmark opinion**[129] on the EPBD recast which calls out Mortgage Portfolio Standards in a section, and notes[130]:

- More detailed minimum requirements would harmonise the mortgage portfolio standards across Member States.
- The design of mortgage portfolio standards ought to be readily usable in issuances of financial and debt instruments, as these could:
  - Enable cross-border investments into energy performance-enhancing mortgages – also in the context of the Capital Markets Union.
  - Maximise the contribution of financial markets to reduce reliance on bank lending and government support schemes
- Mortgage portfolio standards ought to become increasingly stringent over time, mirroring the improvement of average EPC levels of real estate assets.

Leading German, Dutch and British banks (and non-bank lenders) already use voluntary mortgage portfolio standards to assess and steer their mortgage portfolios. From January 2023, Dutch legislation mandates an energy label "C" or better for offices with a lettable floor area of at least 90%. Dutch lender ABN Amro has a 17% share of the Dutch mortgage market, and launched "Mission 2030" strategy in 2017, which seeks to take its buildings financed to an "A"[131] label. Ongoing measures include digitalising mortgage processes, and working with clients to increase the energy efficiency of their homes. ABN's gross loan portfolio was €246 billion[132] at the end of 2022, with residential mortgages accounting for over 60% of its loan book[133].

Mortgage portfolio standards ought to become increasingly stringent over time, mirroring the improvement of average EPC levels of real estate assets

In the UK, all commercial rented properties are required to meet a minimum EPC B rating[134] [135] by 2030, and social housing and fuel poor homes will need to have an EPC C rating for all tenancies[136] [137]. **An increasing number of UK mortgage lenders are already implementing voluntary Mortgage Portfolio Standards as a way to upgrade the energy performance of their loans to EPC grade C.**

[129] European Union. (2023). *European Central Bank (ECB)*. [Website]. Retrieved from https://european-union.europa.eu/institutions-law-budget/institutions-and-bodies/search-all-eu-institutions-and-bodies/european-central-bank-ecb_en#:~:text=Overview&text=The%20European%20Central%20Bank%20(ECB,economic%20growth%20and%20job%20creation.
[130] Official Journal of the European Union. (2023). *OPINION OF THE EUROPEAN CENTRAL BANK of 16 January 2023 on a proposal for a Directive on the energy performance of buildings (recast)*. [Website]. Retrieved from https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52023AB0002
[131] Ibid.
[132] ABN AMRO. (2023). *Integrated Annual Report 2022*. Retrieved from https://assets.ctfassets.net/1u811bvgvthc/3tn2c2U6QjiBj1IWRNX9cl/c2dde83a535488509bbf0c37726fa407/ABN_AMRO_____Integrated_Annual_Report_2022.pdf
[133] Ibid.
[134] Ibid.
[135] UK Government. (2023). *Climate Change Act 2008*. [Website]. Retrieved from https://www.legislation.gov.uk/ukpga/2008/27/contents
[136] Ibid.
[137] UKGBC. (2023). *Climate Change Adaptation*. [Website]. Retrieved from https://ukgbc.org/our-work/climate-change-adaptation/#:~:text=UKGBC%20develops%20the%20first%20roadmap,and%20policies%20to%20achieve%20them.

Whether a voluntary Mortgage Portfolio Standard is used as a response to minimum energy performance standards, or as a tool to align mortgage lending with sustainable banking principles, or as a "Climate Action Portfolio Indicator" for the mortgage book, its is clearly a positive approach for lenders to address the climate risk in their mortgage portfolios and align them with the Paris Agreement. A mortgage portfolio standard is, in effect, an impact analysis tool for banks to comply with, and that can help them to meet their UNEP FI Principles for Responsible Banking commitment and can assist members in offering climate risk mitigation to their building owning clients. **Mortgage portfolio standards are the touchstone which connects an already existing body of best practices developed by banks for banks, to the critical need to align mortgage portfolios and address the potential for climate risk and stranded real estate assets in the energy transition.**

A mortgage portfolio standard is, in effect, an impact analysis tool for banks

Based on primary research, largely from their own disclosure which is hyperlinked, the following (Table 2) provides a summary and insights into the most recent actions communicated from the top 30 European banks (by assets) on the climate alignment of their mortgage portfolios. **Twelve top lenders (40%, coloured green) already apply a form of Mortgage Portfolio Standard (although they may not refer to it as such).** Nearly all of the remaining banks are some way through a process that involves components or the entirety of a portfolio alignment.

Table 2: Europe's largest banks and the alignment of their mortgage portfolios

Rank	Name	Selected Actions regarding their mortgage portfolio
1	HSBC	Has developed new metrics to monitor physical climate risk exposure in our mortgage portfolio in all of its markets, based on locally available data. Taking part in the "Portfolio Alignment Measurement - Residential Real Estate Mortgages Proposed Methodology", defined as "a first attempt to define the KPIs and a methodology to measure the alignment of French retail real estate mortgages".
2	BNP Paribas	Taking part in the "Portfolio Alignment Measurement - Residential Real Estate Mortgages Proposed Methodology"
3	Crédit Agricole Group	Taking part in the "Portfolio Alignment Measurement - Residential Real Estate Mortgages Proposed Methodology"
4	Banco Santander	Worked with an expert insurance vendor to assess the risk of 13 physical hazards (8 acute and 5 chronic), analysing every market in which Santander operates, more than 1,250 regions (NUTS 3* or equivalent) covering every economic activity under the bank's Risk Taxonomy, as well as the main business lines such as mortgages and consumer auto. In the past few years, the bank has been making efforts to obtain EPC information of the stock collateral portfolios in Europe (region where these certificates are compulsory), and defining plans to reinforce onboarding processes to gather the information for new businesses. For those properties where real data was not available, EPCs estimations have been used to cover a large percentage of the bank's real estate portfolio.
5	Barclays	Barclays has announced a convergence point for its UK residential real estate mortgage portfolio of a 40% reduction in CO2e emissions intensity against a 2022 baseline of 32.9 kgCO2e/m2 (Scopes 1 and 2)" The bank has set an ambition for 50% of homes in its Barclays UK mortgages book with a known EPC rating to have an EPC of C or better by 2030.
6	UBS	"We have exposures related to real estate in various countries, including a substantial Swiss mortgage portfolio. Although we believe this portfolio is prudently managed, we could nevertheless be exposed to losses if a substantial deterioration in the Swiss real estate market were to occur" 2022, UBS took part in the PACTA climate alignment test focused on assessing listed investments (including equities and bonds), mortgages and direct real estate portfolios. The 2022 PACTA results for this portfolio were compared with the aggregated results of all participating banks' portfolios. A detailed report of the PACTA 2022 climate alignment test for the Swiss financial market is available from the Swiss Federal Office for the Environment (FOEN). According to UBS, overall, the test results have confirmed findings from its previous in-house assessment on climate risk. So far, UBS has not identified significant climate-related financial risk on its balance sheet. This is explained by UBS' relatively small lending book in climate-sensitive sectors and the availability of insurance where it has relevant exposures to such sectors (e.g., Swiss mortgage lending book).
7	Groupe BPCE	Taking part in the "Portfolio Alignment Measurement - Residential Real Estate Mortgages Proposed Methodology"
8	Societé Generalé	Taking part in the "Portfolio Alignment Measurement - Residential Real Estate Mortgages Proposed Methodology"
9	Deutsche Bank	Deutsche Bank applies a model-based approach to calculate the CO2 emissions of the European mortgage portfolio in these scenarios by using the IEA for the scenario projection and Network for Greening the Financial System (NGFS) for the projection of market developments (i.e., house prices in the European market).
10	Credit Mutuel Group	Taking part in the "Portfolio Alignment Measurement - Residential Real Estate Mortgages Proposed Methodology"
11	Lloyds	The bank has developed a 2030 target for its Residential Mortgage portfolio which requires a 41 per cent reduction of financed emissions intensity (Scope 1 and 2) from a 2020 baseline, from 46.5 kgCO2/m2 to 27.6 kgCO2e/m2 by 2030. The bank has expanded its understanding of physical hazards to its mortgage portfolio under different climate scenarios with a current focus on flooding, coastal erosion and subsidence.
12	Intesa Sanpaolo	To conduct scenario analysis activity, the bank has adopted an approach that integrates: "a methodology for quantifying physical risk underlying collateral relating to the mortgage portfolio secured by immovable properties: the impact in this case depends on the geolocalization of the properties and on the types of damage resulting from the different risks presented by acute and chronic climatic events."
13	ING	In 2019, ING developed the Terra approach in partnership with the 2° Investing Initiative (2DII), using their Paris Agreement Capital Transition Assessment (PACTA) for Banks tool (itself co-developed by ING),focusing on parts of the sectors in its loan book that are responsible for most greenhouse gas emissions including steel, cement, residential mortgages and commercial real estate among others.
14	UniCredit	Has in place a methodology to estimate the potential actual annual deterioration of the fair value (FV) of the collaterals behind its mortgage portfolio, as a consequence of climate-related physical risk.
15	NatWest	NatWest Group is targeting to reduce GHG emissions from its Residential mortgage portfolio by 49% per square metre by 2030 from a 2019 base year. In 2023, 41.5% of EPC C or better rated homes in its UK mortgage portfolio for which EPCs are available (£138.8bn or 68% of its UK mortgage portfolio), vs. 2021: 38.3%
16	Standard Chartered	Climate Risk assessments are now considered as part of Standard Chartered's Reputational and Sustainability transaction reviews for impacted clients in high-carbon sectors. These are integrated into the credit application process for approximately 70 percent of its corporate client exposure and the physical risk identification of its Consumer, Private and Business Banking (CPBB) mortgage portfolios in its largest markets.
17	La Banque Postale	Taking part in the "Portfolio Alignment Measurement - Residential Real Estate Mortgages Proposed Methodology" The bank commits to achieve SBTs in Real Estate, Mortgages, Electricity Generation Project Finance and Corporate Instruments by 2030 from a 2020 base year. Portfolio targets cover 85% of total investment and lending activities as of 2020.
18	BBVA	BBVA is working on defining financial impact indicators associated with the physical risk of climate change in its mortgage portfolio and seeks to offer sustainable solutions to support energy efficiency with green mortgages for homes with high energy ratings or loans to improve the energy efficiency of homes.
19	Rabobank	Average label in the bank's mortgage portfolio reported as Energy Label C, with ambition to move this to Energy Label A by 2030.
20	DZ Bank	The bank has in place a Sustainable Products Committee which provides inspiration for new products, and monitors them. It is composed of relevant decision-makers from the credit business front and back offices. The Committee monitors the banks' green mortgage portfolio.
21	Nordea Bank	In 2022, Nordea Bank presented a lending portfolio decarbonisation target relative to chosen Paris Agreement-aligned benchmarks for residential real estate.
22	Caixabank	For its mortgage portfolio, the bank includes the energy efficiency certificate in the formalisation process.
23	Sberbank of Russia	Unable to find substantial and specific disclosures.
24	Danske Bank	The bank's assessment of its mortgage portfolio showed that certain areas in Denmark will see clusters of properties exposed to significant flooding risk in the future, with about 12% of the bank's total property exposure possibly affected by extreme flooding (1000-year return period) and about 22% of the commercial property portfolio also at risk.
25	Commerzbank	The bank's project finance portfolio for power generation as well as the residential mortgage portfolio is covered in full by SBTi's Sectoral Decarbonization Approach (SDA) steering. SDA targets therefore cover a material part of the loan and investment portfolio – measured in terms of outstanding amount, but particularly in terms of emissions.
26	ABN AMRO	The bank has benchmarked its residential mortgage portfolio against the pathways laid out by the Carbon Risk Real Estate Monitor (CRREM) for the Netherlands, which is in alignment with a 1.5-degree scenario and has been specifically tailored to support the carbon budget of the Dutch residential real estate sector.
27	KBC Group	KBC Belgium has embedded EPC labelling in the pricing of its mortgage loans, as was already the case for investment credits in 2021. When clients renovate their house to achieve an A or B EPC label and upload their newly obtained EPC, they receive a discount on the interest rate for the remaining tenor of the loan. In 2022, KBC Group calculated its Scope 3 financed greenhouse gas (GHG) emissions for its entire lending portfolio using the PCAF methodology.
28	Landesbank Baden-Württemberg	In 2023, the bank put forward the 30 pilots of "Construction green financing" to raise awareness among customers of CO2 emissions generated by residential buildings by increasing the quality of advice and through construction green financing tools.
29	Erste Group	The bank's target is to have "15% green housing mortgages by 2027".
30	Nationwide	In 2022/23, Nationwide we enhanced its EPC model to include (previously outsourced) address matching capabilities which match our mortgage portfolio data (using an in-house address matching solution) to the EPC Open Data Communities database. Approximately 38% of Nationwide's mortgage book (owner occupier and buy to let) is currently rated EPC C or better. This is a modest improvement on last year's EPC composition where 37% was EPC C or better.

**Data sourced from own disclosure, hyperlinked in all cases*

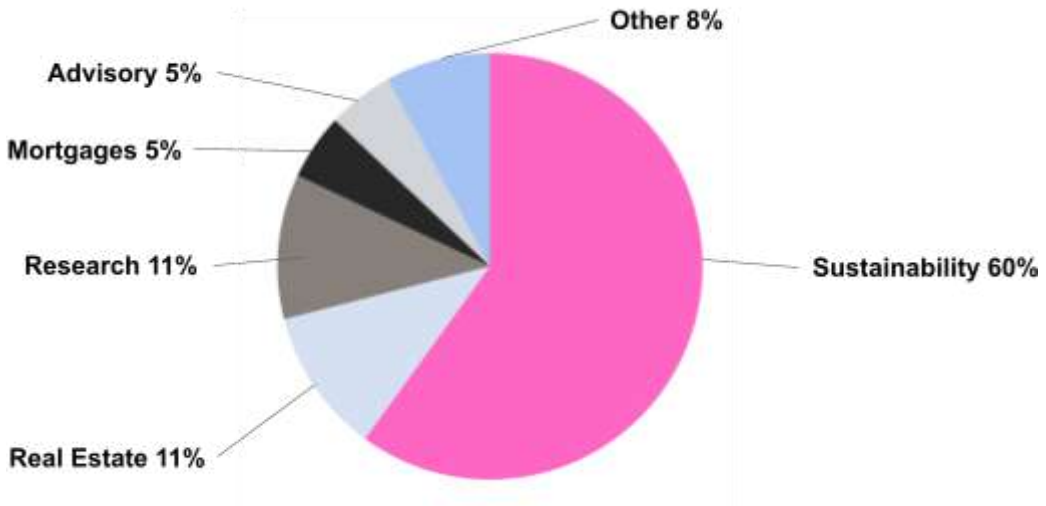
From Net-zero Targets to Home Renovation

From Net-zero Targets to Home Renovation:

Insights drawn from a Retail Bank Questionnaire on Approaches to Sustainable Finance for Buildings

On May 9th, Climate Strategy launched a survey to better understand from retail banks how their sustainable finance pledges impacted their approach to financing energy savings in buildings. Having marketed the survey to 154 executives and experts from 48 banks identified through its own networks, via associations and through targeted invitations via LinkedIn over 8 weeks, **the questionnaire received 19 responses mainly from leading financial institutions**. While this questionnaire cannot be considered fully representative of the whole sector, the responses provide interesting insights into how financial institutions are working to align their mortgage lending with their net zero targets in the context of their overall push towards greater sustainability.

Chart 1: Area of focus of survey responder participants



Almost two-thirds of the respondents to the survey work in sustainability departments, but many of these had collected inputs from multiple colleagues across their banks. The remaining responders work in commercial real estate, credit research, residential mortgages and client advisory as shown in the above chart. Responders came from financial institutions based in France, Germany, the Netherlands, Sweden, Spain, and the UK.

The full questionnaire is available in Annex B to this report. There were 37 questions divided into three areas:

1. **Sustainable Finance and Net-zero Frame**: Questions in the first section requested a description of the organisation's approach to institutional commitments and their operationalisation. This included net-zero targets, disclosure approaches, climate risk assessments and other EU disclosure frameworks and sustainability indicators;

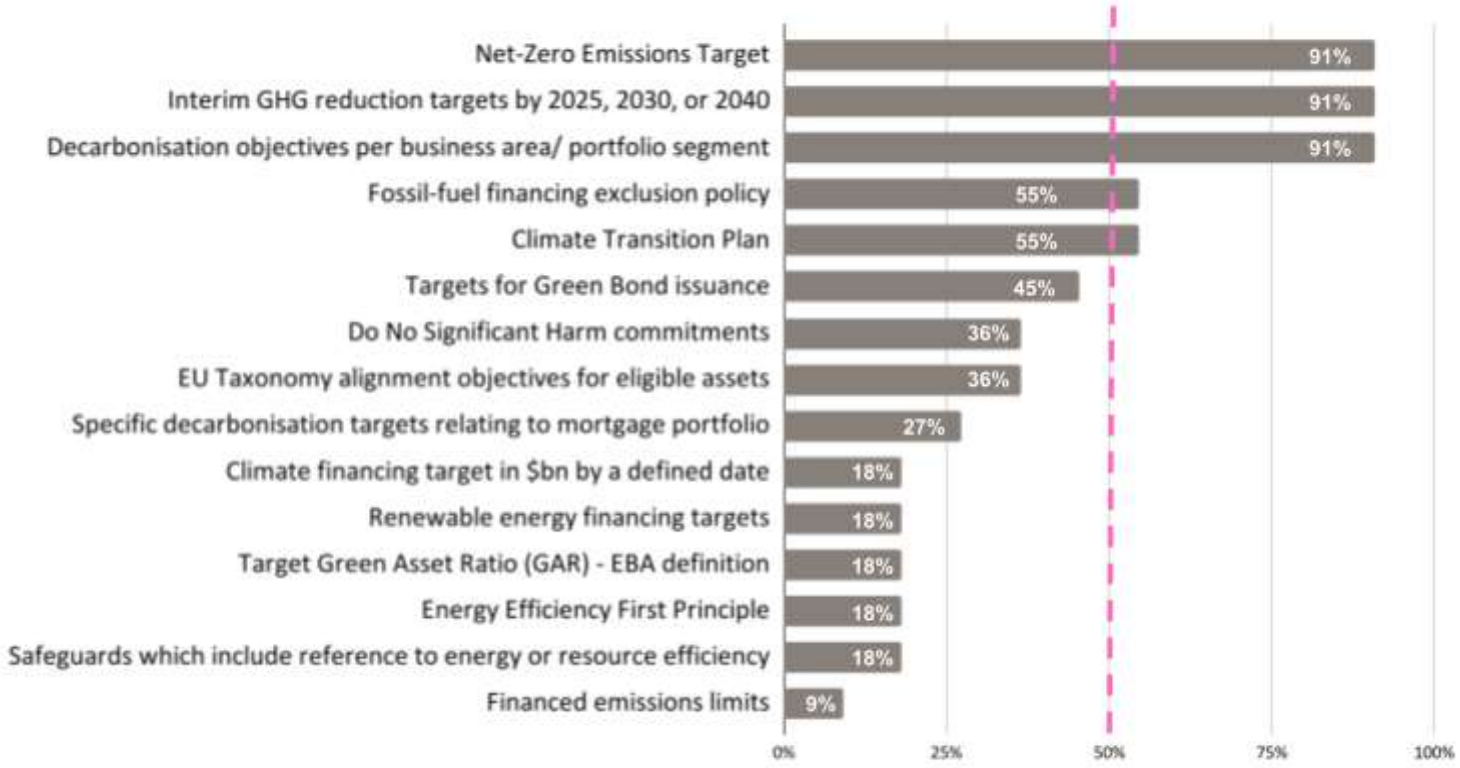
2. **Understanding Sustainability in the context of Mortgages**: Section 2 focuses on aligning mortgage portfolios with overall bank sustainability commitments. This considers voluntary Mortgage Portfolio Standards as a mechanism and asks which banks are already using it and for them to share their experience;

3. **Public-private Renovation Loans**: The final section of the questionnaire contained a set of forward looking questions designed to understand banks' interest and identification for a role of an EU Renovation Loan or other public-private instrument to support mortgage portfolio alignment and unlocking customer retrofits.

Understanding the impact of Bank Net-zero and other Sustainability Targets

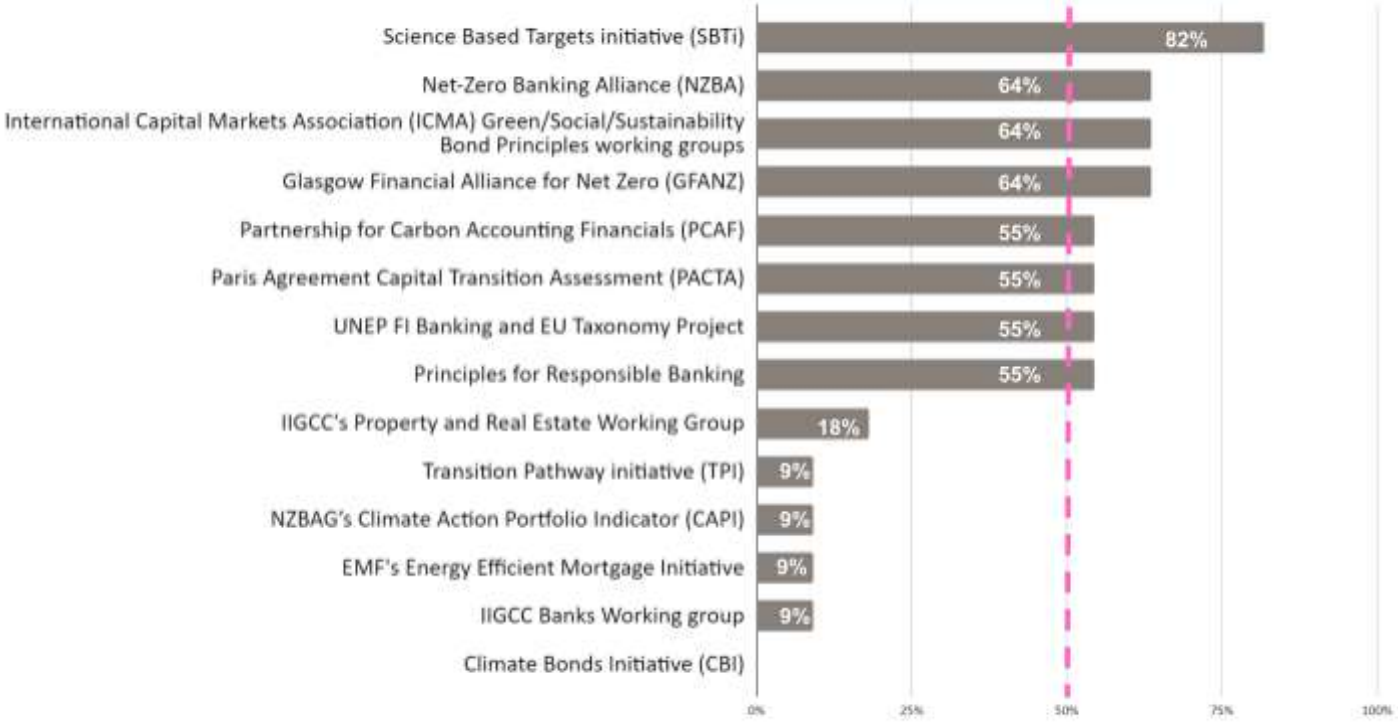
90% of the respondents work in banks and the others were advisors. It appears that all the banks answering the questionnaire had a net-zero emissions target with interim greenhouse gas reduction targets for 2025, 2030 or 2040 and had already started to set portfolio-level sub targets. **Over half the responders also had a climate transition plan and an exclusion policy for financing fossil fuels, and yet just 27% had specific targets for their mortgage portfolio.** Just two responders work in an organisation which has implemented an "energy efficiency first principle" or safeguards for energy or resource efficiency.

Chart 2: Observed implementation of climate targets and/or commitments



There are a number of initiatives which support banks operationalising high-level decarbonisation commitment. **Over 80% of responders are working with Science Based Targets Initiative (SBTi - which launched in May 2023 a report entitled "Buildings Sector Science Based Target Setting Guidance"[138]) and two-thirds are members of the Net-zero Banking Alliance (NZBA), Glasgow Financial Alliance for Net Zero (GFANZ) and are members of the International Capital Markets Association (ICMA) Green/Social/Sustainability Bond Principles working groups.** Over half of responders are working with an organisation supporting transition plans and alignment including the Partnership for Carbon Accounting Financials (PCAF), the Paris Agreement Capital Transition Assessment (PACTA), UNEP FI Banking and EU Taxonomy Project and the Principles for Responsible Banking.

Chart 3: Observed affiliation/subscription to climate initiatives



According to SBTi-developed Sectoral Decarbonisation Approaches (SDAs), targets on a mortgage portfolio are set using the in-use operational and upfront embodied emissions decarbonization pathways. These targets should be disaggregated by building typology and geography using a whole building approach. SBTi and the EU Taxonomy resemble each other, as they use concrete benchmarks for the evaluation of organisations and economic activities that are aligned with sustainable targets based on the Paris Agreement[139]. SBTi offers guidance to FIs to set up science-based targets encompassing the building's whole life cycle[140].

SBTi and the EU Taxonomy resemble each other, as they use concrete benchmarks for the evaluation of organisations and economic activities

[138] SBTI. (2023). *BUILDINGS SECTOR SCIENCE BASED TARGET SETTING GUIDANCE Version 1.5 - DRAFT May 15, 2023*. Retrieved from https://sciencebasedtargets.org/resources/files/DRAFT_SBTI_Buildings_Guidance.pdf

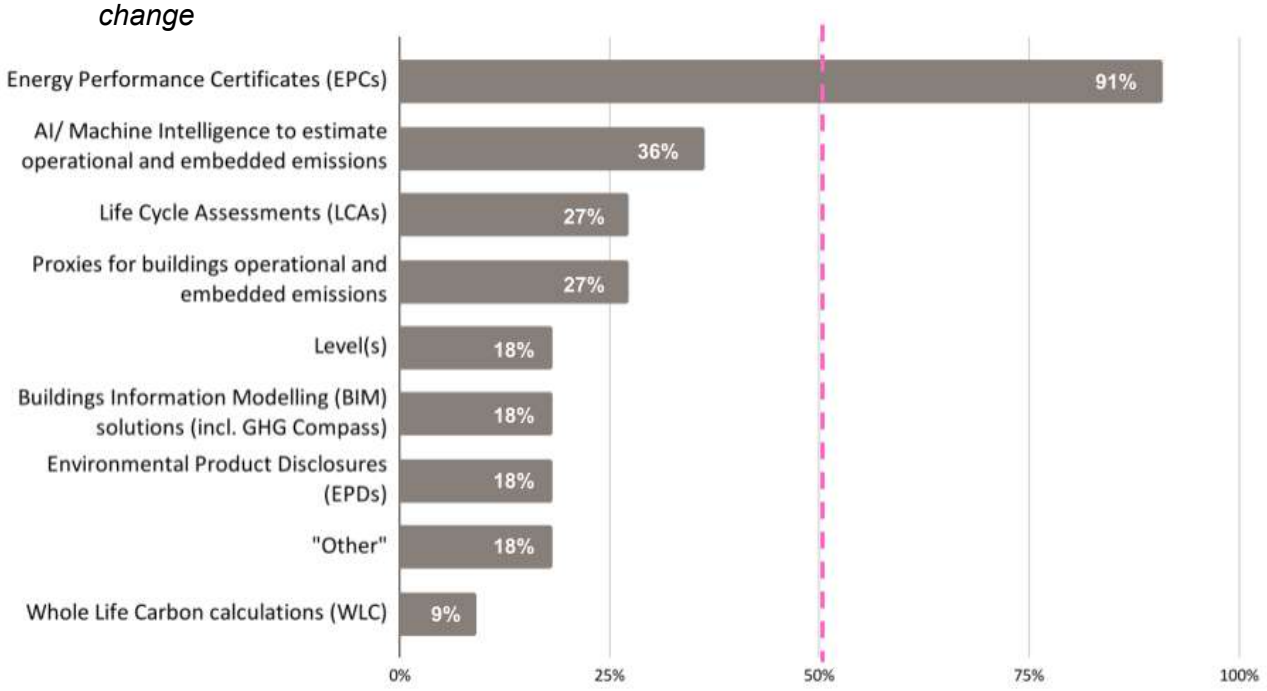
[139] Wallhed, N. (2021). *The EU Taxonomy on Sustainable Finance A Major Stride Forward or a Nightmare in Practice?*. Retrieved from http://kth.diva-portal.org/smash/get/diva2:1576581/FULLTEXT01.pdf?fbclid=IwAR1t7olZrPTVM-lPL_qv9G1uG4uAiWFXszQNOpBenVE69nNvPZQff0iMZYw

[140] Includes: conceptualization of a building's design to financing, development, construction, management, and occupation of the building throughout its lifetime

The EU Taxonomy Regulation provides a set of sectoral criteria for Substantial Contribution (e.g. towards the Climate mitigation objective) and criteria for Do No Significant Harm (in relation to the other environmental objectives). These allow companies and banks to report their balance sheets' Taxonomy alignment and increase their material support for economic activities that contribute substantially to achieving the EU's climate and energy targets. Banks responding to the questionnaire thought that (on average) around half of their balance sheet was "covered by the EU Taxonomy" (eligible in the *lingua franca*). This means that around half can have a significant financed emissions impact (such as a loan to a steel foundry) and the other half does not have a material financed impact (such as a loan to a law firm). From 2024, mandatory disclosure obligations of EU Taxonomy will require banks to disclose their Green Asset Ratios (GAR), by segments and therefore for the first time there should be separate disclosures for mortgages, house renovation loans and car loans[141], *inter alia*.

The European framework for sustainable buildings (Level(s)) developed a set of 16 common indicators, together with a simplified Life Cycle Assessment (LCA) methodology, which can be used to measure the Global Warming Potential (GWP) and life-cycle performance of buildings. However, **over 90% of the banks responding to the survey rely on energy performance certificates (EPCs) to provide the information they store on the buildings against which they lend. Interestingly, the next best used data source - by a third of responding banks - is artificial intelligence (AI).**

Chart 4: Measuring life-cycle performance of buildings and their contribution to climate change



By December 2025, EPCs in Europe will show whether a GWP calculation has been carried out for the building and they should include a financing section outlining options and grouping indicators that can be used by entities providing renovation funding. This will help align banks working with the EU's Level(s) and updated EPCs, and both will connect to the technical screening criteria for sustainable finance within the EU Taxonomy. There is a concern, of course, that these updates will take time to roll-out in a market where **EPCs are only available in a minority of existing buildings across the EU, and where access to them remains limited in around half of the Member States.**

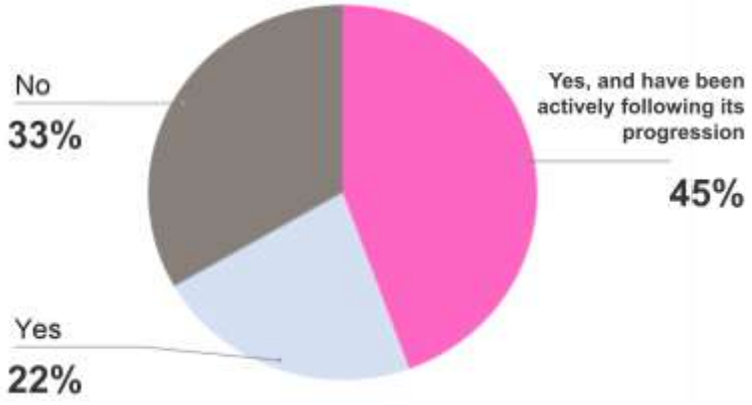
[141] EBF & UNEP FI. (2022). *Practical Approaches to Applying the EU Taxonomy to Bank Lending*. Retrieved from https://www.ebf.eu/wp-content/uploads/2022/02/Practical-Approaches-to-Applying-the-EU-Taxonomy-to-Bank-Lending.pdf

As one of the leading funders of energy efficiency in Europe, the European Investment Bank provides a series of financing tools to partner banks to fund building energy renovation among their clients and offer technical assistance to reduce transaction costs. Responders to the survey identified Invest EU as the most useful of these instruments, closely followed by JESSICA (an instrument promoting energy savings in local authorities) and Project Finance for Energy Efficiency (PF4EE). Invest EU developed a template guarantee for financial institutions, which is estimated to have increased their risk-bearing capacity, and allowing them to mobilise an additional €372 billion[142] investments. In 2022, EIB lending to energy efficiency totalled €7 billion[143], which was 40% higher than its average efficiency lending over the 2019-2021 time period, and supported the renovation of more than 93,000 housing units. **Many of the banks responding to the survey saw the clear role for the EIB to co-develop an EU Renovation loan** or new public-private instrument that would support energy savings among their mortgage clients - an idea included by the EU Parliament in their proposed recast EPBD Article 15 (4).

How Banks are Implementing Mortgage Portfolio Standards (if they are)

Over the last three years, it has become clear that a Mortgage Portfolio Standard - or equivalent mechanism - is required to align a lender's mortgage portfolio with its net-zero transition. For some predominantly mortgage focused climate leading banks, like ABN Amro or Nationwide Building Society, this has been clear for some time, but for others the realisation has taken more time. On average, bank respondents to the questionnaire reported that 42% (on average) of their balance sheets are backed by mortgages and that 30% of their mortgage financed buildings had either EPCs or equivalent real energy data available.

Chart 5: Are you aware of Mortgage Portfolio Standards?

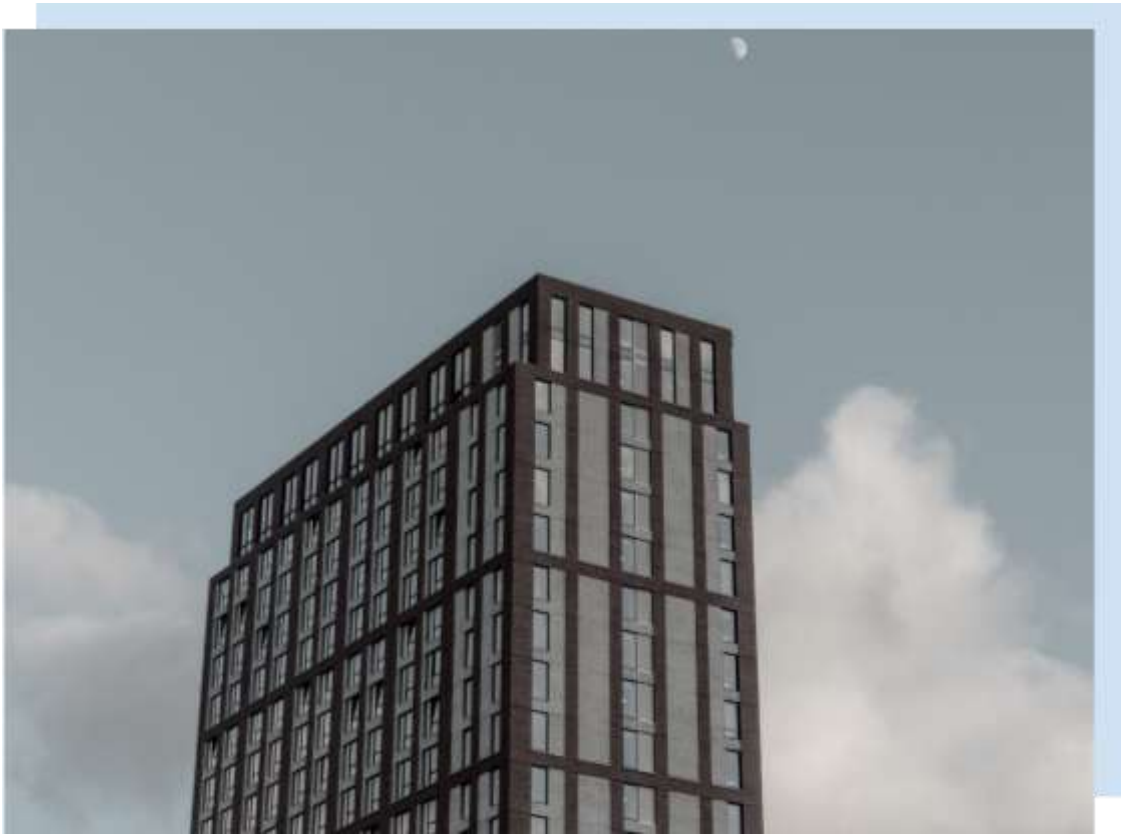


Two-thirds of responders said that they were aware of Mortgage Portfolio Standards, as shown above, and from those lenders responding positively half had already implemented a voluntary Mortgage Portfolio Standard, and half intend to in the coming years (split equally). Just one respondent indicated that they had no intention of implementing a Mortgage Portfolio Standard in the foreseeable future. Among those implementing MPS some portfolio targets were based on emissions intensity ($CO2/m^2$) that was derived through data from EPCs. In fact, 44% of respondents are using EPCs for climate-energy-related technical screening during the mortgage origination process, and a third are already applying the EU Taxonomy technical screening criteria.

[142] European Union. (2023). *What is the InvestEU Programme?*. [Website]. Retrieve from https://investeu.europa.eu/investeu-programme_en#:~:text=InvestEU%20is%20a%20part%20of,businesses%20to%20settle%20and%20thrive.
[143] EIB. (2023). *EIB Group 2022 Climate Bank Roadmap Progress Report*. Retrieved from https://www.eib.org/attachments/lucalli/20230002_climate_bank_roadmap_progress_report_2022_en.pdf

Interestingly, **the European Banking Authority (EBA) has a template (#210[144]) under its Implementing Technical Standards (ITS) for disclosures on the energy efficiency of the collateral of loans backed by immovable property**. The EBA has recently indicated that it will revise if environmental risks ought to be considered when evaluating risk weights for real estate exposures secured by mortgages on residential and commercial immovable property[145]. This revision will be carried out in line with the clarification published by the Basel Committee on Banking Supervision[146] (BCBS), and under the Capital Requirements Regulation (CRR) (Article 124[147]).

Overall, **for banks undertaking ITS, just 21%[148] disclose energy performance information, and only a third of these disclosers provide information for both commercial and residential real estate.** Under the EBA's ITS, banks are expected to disclose this information as of 2023, including the percentage of exposures for which, in the absence of an EPC label for the collateral, they are providing estimates.



[144] European Banking Authority. (2022). *Template 2: Banking book – climate change transition risk: loans collateralised by immovable property – energy efficiency of the collateral.* [Excel document]. Retrieved from https://www.eba.europa.eu/sites/default/documents/files/document_library/Publications/Draft%20Technical%20Standards/2022/1026172/Annex%20I%20-%20Templates%20for%20ESG%20prudential%20disclosures.xlsx

[145] EBA. (2023). *REPORT ON THE ROLE OF ENVIRONMENTAL AND SOCIAL RISKS IN THE PRUDENTIAL FRAMEWORK: EBA/REP/2023/34, OCTOBER 2023*. Retrieved from https://www.eba.europa.eu/sites/default/documents/files/document_library/Publications/Reports/2023/1062711/Report%20on%20the%20role%20of%20environmental%20and%20social%20risks%20in%20the%20prudential%20framework.pdf

[146] Basel Committee on Banking Supervision. (2022). *Frequently asked questions on climate related financial risks: 8 December 2022*. Retrieved from https://www.bis.org/bcbs/publ/d543.pdf

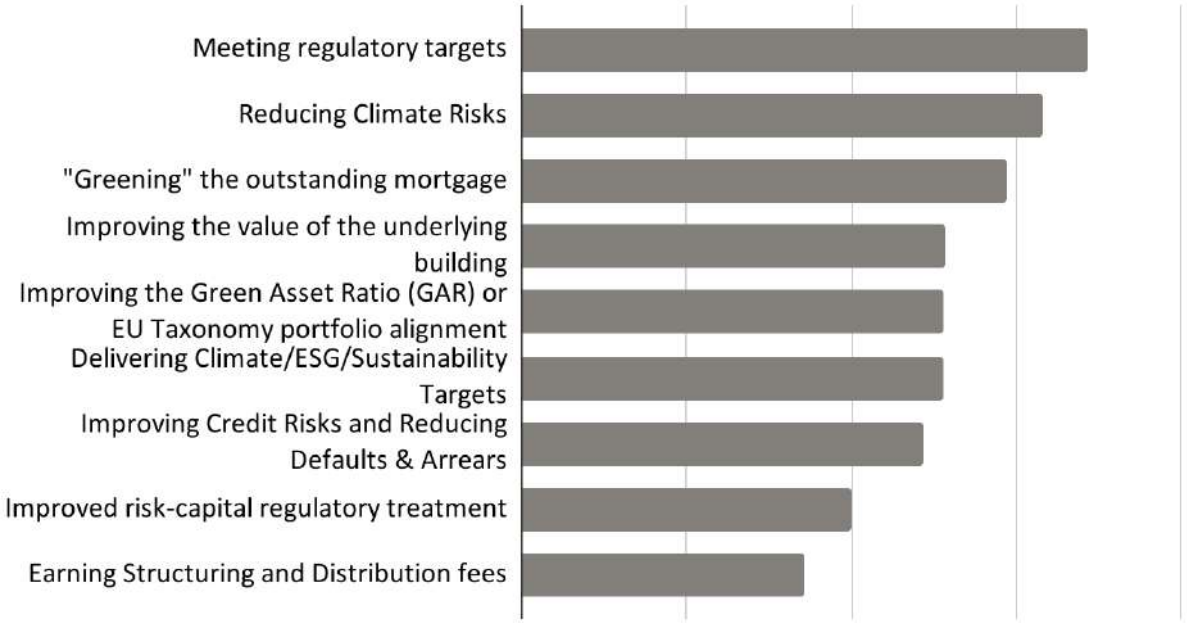
[147] EBA. (2023). *Capital Requirements Regulation (CRR) > PART THREE > TITLE II > CHAPTER 2 > Section 2 > Article 124*. [Website]. Retrieved from https://www.eba.europa.eu/regulation-and-policy/single-rulebook/interactive-single-rulebook/3201

[148] ECB. (2023). *The importance of being transparent: A review of climate-related and environmental risks disclosures practices and trends*. Retrieved from https://www.bankingsupervision.europa.eu/ecb/pub/pdf/ssm.theimportanceofbeingtransparent042023~1f0f816b85.en.pdf

Motivations for Bank Promotion of Building Energy Renovation

Banks report that the main driver for mortgage lenders to promote energy efficient renovations to their clients is to meet regulatory targets and reduce climate risks. The secondary motivators include "Greening" the outstanding mortgage portfolio, improving the value of the underlying buildings, improving the bank's Green Asset Ratio or EU Taxonomy portfolio alignment and delivering Climate/ESG/Sustainability targets. What is fascinating is that **notwithstanding the "carrots" of lower defaults and arrears[149], distribution fees and better sustainability, the risk and regulatory drivers are the strongest drivers for banks to engage in promoting energy efficient building renovations to their customers.**

Chart 6: Renovation drivers for banks to promote client building renovation



(Voting was done with responders scoring "importance" from High to Low)

Case Study - Regulatory leadership in the Netherlands climate agreement

In 2019, the Netherlands came to a Climate Agreement which contains a set of actions to achieve GHG emissions reduction targets of 49% by 2030, and forms the basis for the country's NECP[150]. The plan addresses the five dimensions of the European Energy Union[151] (decarbonisation, energy efficiency, energy security, internal energy market and research and innovation), and it is synchronised with the objectives of the EU's Buildings Directive and Energy Efficiency Directive. The climate agreement also intends to be inclusive and gathered over 100 stakeholders to discuss how they can make precise contributions to their sectors.

For the majority of financial institutions in the Netherlands their mortgage loan books are the largest portfolio on their balance sheets. The implementation of the climate agreement resulted in almost all traditional mortgage lenders including renovation features in their mortgage offers, and publishing their targets to better the level of energy efficiency within their mortgage loan books[152]. Furthermore, a number of new mortgage lenders who only provide 'green' mortgage loans have entered the market.

[149] EEFIG. (2022). *The quantitative relationship between energy efficiency improvements and lower probability of default of associated loans and increased value of the underlying assets.* [Website]. Retrieved from https://op.europa.eu/en/publication-detail/-/publication/32387875-b94b-11ec-b6f4-01aa75ed71a1/language-en/format-PDF/source-256261518

[150] Netherlands, Ministry of Economic Affairs and Climate Policy. (2019). *Integrated National Energy and Climate Plan 2021-2030.* Retrived from https://energy.ec.europa.eu/system/files/2020-03/nl_final_necp_main_en_0.pdf

[151] European Commission. (2023). *Energy union*. [Website]. Retrieved from https://energy.ec.europa.eu/topics/energy-strategy/energy-union_en

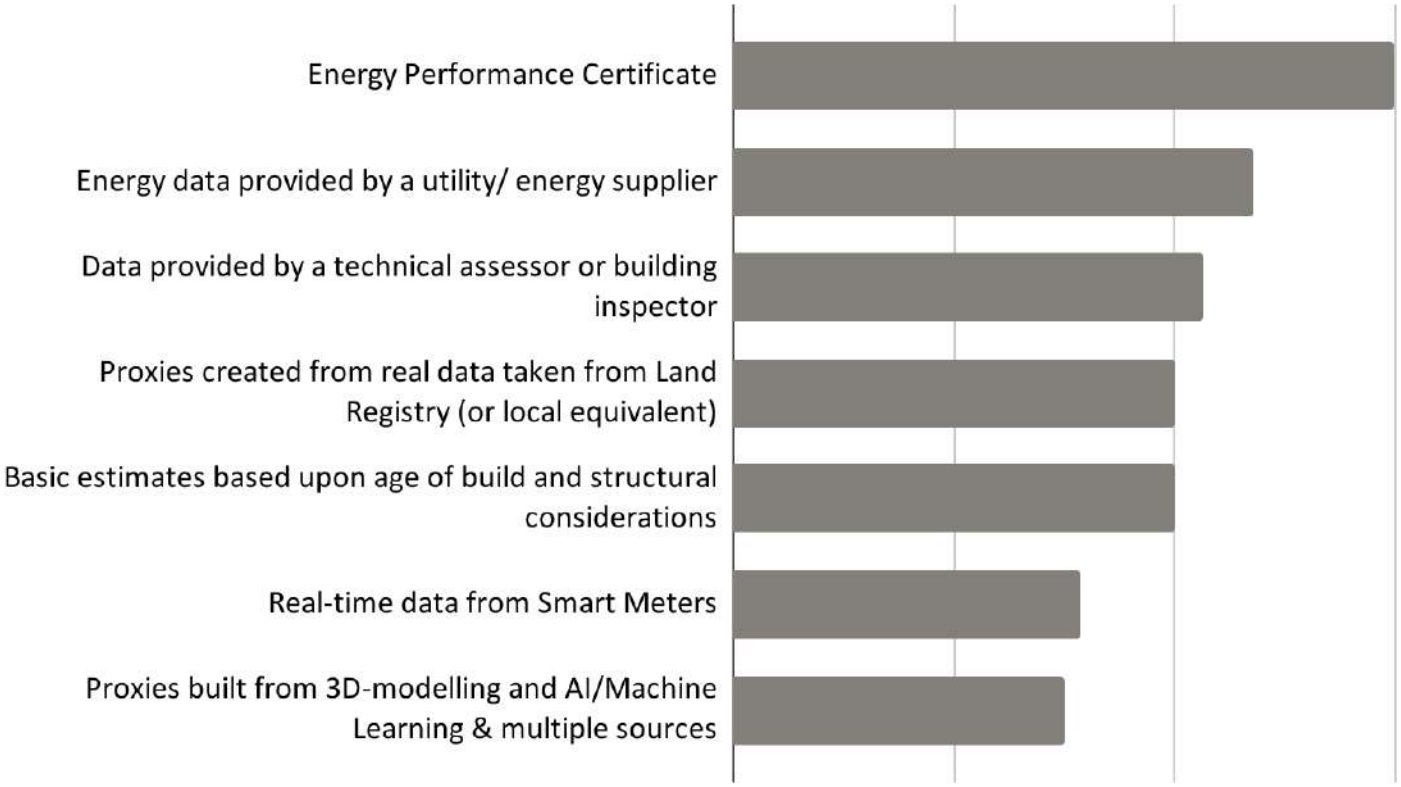
[152] European Mortgage Federation. (2022). *HYPOSTAT 2022: A REVIEW OF EUROPE'S MORTGAGE AND HOUSING MARKETS*. Retrieved from https://hypo.org/app/uploads/sites/2/2022/09/HYPOSTAT-2022-FOR-DISTRIBUTION.pdf

The questionnaire reveals that mortgage lenders are trying to reduce the climate risk in their decision making and are promoting building renovation to clients as a climate or regulatory risk reduction action, as opposed to as a new business opportunity. These motivations are strongly supported through the implementation of a Mortgage Portfolio Standard as the portfolio-wide approach requiring improvement of energy performance data and revision of every relationship is critical, and then the alignment of renovation speed with overall regulatory, risk and climate targets is a natural management outcome.

EPCs remain the leading source of energy performance information connecting to mortgages

In terms of data sources, it was intriguing to see that while EPCs remain the leading source of energy performance information connecting to mortgages, lenders are broadening the number of sources which they use to risk review and assess their buildings collateral, shown in Chart 7.

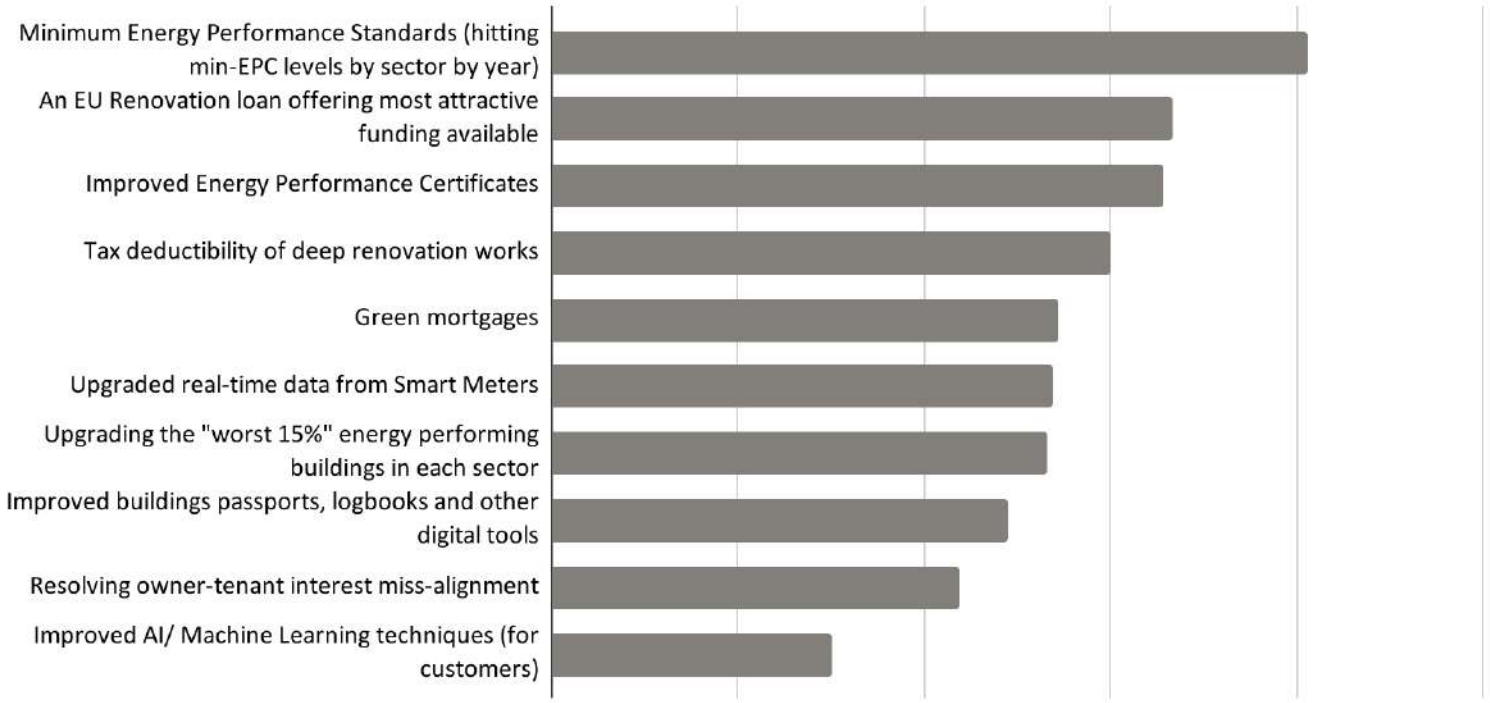
Chart 7: Data sources most important to implement Mortgage Portfolio Standards



(Voting was done with responders scoring "importance" from high to low)

Banks can offer opportunities to finance renovation projects to their clients but, they cannot require them to be taken-up. Banks responding to the questionnaire revealed that they had been offering home renovation loans, or equivalents, for over seven years, on average. When asked to rank non-financial drivers that would create an environment that stimulated demand for energy efficient renovations, they responded that **minimum energy performance standards (meeting performance thresholds by a given year) were the strongest potential driver.** This was followed by having access to an EU Renovation Loan, improving EPC, deriving fiscal benefits or the offer of a green mortgage, as shown in Chart 8.

Chart 8: Complimentary non-financial drivers to support MPS-performance by banks



(Voting was done with responders scoring "importance" from high to low)

The UK's National Residential Landlord Association research[153] revealed that 72% of landlords who do not plan to improve the energy performance of their properties within the next two years would if there were beneficial changes with tax deductibility rules. Germany, Belgium, Italy and Sweden are among the EU Member States that have introduced tax incentives and green loans to support higher energy efficiency standards in buildings.

[153] E3G. (2023). *Incentivising energy efficiency improvements for UK private renters: Autumn Budget briefing.* [Website]. Retrieved from https://www.e3g.org/publications/incentivising-energy-efficiency-improvements-for-private-renters-autumn-budget-briefing/

Case Study - Flemish Renovation Obligation

In mid 2021, the Flemish government imposed an obligation for the renovation of non-residential buildings applicable to all owners and holders of long lease rights or rights of superficies acquiring their right from January 1st 2022 onwards[154]. In line with the Flemish Energy and Climate Plan, this obligation was extended to residential real estate from January 1, 2023. Measures include[155]:

- New owners of houses, apartments, and studios with an EPC label E or F are required to carry out renovations in their properties to a label D (or high) within five years of purchase.
- This obligation is also applicable to the transfer of a second residence or a vacation home.

Failure to comply will result in a Flemish Energy and Climate Agency (VEKA) imposing an administrative fine of between EUR 500 to EUR 200,000, and setting up a new deadline for the property to achieve a D EPC. By October 2023, landlords that rent properties with an EPC label D, E or F will not be able to index[156] the rent.

Financial support to owners include the My Rebuilding Loan[157] (Mijn VerbouwLening):

- This is a 0% loan (interest-free)
- It has been available since September 2022, and provides home owners up to 60,000 euros to carry out measures to improve energy efficiency and home quality
- The interest is repaid by the Flemish government
- Measures need to be carried out within 5 years of purchasing the property
- Measures can include: Roof renovation, exterior wall renovation, heat pumps, and the renovation of floors and foundations among others

The Flemish Renovation Obligation is an example of how state intervention can be justified by the need to retrofit dwellings at a higher pace than the market in an inflationary environment of high energy bills triggered by the Ukraine conflict. Offering suitable complementary financial support such as My Rebuilding Loan enables energy efficiency works and these add value to owners' assets.

[154] University of Groningen. (2022). *TAKINGS FOR CLIMATE JUSTICE AND RESILIENCE: BIOGRAPHIES & ABSTRACTS.*Retrieved from https://www.rug.nl/rechten/congressen/archief/2022/takings-for-climate-justice-and-resilience/bios-and-abstracts.pdf

[155] Titeca. (2023). *Renovation obligation in 2023: what does this mean for you?*. Retrieved from https://www.titeca.be/en/news-item/renovation-obligation-in-2023/#:~:text=For%20non%2Dresidential%20real%20estate,make%20all%20buildings%20energy%20efficient.

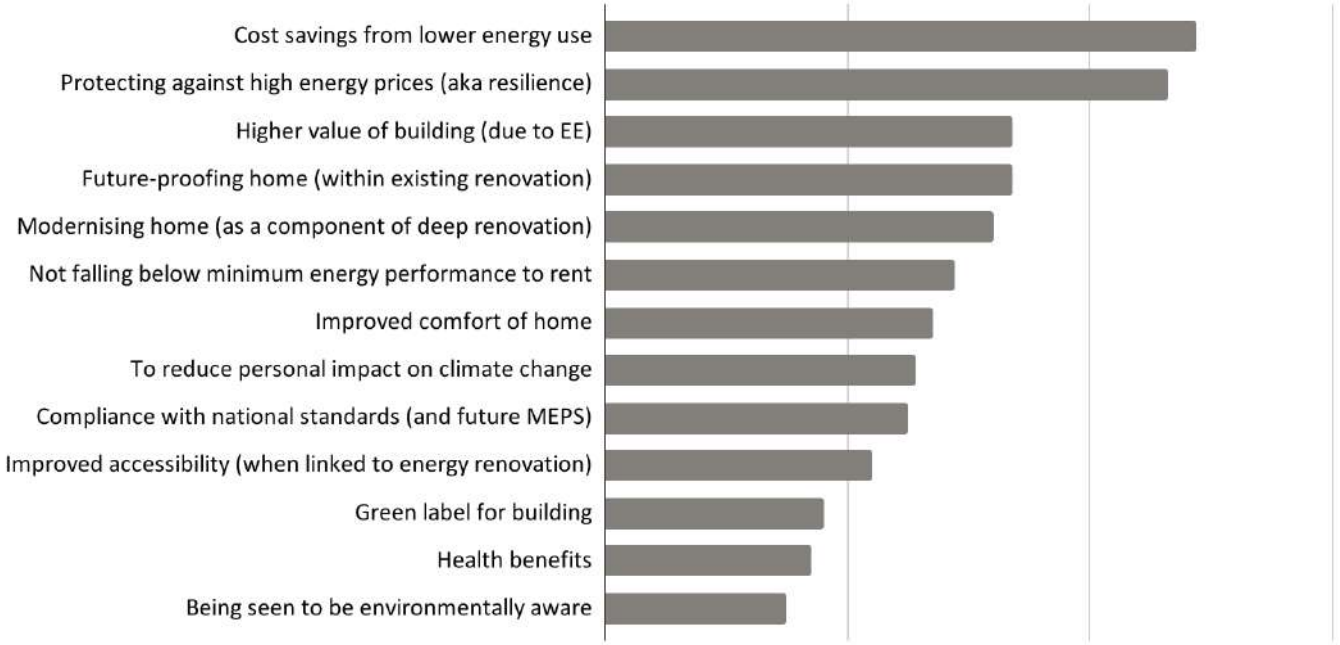
[156] Rent indexation in Flanders means that the landlord adjusts the rent annually to reflect the increased cost of living. The indexation is based on the health index. Sourced from KU Leuven. (2023). *Housing: Rent indexation*. [Website]. Retrieved from https://www.kuleuven.be/english/life-at-ku-leuven/housing/info-for-tenants/rent-indexation#:~:text=Rent%20indexation%20means%20the%20landlord,based%20on%20the%20health%20index.

[157] Flemish government. (2023). *Mijn VerbouwLening*. [Website]. Retrieved from https://www.vlaanderen.be/bouwen-wonen-en-energie/lenen/mijn-verbouwlening

Driving the Demand for Renovation from the lenders' perspective

Driving customer demand for energy renovation is a central concern for financial institutions offering building renovation finance, given bank respondents to the questionnaire have been offering this for over 7 years, on average. While there are many reasons to renovate, when the lenders offering renovation finance were asked which were the most important "Cost savings from lower energy use" and resilience (ie "Protecting against high energy prices") appeared as the most relevant for bank clients, as shown in Chart 9.

Chart 9: Why buildings owners would borrow money to renovate their home/ building?



(Voting was done with responders scoring "importance" from high to low)

The war in Ukraine has had a significant impact on energy markets, driving up the price of oil and gas to its highest levels seen in over a decade. **This sudden increase in energy prices has increased owners' interest in energy efficient renovations to decrease energy consumption and increase resilience to energy price shocks.** The energy price hike has also reduced the payback periods of renovations. Evidence from the IEA shows that buildings energy efficiency measures adopted before the crisis are delivering important energy savings for consumers today[158].

Some bank clients are clearly driven by a reduction of their personal impact on climate change

Interestingly, protecting home value (or increasing it) through modernisation or preventing it falling below a minimum threshold for rental remain strong bank customer drivers for renovation. MSCI Netherlands Annual Property Index data supports the market trend for build value to accrete towards higher performing buildings and away from those with lower EPC-grades[159]. Finally, some bank clients are clearly driven by a reduction of their personal impact on climate change, improved accessibility and/or health benefits, however these customer renovation drivers remain in the lower quadrant of those reported by banks.

[158] IEA (2022), Energy Efficiency 2022, IEA, Paris https://www.iea.org/reports/energy-efficiency-2022, Licence: CC BY 4.0
[159] MSCI Research. (2023). *Has Energy Efficiency Emerged as a Driver of Real Estate Returns?*. [Website]. Retrieved from https://www.msci.com/www/blog-posts/has-energy-efficiency-emerged/03825655588

Social Considerations for Mortgage Portfolio Standards

Inefficient buildings are associated with energy poverty and social issues, as families and individuals with lower incomes have less control over their energy expenditure, and without public support could enter a negative spiral of expensive energy bills, arrears, and related health problems. **Most of the surveyed banks see a risk that customers identified in a low performance home may not have access to the additional borrowing or capital to renovate**. This section of the survey resonates with the reality and segmentation described earlier in this report, and the fact that not everyone can access finance for renovation even if such a renovation would pay for itself over time.

Banks were clear in their responses to the questionnaire in this matter: **Public support to enable low income and elderly households to renovate is critical to the delivery of a net-zero pathway for a Mortgage Portfolio Standard.** The following are highlights:

If a recast EPBD or local standard causes low energy performing properties to lose value then those owned by vulnerable people must have their value loss made-up for through a combination of grants and other public renovation actions or instruments to enable those affected and poorer communities to renovate to recover that value.

Mandated energy standards for properties will result in greater renovation, yet low income people need financial support and guidance to take the initial step to renovate their homes.

Clients seeking to improve the energy efficiency of their homes may exceed their mortgage effort rate and this can limit their access to renovation loans, without guarantees or other public support.

Interestingly, when the same **banks were asked if the existence of an EU Renovation Loan might prejudice or limit the opportunities of any of the vulnerable or energy poor communities to access public grants or other energy efficiency support, the answer was a resounding "no".**

Through the survey, leading **banks clearly stressed their willingness and commitment to support the energy transition, however they recognise that adopting a Mortgage Portfolio Standard can only work in the context of a supportive environment that addresses energy poverty and those facing financial hardship.** Clearly, new regulation and legislation needs to prevent asymmetries between the different parties involved, governments, mortgage lenders, clients, and construction/ renovation professionals.

Case study - Deutsche Bank, measuring the social impact of energy efficiency on its portfolio[160]

Deutsche Bank (DB) understands the enabling role of finance to further energy-efficient real estate to meet European and local climate targets. The bank also understands that the ever-growing regulatory push for energy efficiency could increase the financial pressures on homeowners under the current inflationary and rising interest rate environment. For that reason DB is offering green mortgages and special purpose loans, while further examining its client base financial capacity.

Taking into account minimum renovation costs, DB's analysis revealed that 62% of its clients would be in a position to cover monthly expenses and the added renovation loan with their income. To lessen the social impact of energy efficiency works, DB has simultaneously analysed the array of related governmental programs that could benefit their clients, and calls national governments to assist private clients to deliver the European Green Deal through instruments such as the EU Renovation Loan.

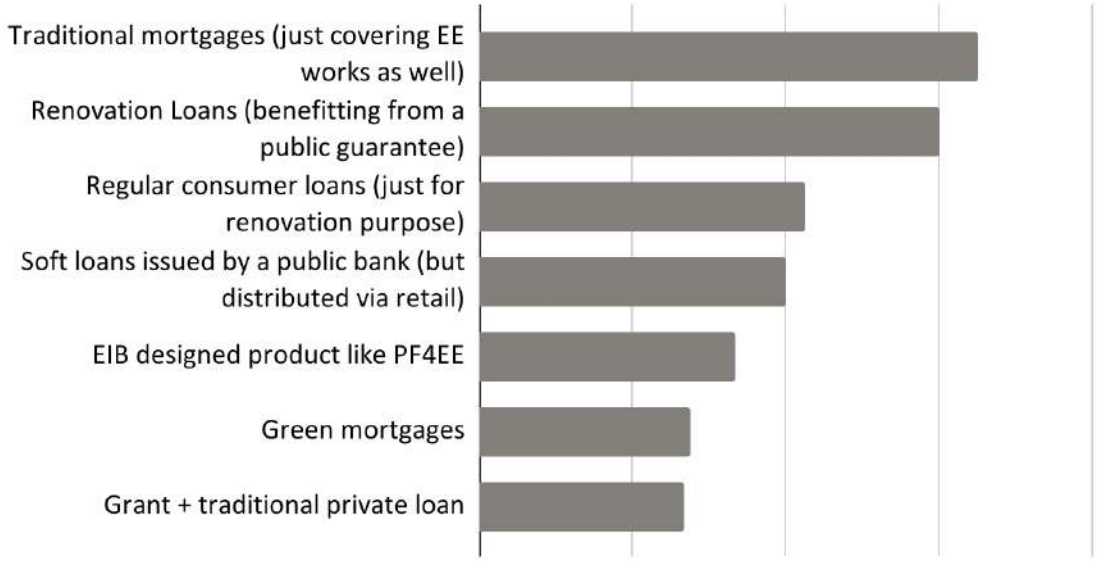
New Public Renovation Finance Instruments catalysed by the Buildings Directive

In the decade from 2013-23, the EU Commission and UNEP FI's Energy Efficiency Financial Institutions Group (EEFIG)[161] reviewed and documented over 100 financial instruments developed to finance energy efficiency in buildings, industry, and SMEs. EEFIG's several hundred expert members, 40% of whom work in finance, concluded that **there is a clear need for more blended public and private sourced funding and finance to address communities with less access to traditional financing and to optimise the delivery of the societal and private multiple benefits of energy and resource efficiency projects.**

[160] Deutsche Bank. (2023). *Residential Real Estate – Leading to Net Zero*. Retrieved from https://www.db.com/files/documents/csr/sustainability/Residential-Real-Estate--Leading-to-Net-Zero.pdf?language_id=1
[161] European Commission. (2023). *EEFIG 10 years with EEFIG – How it all began*. [Website]. Retrieved from https://eefig.ec.europa.eu/eefig-10-years/10-years-eefig-how-it-all-began_en

Lenders responding to the questionnaire rank the extension of an existing mortgage and a new Renovation Loan (benefitting from a public guarantee) as the top two "easiest" instruments to address the demand for renovations. **Two thirds of those surveyed felt that the addition of an EU Renovation Loan in the recast Buildings Directive made sense.** Intriguingly the lowest ranked alternative by banks was the current independent grant plus renovation loan option.

Chart 10: Ranking of selected renovation products with "ease of operation"



(Voting was done with responders scoring "importance" from high to low)

As a blended public-private instrument, guarantees do not require immediate cash outflows from the public purse, and so allow guarantors to lever their balance sheets efficiently[162]. Guarantees can help mitigate a series of risks (commercial, credit, and political), and can deliver financial additionality by reducing credit restrictions for low-income borrowers. Guarantees are well used by the EU to focus private investments in strategic sectors as illustrated by the success of the Junker Plan - now called InvestEU guarantee facility.

Two thirds of those surveyed felt that the addition of an EU Renovation Loan in the recast Buildings Directive made sense

Decades of trial and error in financing renovations reveal that the best instruments are those tailored specifically for one segment of the population (income and risk profile) and a given building use (multifamily residential, single family detached, city rental block). Further, **the financial institutions with decades' of experience dealing with retail clients[163] are well placed to be the point of execution providing a one-stop service, often blending the public and private funding streams.**

[162] Garbacz, W., D. Vilalta and L. Moller (2021), "The role of guarantees in blended finance", *OECD Development Co-operation Working Papers*, No. 97, OECD Publishing, Paris, https://doi.org/10.1787/730e1498-en.
[163] EEA. (2023). *Accelerating the energy efficiency renovation of residential buildings a behavioural approach*. Retrieved from https://www.eea.europa.eu/publications/accelerating-the-energy-efficiency/accelerating-the-energy-efficiency-renovation/download.pdf.static

Building the “Ideal” Public-Private Renovation Loan

Together with leading banks, the questionnaire dug into the components which lenders felt were the most important for public intervention by Member States. From a list taken from Article 46a of the EU Parliament’s proposed recast Buildings Directive, the top ranked instruments by banks in order of preference were: green or energy efficient mortgages, targeted renovation loans, cash-back for certain efficient equipment purchase, soft loans for vulnerable households, energy performance contracts, refinancing ESCOs and specialist energy efficiency funds.

Several key components are proposed in the design of an “EU Renovation Loan” and these include: a Zero-coupon structure (paying compound interest at maturity), an EU guarantee, an interest rate struck at EU borrowing costs, a 30 years maturity, and having an ECB liquidity facility available. Through the questionnaire, banks were asked to rank the importance of these elements from the perspective of their customers (the building owners), the originators (the lenders themselves), and governments (EU or Member States). The results in Table 3 show these key components ranked by stakeholder:

Table 3: Ranking of EU Renovation Loan components by stakeholder

	Stakeholder		
Rank	**Customer**	**Originator**	**Government (EU/ MS)**
1	Ultra-low interest rate (same for all building owners)	EU Guarantee	Ultra-low interest rate (same for all building owners)
2	Zero-coupon structure (paying compound interest at maturity)	ECB TLTRO liquidity facility eligibility	Only available for deep renovations (saving >50% energy)
3	EU Guarantee	Offered through an accredited contractor	EU Guarantee
4	30 year maturity	Ultra-low interest rate (same for all building owners)	ECB TLTRO liquidity facility eligibility

It appears that **having an “ultra-low” interest rate that is independent of the building owner’s credit score is a critical feature for all stakeholders**, and especially for owners and Member States. Further, the questionnaire confirms the need for an EU Guarantee as a critical feature for all stakeholders. Originators and governments are keen to have the implication of the ECB’s liquidity to provide a secondary or liquidity market for the renovation loan.

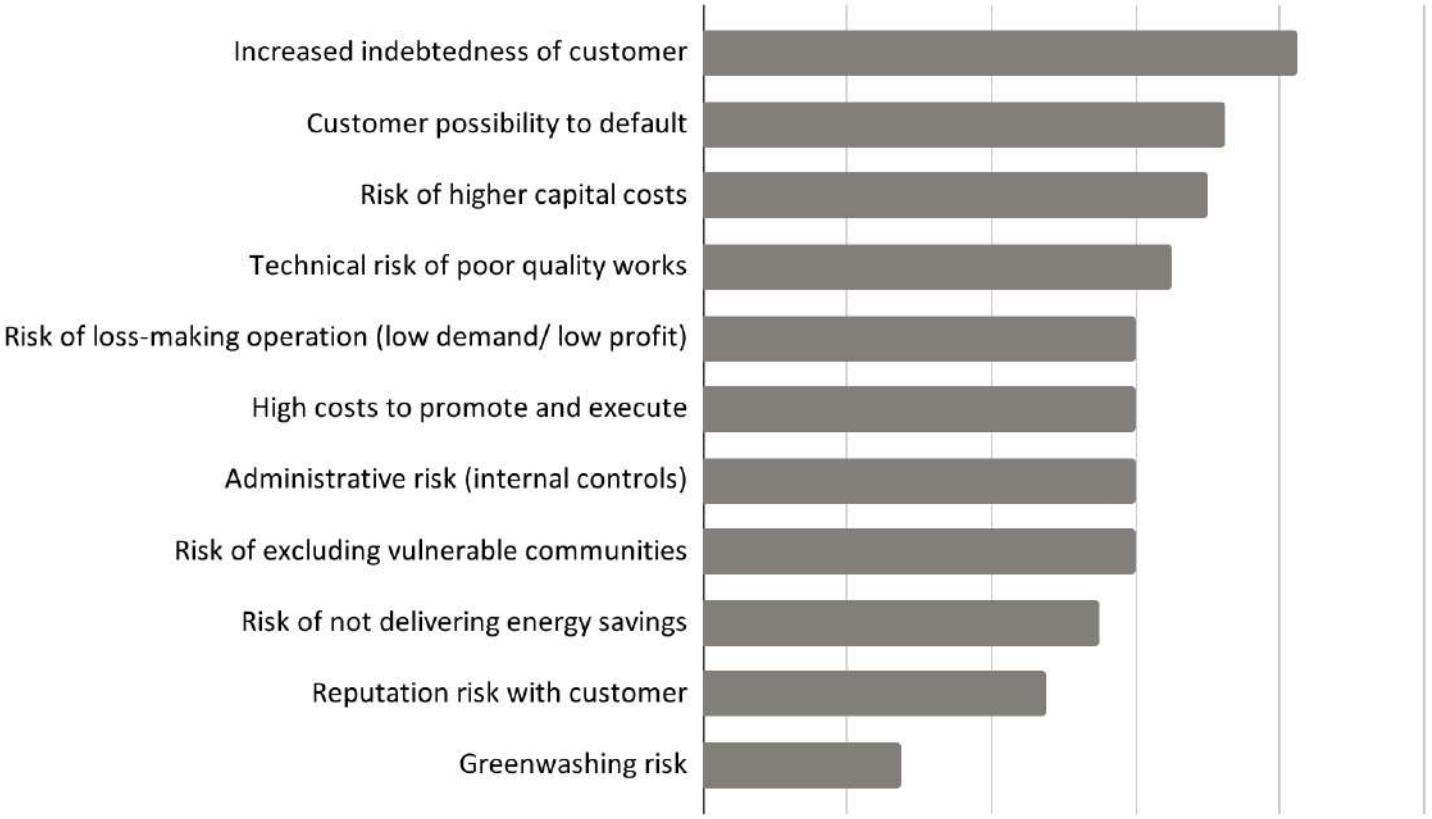
In the EU the energy efficient renovation of existing buildings has a degree of complexity due to the different types of buildings, their age, location, and the socio-economic situation of its occupants / and or owners. **The EU Renovation Loan was designed to apply to the broadest possible set of owners and buildings providing fair and equitable access to affordable finance for all.** FIs were asked to provide an assessment of the EU Renovation Loan's applicability by "best fit" against the following types of building owner and three building types. Detached (or semi-detached) single family homes, multi-family apartment blocks (eg. co-ops), and commercial buildings. These opinions are summarised in Table 4:

Table 4: Identification of Renovation Loan target stakeholder by Dwelling Segment

	Dwelling Segment		
Rank	**Detached (or semi-detached) Single Family Home**	**Multi-family apartment block (eg. co-op)**	**Commercial Building**
1	Energy poor household (>10% income on energy)	Average family	Single employed
2	Single employed	Energy poor household (>10% income on energy)	Social housing landlord
3	Average family	Private landlord	Private landlord
4	Private and Social housing landlords	Tenant	Tenant

Some financial institutions see energy efficiency and home renovation as complex, time intensive, technical and therefore "risky". Notwithstanding proxies, AI, simplification, technical assistance, training, Government intervention, customer benefits, better data, trained contractor networks and other innovation, this "negative image" of renovation can linger. So, the questionnaire asked for banks as potential originators of an EU Renovation Loan to rank the risks of that activity and the results are shown in Chart 11:

Chart 11: Ranking of perceived risks to ERL distribution from originator perspective



(Voting was done with responders scoring "importance" from high to low)

What stands out from the above chart is how many of the key concerns of originators of renovation loans can be addressed through the right structure of the loan itself. **Increased indebtedness can be addressed through an EU Guarantee, along with increased potential to default - which should have reduced given energy savings.** Higher capital costs for renovation loans is also a "by design" feature in the hands of regulators. The fourth concern, technical work quality is addressable through a certification programme and accreditation schemes (as present in Germany and the UK). Promotional costs, administrative risks and operational profits are controlled or balanced by the offer of distribution fees for banks offering EU Renovation Loans, which responders indicated might be around 1%.

When asked to identify the single biggest barrier to the successful operation of an EU Renovation Loan, banks identified the following four barriers, in order of importance: Lack of access to accurate EPC data and energy databases, the creditworthiness of homeowners, lack of Government attention on renovation and a lack of evidence of increased property value due to energy performance improvements.

Case study - Brussels Green Loan, a zero to low interest renovation loan

The Brussels Capital Region Energy, Climate and Air Protection Plan (PACE) has a set of ambitious goals to progressively reduce its CO2 emissions by 30% by 2025, and 80-90% by 2050[164]. Buildings account for 70%[165] of energy consumption in the city, hence their decarbonisation is key to meet the plan's goals. Even though the Region provides technical assistance and grants to incentivise home renovations, the low income segment of the population faces barriers to pre-finance the works as they:

- Might not be eligible for commercial banks' loans due to their risk profiles.
- Are unable to pay upfront costs and/or sufficient savings to afford the rest of the investment that is not covered by grants.

To address the issue above, in 2017 the Region launched the Brussels Green Loan[166], a zero to low interest loan designed to help homeowners to pre-finance energy renovation works. The loans are available either through:

Crédal[167]:

- A short-term consumer loan with 0% or 1% an interest rate, which they have to reimburse within 10 years.
- The 0% rate is applied to a one-person household with an annual income below EUR 30,000, and a two person household making up to EUR 60,000.
- The loan rate of 1% applies to those earning beyond these figures.

The Housing Fund (Fonds du Logement)[168]:

- The loan is available to parties at preferential rates (0% to 2%) to be reimbursed within 30 years maximum.
- The 0% rate is applied to people whose annual income does not exceed EUR 15,000.
- Beyond these revenues, a custom rate based on an annual income will be applied, however, it will not exceed 2%.

The Region authorities are considering simplifying[169] the Brussels Green Loan in the near future, and to make it available with a fixed rate of 1% to all Brussels citizens. Moreover, the authorities are debating the prospect of keeping a revenue ceiling to access the scheme, and maintaining the 0% loan rate for vulnerable people under special conditions.

[164] Energy Cities. (2017). *Brussels Capital Region, Belgium I Key figures*. Retrieved from https://energy-cities.eu/wp-content/uploads/2018/11/Brussels_softloans_2017_en.pdf
[165] Ibid.
[166] Ibid.
[167]IEA. (2022). *Brussels zero interest green loan for residential sector*. [Website]. Retrieved from https://www.iea.org/policies/6435-brussels-zero-interest-green-loan-for-residential-sector
[168] Ibid.
[169] European Commission. (2022). *COMMISSION STAFF WORKING DOCUMENT: Analysis of the national long-term renovation strategies*. SWD(2022) 375 final. Retrieved from https://energy.ec.europa.eu/system/files/2022-12/SWD-Analysis-of-2020-LTRS.PDF

Conclusions and recommendations

Conclusions and Recommendations

2023 is the year when EU Governments and citizens began to see that addressing the thermal quality and energy efficiency of buildings through renovation is the bedrock for the delivery of a fair and net-zero emissions economy in Europe. **As a vehicle, the recast EU Buildings Directive (EPBD) seeks to establish the regulatory frame to stimulate increased renovation investments through 2030**. This is the moment when mortgage lenders must identify the "low hanging fruit" of the worst performing buildings and support the offer of public and private finance solutions to turn an inefficient and uncomfortable home into a modern, comfortable and climate-friendly one.

Most EU financial institutions are aware that the collateral against which they provide mortgages is largely inefficient and will fall out of alignment with the net-zero emissions pathway at some point in the coming years. Leadership in offering renovations to mortgage clients has largely been among lenders with voluntary forms of Mortgage Portfolio Standards, Science-based emissions reduction targets or in countries with Minimum Energy Performance Standards. Unlike buying a new home, or car, the renovation process is more complex and execution is provided by a multitude of local contractors whose warranties and standards are all very different. **Financial institutions who have been able to make renovation finance programmes work have also been able to rely on supportive measures provided by standards, contractor accreditation, improving technologies (like heat pumps) and increasingly sophisticated measurement tools and AI.**

Like LEDs, wind and solar, the "whole package" of energy performance renovation is receiving more and more attention, heat-pump technology has finally started to gain traction and the business process efficiencies of a growing market are slowly becoming apparent. **Point of sale financing that packages public and private components to provide the best offer to homeowners is a critical element of successful renovation delivery, and some mortgage lenders are years into building leadership here.**

An ambitious recast Buildings Directive is a once in a decade opportunity for Europe

The financial institutions implementing climate risk and mitigation measures, portfolio by portfolio, understand the highly material risk of inaction in mortgages, and are aware that there is a limited window of opportunity to work with Governments to jointly address and deliver shared objectives. This provides a unique backdrop for more formal processes which bring together impacted organisations with experts and policymakers to co-develop voluntary and regulatory approaches which together can accelerate the delivery of energy savings to homeowners. As ever, in the case of the delivery of such solutions, there is no single measure that will have unique success and finance is not the only barrier - nor even sufficient to provoke action in many cases. However, without long-term confidence that building owners will be provided with attractive finance options for the kind of deep renovations that can transform a home, office or school, there will be insufficient momentum to build a wave, and the outcomes will resemble "business as usual".

Business as usual renovation rates do not serve homeowners, governments nor the EU, as they leave buildings exposed to energy price shocks and keep the EU energetically unfit and vulnerable. **An ambitious recast Buildings Directive is a once in a decade opportunity for Europe, and it must contain the financial measures recommended in this report to enable millions of EU citizens to save energy and see the real benefits and impacts of the EU's new energy and climate ambitions.**

Recommendations to Policymakers

1.

Member States must set national minimum energy performance standards that require building owners with the buildings that waste the most energy to renovate them in a given timeframe. This must be supported by committed, long-term public funding instruments and technical assistance.

In order to have a chance to double energy renovation rates, national buildings renovation strategies need to be complemented with a **mandatory regime that delivers specific minimum portfolio energy efficiency improvements across the whole building stock with targets for 2030, 2035 and 2040 horizons.** Within this, upgrades of the worst-performing buildings need to be specified as they will have the most impact on the overall efficiency of the whole building stock - or national portfolio.

Public funding and financial support is an essential and complementary component in delivering this and must be **consistently available, easy to access and tailored to the different segments of building owners and building types**. Recovery and resilience funds made available by the EU Commission have been helpful in stimulating building renovation, and yet access to them, availability for up-front project development costs, and payment terms can be improved to increase their uptake. These public **support facilities need to be permanent in nature**, and not restructured with each new Government, as renovation projects can take years to develop and execute.

2.

Introduce a new EU-level instrument to help tens of millions of homeowners who can renovate but don't have access to attractive finance

EU mortgage lenders believe that up to 20% of their current mortgage holders may not qualify for additional or extended mortgage loans. **Without a new public-private financial instrument, a trillion euros of renovations for tens of millions of EU homeowners are unlikely to proceed.** Public guarantees are an under-explored way to enable lenders to offer more energy renovation loans and to reduce their costs to customers. An EU Renovation Loan[170] is an innovative and newly proposed EU-enabled financial instrument that combines an EU-level guarantee with ECB green liquidity to offer tens of millions of "homes with poor economics" (including the elderly) affordable debt offered through local lenders to insulate their homes from sky-rocketing energy prices and transition risks.

With an EU Renovation Loan, homeowners would pay interest and capital repayments at sale, transfer or after 30 years with an interest rate that is set at the EU's borrowing rate, i.e. lower than the current retail market. **ERLs can be pledged against the €13 trillion of home equity identified in the EU and turn this home equity into energy savings and local jobs to relaunch the EU Renovation Wave**. At a time when energy prices have spiked up, and interest rates are rising, quickly unlocking just 10% of the €13 trillion of EU home equity, often in the hands of the older generations, will stimulate renovation jobs, increase resilience to price shocks, improve thermal comfort and lower their energy costs. **Bringing new financial instruments into the mix that are distributed via mortgage lenders to their most needy clients is a quick, and so far largely untested way, to boost the uptake of energy renovations.**

[170] Climate Strategy & Partners. (2022). *The EU Renovation Loan: a new instrument to fund the EU Renovation Wave*. Retrieved from https://www.climatestrategy.es/press/ERLReport03112022.pdf

3.

Position Mortgage Portfolio Standards as a voluntary tool for Member States to use to better engage mortgage lenders and increase National Buildings Renovation ambitions

European lenders' voluntary use of Mortgage Portfolio Standards as a risk-identification and compliance tool for net-zero targets has been developing well in recent years. **Over one third of the largest European banks are already using some form of mortgage portfolio target setting and compliance mechanism.** Given the extent of these voluntary practices, **the recast buildings directive should launch a delegated act process to help develop, widen and deepen these good practices.**

A Commission-led Delegated Act process can engage leading EU lenders, compare best practices and give confidence to Member States in the promotion of voluntary Mortgage Portfolio Standards. Tools that align mortgages with national buildings renovation and energy efficiency ambitions can be reviewed in a harmonised way across the EU and involve all types of mortgage holders (retail lenders, funds, insurance companies, special purpose vehicles, asset managers). Such a process could offer a standard set of variables that reference the National Climate and Energy Plans of the Member State where the building collateral is located, and help support a pathway to net-zero for each building.

The delegated act process can lever the data found in ECB reporting on Climate Stress Tests[171], manage climate risks and establish a reference order for baseline energy data including: real energy use, EPC, statistical informed proxy and other estimates. **Mortgage portfolio standard trajectories can also be reviewed against the baselines used in Member States buildings renovation action plans**, CRREM and the binding EU-wide energy efficiency targets established by the Energy Efficiency Directive.

Finally, **the delegated act process has intrinsic value** as it will bring lenders together with policymakers, experts and representatives from Member States to jointly develop a solid framework which aligns with and has the capacity to deliver the optimum outcomes for homeowners and delivers the benefits of an EU Renovation Wave.

[171] European Central Bank. (2022). *ECB report on good practices for climate stress testing*. Retrieved from https://www.bankingsupervision.europa.eu/ecb/pub/pdf/ssm.202212_ECBreport_on_good_practices_for_CST~539227e0c1.en.pdf

4.

Promote pragmatic solutions to address the data quality and availability issues relating to EU buildings renovation

Currently, there are 29 methodologies used to rate EPCs in the European Union, and these vary greatly in each Member State[172]. There has also been a sector focus on delivering national databases to give visibility and enhance the integration of the data within EPCs and with the financial and renovation processes. **It is already common practice among lenders to use multiple data elements from different sources in their operations, and in the future it is likely that operational and energy data will be sourced directly from energy bills, via proxies and from both "Renovation Passports" and "Digital logbooks" that are components of the recast Buildings Directive (EPBD).**

Renovation passports are expected to offer a clear building-specific roadmap for deep renovations and thereby help owners and investors plan the best timing and scope for interventions. Digital building logbooks can become a common repository for all relevant building data, including data related to energy performance such as energy performance certificates, renovation passports and smart readiness indicators, as well as on the life-cycle GWP of materials and indoor environmental quality. The use of Digital logbooks and related data repositories is being developed in several Member States[173]. These approaches already provide valuable insights on data collection and management:

- Digital logbooks (e.g. Madaster, Eigenheim Manager, GebäudePass)
- Building renovation passports (E.g. P2E, iSFP, EPC+)
- Advanced EPCs (e.g. Portuguese EPC, Danish EPC, Estonian EPC)
- Initiatives under development (e.g. Electronic building ID, Le carnet numérique du logement, Brussels BRP, Wikihabitat)

It is anticipated that the EU Commission will adopt implementing acts to support the efficient functioning of digital building logbooks, and this process can also align with the delegated act to develop voluntary Mortgage Portfolio Standards. Through these processes, **common templates for data collection, data management and interoperability can be developed and links to existing databases will be useful, as well as a recognition of the role of AI and other forms of proxies.**

It may take years to improve and standardise EPC databases[174],[175] and yet the EU Renovation Wave, mortgage lenders and climate action does not have this time to wait. There are multi-stakeholder processes looking to automate greenhouse gas reporting for 5.5 million SMEs in the UK[176], and teams providing 3D-models that deliver EPC-proxies instantly[177] so that banks can quickly identify solid energy renovation prospects from among their clients. Easily shareable, accurate, and assurable data must form the basis of these new approaches and enable mortgage providers to identify the least efficient buildings, or those exposed to future minimum energy performance standards, and make renovation finance offers.

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[172] Stromback, J., Hobson, D., Streng, E., Ribeiro Serrenho, T. and Bertoldi, P., Advanced quality and use of energy performance certificates (EPCs) by investors and financial institutions, EUR 30886 EN, Publications Office of the European Union, Luxembourg, 2021, ISBN 978-92-76-43380-4, doi:10.2760/151167, JRC125031.

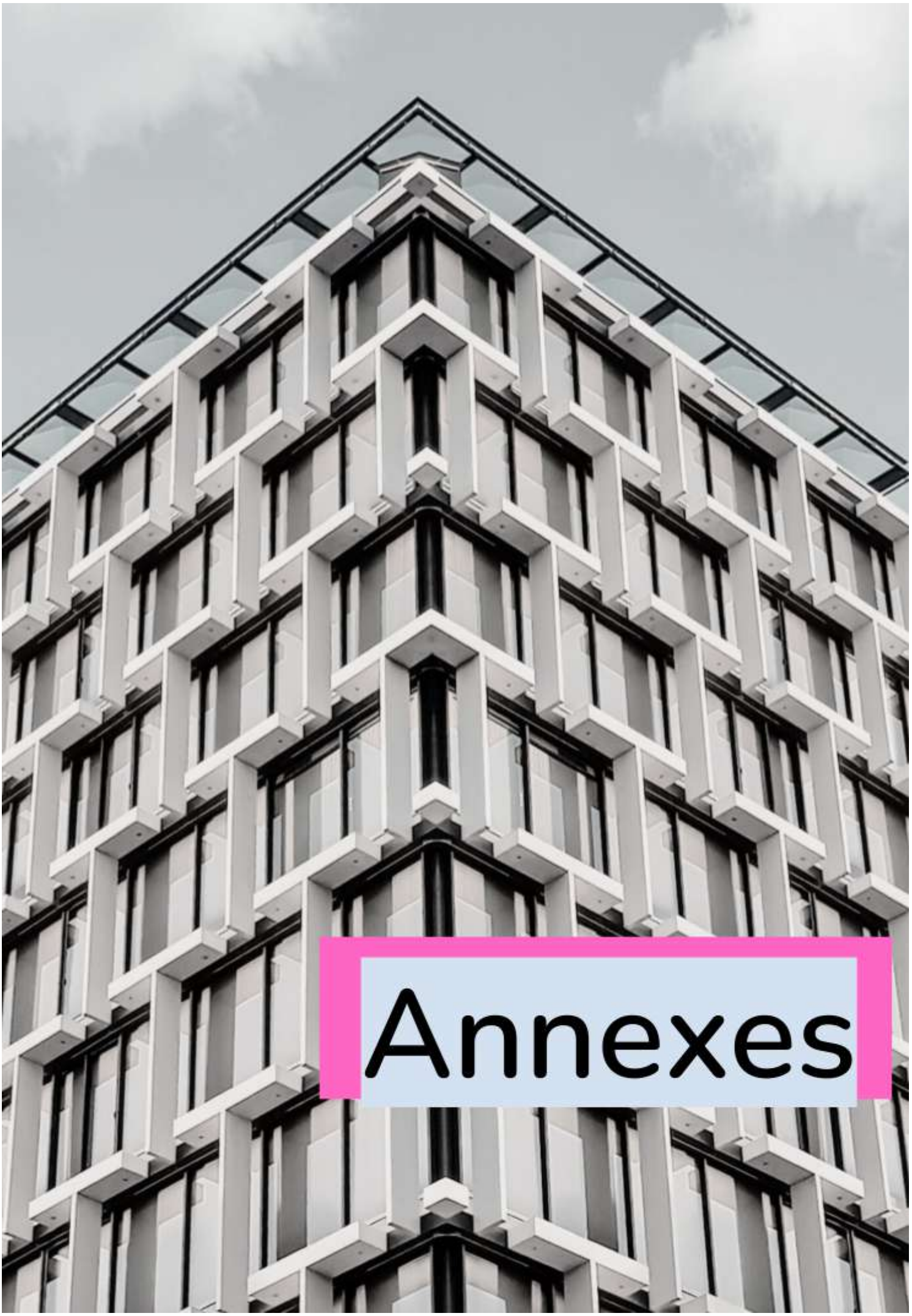
[173] iBRoad2EPC. (2022). *Setting Building Renovation Passports (BRPs) up for success Frameworks, measures and elements in support of stepwise deep renovation of the EU building stock*. [Presentation]. Retrieved from https://timepac.eu/wp-content/uploads/2022/01/TIMEPAC_Session_1_Alexander_Deliyannis-_GR.pdf

[174] European Commission. (2021). *Harmonisation of datasets of Energy Performance Certificates of buildings across Europe*. Retrieved from https://joinup.ec.europa.eu/sites/default/files/document/2021-08/jrc124887-buildingscertificateseu.pdf

[175] European Commission. (2023). *Inspire Knowledge Base: Buildings*. [Website]. Retrieved from https://inspire.ec.europa.eu/Themes/126/2892

[176] Icebreaker One. (2023). *Perseus – a multi-sector collaboration to automate GHG reporting*. [Website]. Retrieved from https://icebreakerone.org/perseus/

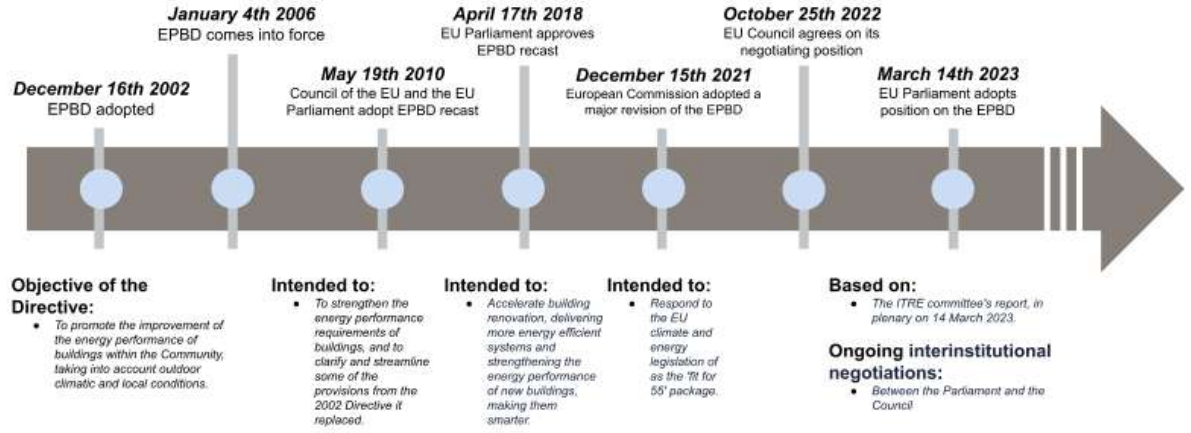
[177] Skendata. *Homepage*. [Website].Retrieved from https://www.skendata.de/


Annexes

Annex A: A Regulatory Framework fit-for-Building Renovation Investments

Building on the legacy of the Kyoto Protocol[178] which operationalised the United Nations Framework Convention on Climate Change (UNFCCC) in 1997, the EU's Energy Performance of Buildings Directive (EPBD) was first adopted in 2002.

Progression of the EPBD, 2002 - 2023



As the first cohesive EU legal act on energy policy in buildings[179], EPBD sought to tap into the large cost-effective energy savings potential in the sector. Most Member States transposed the EPBD by 2006, and the national experiences in its application formed the basis for the Commission's recast in May 2010 which laid the foundations for:

- The introduction of minimum energy performance standards in new buildings and existing buildings undergoing a major renovation;
- Making sure that potential buyers or renters have access to better information and are consequently favour higher energy performance in their decisions;
- Raising the role of financial incentives to promote energy renovations, requiring Member States to identify and submit to the Commission identified national financial measures to improve energy efficiency.

In support, the Commission offered structural funds for renovation, with support from European Investment bank (EIB), European Bank for Reconstruction and Development (EBRD), as well as other EU funds. By mid 2018, a newly recast EPBD introduced amendments to advance the cost-effective renovation of existing buildings, with the aim of decarbonising the EU building stock by 2050, and to mobilise investments to meet this goal[180]. Key 2018 measures included:

- Member States were required to update their long-term renovation strategies[181] (LTRS) initially prescribed by the Energy Efficiency Directive (2012), singling out the proper financial measures and consulting with stakeholders in the drafting and implementation of these;
- The Commission started to gather and share with public authorities:

[178] UNFCCC. (2023). *What is the Kyoto Protocol?*. [Website]. Retrieved from https://unfccc.int/kyoto_protocol
[179] Economidou, M., Todeschi, V., Bertoldi, P., D'Agostino, D., Zangheri, P., Castellazzi, L., et al. (2020). Review of 50 years of EU Energy Efficiency Policies for Buildings. Energy and Buildings 225(1):110322. DOI:10.1016/j.enbuild.2020.110322
[180] A. Thonipara, P. Runst, C. Ochsner, K. Bizer, Energy efficiency of residential buildings in the European Union– an exploratory analysis of cross-country consumption patterns, Energy Policy 129 (2019) 1156–1167, https://doi.org/ 10.1016/J.ENPOL.2019.03.003.
[181] Official Journal of the European Union. (2018). *Directive (EU) 2018/844 of the European Parliament and of the Council of 30 May 2018 amending Directive 2010/31/EU on the energy performance of buildings and Directive 2012/27/EU on energy efficiency (Text with EEA relevance)*. [Website].Retrieved from https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2018.156.01.0075.01.ENG

    - Best practices of proven public and private financing schemes for energy efficiency renovation; and
    - Information on schemes designed to aggregate small-scale energy efficiency renovation projects.
- Combatting energy poverty through the renovation of older and worst performing buildings.

The current "fit for 55"[182] recast of the Buildings Directive (EPBD) started with the EU Commission's proposal in December 2021[183], as a core component of the Green Deal and to deliver the EU's Renovation Wave strategy[184], which calls for the renovation of 35 million buildings by 2030. The European Council agreed on its recast EPBD negotiating position on 25th October 2022. In March 2023, the EU Parliament's Committee on Industry, Research and Energy (ITRE) adopted its own and more ambitious position on the EPBD. Key changes in the EC's proposed 2023 recast EPBD include[185]:

- A new definition of 'zero emissions building', which would replace the nearly Zero Energy Buildings (nZEB) standard for all new buildings from 2027 and for all renovated buildings from 2030 onwards.
- National building renovation plans with concrete targets for renovation for 2030, 2040 and 2050 that would replace and upgrade long-term building renovation strategies.
- Protected buildings: existing provisions would be amended to allow energy performance improvements without changing their technical character and appearance.
- From 2030, the life-cycle Global Warming Potential (GWP) of all new buildings would need to be measured.
- Future buildings would need to meet EU-wide minimum energy performance standards (MEPS). Member States would be allowed to set more ambitious performance standards if they choose to.
- Member States would need to designate at least 15% of their buildings as Class G (worst performing) on the EPC scale.
- All Energy Performance Certificates would have to be based on a harmonised scale of energy performance classes by 2025.
- Member States would need to establish a national EPC database and transfer the data to the EU Building Stock Observatory.
- The Commission would develop an EU framework for renovation passports, with this framework set out in a delegated act by the end of 2023.
- The Commission would make further advances in the development of a Smart Readiness of Buildings indicator, to be applicable across Member States, with a Delegated Act by the end of 2025.
- Mortgage Portfolio Standards are defined and offered to Member States to enable them to align the Euro 7 trillion mortgage finance sector with their National Energy and Climate Plans (NECPs).
- Lower the threshold that requires the mandatory installation of building automation and control systems for non-residential buildings.
- Member States would not be able to subsidise fossil fuel boilers from 2027 onwards

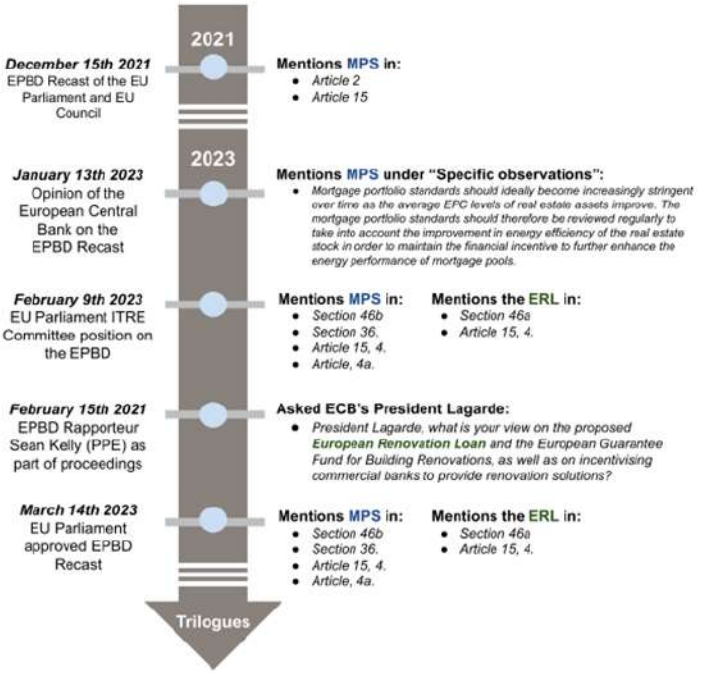
[182] European Commission. (2023). *Fit for 55: Delivering on the proposals.* [Website]. Retrieved from https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/delivering-european-green-deal/fit-55-delivering-proposals_en#:~:text=Under%20the%20European%20Climate%20Law,cost-effective%20and%20competitive

[183] European Commission. (2021). *Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the energy performance of buildings (recast) COM/2021/802 final*. [Website]. Retrieved from https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021PC0802&qid=1641802763889

[184] European Commission. (2020). *Renovation Wave: doubling the renovation rate to cut emissions, boost recovery and reduce energy poverty*. [Website]. Retrieved from https://ec.europa.eu/commission/presscorner/detail/en/ip_20_1835

[185] European Parliament. (2023). *Revision of the Energy Performance of Buildings Directive: Fit for 55 package*. Retrieved from https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/698901/EPRS_BRI(2022)698901_EN.pdf

The following tracks the progress of Mortgage Portfolio Standards throughout the recast EPBD negotiations:



Here are some of the key media references for the tools covered in this report:

ENDS (Feb 09 2023): **"New energy efficiency rules for buildings clear committee stage"**

*"WWF, on the other hand, welcomed the introduction of **mortgage portfolio standards (MPS)**, by which banks would be required to increase the energy efficiency of buildings covered by their mortgages offering more attractive loan products to encourage renovation. **This would help plug the annual financial gap of €275bn needed to achieve the EU's renovation targets, the environmental group said.**"*

Euractiv (Feb 09 2023) -OpEd by our CEO Peter Sweatman: **"An EU Renovation Loan can unlock €2 trillion of future energy savings"**

*"This new instrument can be quickly launched by combining three existing EU-level tools and could then be offered to millions of homeowners through 138,000 bank branches. The **EU Renovation Loan** ingredients are: **1) EU guarantee; 2) ECB-liquidity; and 3) a trusted network of accredited renovation project managers.**"*

Other outlets/institutions that have mentioned MPS and the ERL in 2023 include:

- Europa press
- Prefieres
- FT's Sustainable Views (on two occasions: a, b)
- Global Banking Regulation Review
- Lexology
- Green Report
- Open Access Government
- Climate Bonds Initiative
- ECEEE
- Energy Sufficiency
- Ground
- Central Green Banking
- the International Sustainable Finance Centre (ISFC) "Sustainability in Finance" podcast
- Multiple Benefits of Energy Efficiency
- Staandard
- KMPG
- Passive House+
- Mitiska REIM
- Jacques Delors Centre
- Pfandbriefbanken
- Unlock Campaign
- Morgan Stanley's research document "Building & Construction Energy renovation reality check"
- Deutsche Bank's Strategy document "Residential Real Estate - Leading to Net Zero"
- BEUC
- Spanish Government document "Working groups' recommendations to implement the long-term strategy to renovate buildings"
- Spanish Group to Promote the EPBD, report "Por una aprobación temprana y ambiciosa de la revisión de la Directiva Europea de Eficiencia Energética d Edificios"
- Eco Construccion
- CIC
- GBCe
- La Vanguardia
- El Debate
- El Diario
- Infobae
- Foresight
- Euroace
- UBS' Retrofit revolution: Why the world needs one and how we can achieve it

In 2023, **Mortgage Portfolio Standards** and the **EU Renovation Loan** were presented in these forums:

- Jan 14th, Environmental Bureau (EEB) launch report event “Financing Decarbonisation of Buildings”
- Feb 15th, webinar “How an EU Renovation Loan can fill the finance gap for European homeowners”, sponsored by UsersTCP, Leonardo Energy, and the European Copper Institute
- February 27th, in the International Sustainable Finance Centre (ISFC) “Sustainability in Finance” podcast
- The Green Building Council Spain round table for the implementation of the Long-term strategy for energy rehabilitation in the building sector in Spain (ERESEE). * March and May editions
- March 14th, to EIB’s Vienna expert high-level event
- April 4th, Ecole des Ponts “Carbon Neutrality Strategy International” Conference
- May 4th, Property ESG Forum
- April 18th, National Roundtable on Financing Energy Efficiency in Belgium - Reverse Mortgages for Energy Efficient Home Renovations
- April 18th, to Deputy Prime Minister of the Spanish Government, Madrid Spain.
- May 16th, CEE Sustainable Finance Summit
- June 21st, European Sustainable Energy Week, Strengthening energy efficiency for the clean energy transition and energy independence
- July 6th, IIGCC hosted event in the EU Parliament, “Demystifying EPBD Financing: Ambition is Affordable”
- July 11th, to the Czech Minister for the Environment at the EU Energy Ministers informal meeting in Valladolid, Spain.
- July 12th, EPBD Workshop: Best European Practices
- July 20th, Universidad Autónoma de Madrid - Summer School programme
- September 19th, DWS Climate Event during New York Climate Week
- October 3rd, Renovate Europe Day 2023
- November 13th, REHVA Brussels Summit 2023

Annex B:

Sustainable Finance for Buildings 2023 Expert Survey

Sustainable Finance for Buildings 2023 Expert Survey

Survey on Sustainable Finance for Building Renovation during the EPBD trilogues

Thank you for taking the time to provide your expert input to this survey which is designed to build a better understanding of the perspectives of the providers of sustainable finance for buildings renovation in Europe.

The survey is designed to take 45 minutes and will provide an anonymised evidence base for input to the important EPBD-recast trilogue negotiations taking place between EU Commission, Council and Parliament. It contains four optional sections after this intro page:

1. **Page 1 (this page - 2 mins) allows us to verify you are "real" and an expert. The survey results will be consolidated and anonymised for reporting.**
2. **Page 2 (5 mins) asks multiple choice positioning questions about the sustainable finance commitments of your organisation.**
3. **Page 3 (10 mins) looks at Mortgage Portfolio Standards its enabling framework in Europe and your opinion on these.**
4. **Page 4 (10 mins) asks for your opinion on the new EU Renovation Loan (ERL) and ways to offer new finance to customers for whom the existing mortgage and related renovation options are insufficient or unaffordable.**
5. **Page 5 (optional) asks for you to provide us with input to our report on "best practices" in Europe in these areas, and is a chance to provide visibility to your organisation. With permission, we plan to use this section to draft a report by end 2023.**

The survey is comprised of mainly multiple choice questions and should not take more than 45 minutes of your time. Feel free to skip those sections where you don't have direct experience or opinion, and please share the survey internally with your expert colleagues who can fill-in the segments which complement your own experience.

The link to the survey can be accessed by anyone at this URL:
https://www.surveymonkey.com/r/buildingsfinance

We are initially providing a month to complete the survey, and if you or colleagues need more time then please send us an email at info@climatestrategy.com to request it.

Climate Strategy is an independent and neutral technical consultancy that has been intimately involved for decades in the evolution of the sustainable financing of energy efficiency in buildings, and our team is ready to answer any questions you may have.

* 1. What is your first name?

* 2. What is your last name?

□ 3. What organisation do you work for ?

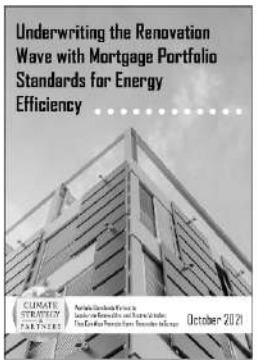
* 4. What is the best description of the organisation where you work ?

My Organisation is

* 5. What is the best description of the department where you work ?

My Department is

□ 6. Please can you confirm your email address for us here (note used for an authenticity check, all responses anonymised in report):



Sustainable Finance for Buildings 2023 Expert Survey

Net-Zero and Sustainable Finance Context

Buildings renovation and energy efficiency are key components in an overall drive towards sustainable finance provision and the delivery of net-zero emissions targets. Financing investing to deliver energy savings, and the other multiple benefits which are derived through those investments in buildings, sits at the intersection of activities which have a dual motivation: 1) Economic; and 2) Sustainable. Indeed, the large majority of leading funders of energy efficiency are public banks, or have started to integrate wider sustainability and net-zero aligned policies into their real estate and mortgage businesses.

For this reason, this page asks a very few "higher level" questions about your organisation's approach to institutional commitments and their operationalisation.

7. What kinds of climate targets and/or commitments does your organisation have ? (Please check all relevant)

- [ ] Net-Zero Emissions Target
- [ ] Interim GHG reduction targets by 2025, 2030, or 2040
- [ ] Financed emissions limits
- [ ] Fossil-fuel financing exclusion policy
- [ ] Climate financing target in $bn by a defined date
- [ ] Renewable energy financing targets
- [ ] EU Taxonomy alignment objectives for eligible assets
- [ ] Do No Significant Harm commitments
- [ ] Targets for Green Bond issuance
- [ ] Decarbonisation objectives per business area/ portfolio segment
- [ ] Target Green Asset Ratio (GAR) - EBA definition
- [ ] Specific decarbonisation targets relating to mortgage portfolio
- [ ] Climate Transition Plan
- [ ] Energy Efficiency First Principle
- [ ] Safeguards which include reference to energy or resource efficiency

"Other" and or explanatory comments to the above question.

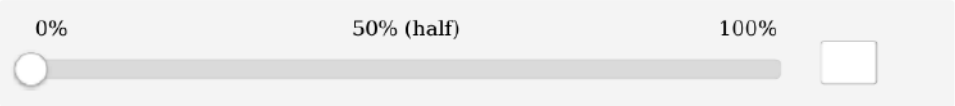
8. There are many initiatives designed to help operationalise high-level decarbonisation commitments in buildings finance that cover both mortgage portfolios and firm-wide decarbonisation objectives.

   Can you indicate which (if any) of the following initiatives your organisation subscribes to:

- [ ] Partnership for Carbon Accounting Financials (PCAF)
- [ ] Science Based Targets initiative (SBTi)
- [ ] Paris Agreement Capital Transition Assessment (PACTA)
- [ ] Transition Pathway initiative (TPI)
- [ ] NZBAG's Climate Action Portfolio Indicator (CAPI)
- [ ] Net-Zero Banking Alliance (NZBA)
- [ ] UNEP FI Banking and EU Taxonomy Project
- [ ] EMF's Energy Efficient Mortgage Initiative
- [ ] Glasgow Financial Alliance for Net Zero (GFANZ)
- [ ] IIGCC's Property and Real Estate Working Group
- [ ] Principles for Responsible Banking
- [ ] IIGCC Banks Working group
- [ ] Climate Bonds Initiative (CBI)
- [ ] International Capital Markets Association (ICMA) Green/Social/Sustainability Bond Principles working groups

"Other" and or explanatory comments to the above question.

9. What approximate percentage of your organisation's balance sheet do you think is EU Taxonomy eligible (this means is exposed to sectors covered by EU Taxonomy - i.e. energy intensive, metals, aviation, maritime, manufacturing and buildings etc.) ?



10. The European Investment Bank (EIB) is one of the leading funders of energy efficiency in Europe. It, and other public banks, have developed a series of programmes and tools to support private lenders include and offer renovation and energy efficient solutions to their clients. Financiers that work with the EIB have often led the development of energy efficiency and buildings renovation related financing instruments.

    Which EIB instrument(s) has/have your organisation used ? (Check all relevant)

- [ ] Invest EU
- [ ] Project Finance for Energy Efficiency (PF4EE)
- [ ] ELENA
- [ ] JESSICA
- [ ] Advisory Hub (for Technical and Development Assistance)
- [ ] Expert Support Facility (for screening)
- [ ] Green eligibility checker tool
- [ ] EIF for funding equity and fund of funds
- [ ] EEQuest - the energy efficiency quick estimator tool
- [ ] LEME - lists of eligible measures and equipment

Other - please elaborate if you wish:

11. The European framework for sustainable buildings “EU Level(s)” has developed a set of 16 common indicators, together with a simplified Life Cycle Assessment (LCA) methodology, which can be used initially to measure the Global Warming Potential (GWP) and life-cycle performance of buildings and their contribution to climate change.

    Please indicate which of the following models and methods your organisation uses: (check all relevant)

- [ ] Level(s)
- [ ] Life Cycle Assessments (LCAs)
- [ ] Buildings Information Modelling (BIM) solutions (incl. GHG Compass)
- [ ] Environmental Product Disclosures (EPDs)
- [ ] Proxies for buildings operational and embedded emissions
- [ ] Energy Performance Certificates (EPCs)
- [ ] Whole Life Carbon calculations (WLC)
- [ ] AI/ Machine Intelligence to estimate operational and embedded emissions
- [ ] "Other" and or explanatory comments to the above question.

Sustainable Finance for Buildings 2023 Expert Survey

Enabling framework for Mortgage Portfolio Standards

Mortgage Portfolio Standards (MPS) are defined in Article 2 of the recast EPBD. They are *mechanisms used by mortgage lenders to establish a path to increase the median energy performance of the portfolio of buildings covered by their mortgages in line with the Union's decarbonisation ambition and national building renovation plans.* Here is a 2 minute summary highlight video explaining MPS with EC officials, MEPs, and finance/ renovation experts.

The questions on this page relate to the status of your uptake of Mortgage Portfolio Standards and the needs of leading European mortgage providers to ensure that MPS implementation is smooth and well supported.

You should feel free to skip questions which you cannot answer and include longer "free form" comments which you would like to say in the "other" fields or at the end of this page.

12. Mortgage Portfolio Standards were included in the EPBD recast of December 2021, and banks with Science Based Climate Targets were already considering similar mechanisms. Mortgage Portfolio Standards require mortgage lenders to establish a path to increase the median energy performance of the portfolio of buildings covered by their mortgages towards 2030 and 2050.

    Are you aware of Mortgage Portfolio Standards?

    - ◯ No
    - ◯ Yes
    - ◯ Yes, and have been actively following its progression

    Explanatory comments to the above question.

13. What is your organisation's status of development with respect of Mortgage Portfolio Standards ?

    - ◯ We are unlikely to implement MPS
    - ◯ We intend to implement a MPS in the next few years
    - ◯ We already have MPS in place (or similar mechanism)
    - ◯ Supportive of MPS target but not directly relevant as we do not directly hold mortgages in our portfolio
    - ◯ We didn't take a final decision yet (please give detail below)

    Explanatory comments to the above question.

14. Does your firm already use environmental/ green/ ESG or climate-renergy-related technical screening criteria during mortgage origination to align them with the organisation's sustainability and climate objectives ?

    Please check the answer which best-fits your organisation:

    - ◯ No
    - ◯ No, but we plan to use the EU Taxonomy technical screening criteria
    - ◯ Yes, we apply in-house environmental (or green) technical screening criteria
    - ◯ Yes, we rely on information contained in the Energy Performance Certificate (EPC)
    - ◯ Yes, we apply a set of ESG-technical screening criteria
    - ◯ Yes, we apply the EU Taxonomy technical screening criteria
    - ◯ 'Other" and or explanatory comments to the above question.

15. Roughly what proportion of your organisation's balance sheet is backed by mortgages (0% is none) ?

0% 50% (half) 100%

16. Roughly what proportion of your organisation's balance sheet is backed collateralised by real-estate/property ?

0% 50% (half) 100%

17. *A recent EBA report said: "Banks subject to the EBA ITS disclosures are required to disclose information on the energy efficiency of the collateral of loans collateralised by immovable property in Template 210 of the ITS. Few institutions are disclosing this information: out of the banks in the ITS sample, only 21% banks disclosed this information, with 8% banks disclosing this information for both commercial and residential real estate. In the ITS, banks are expected to disclose this information as of 2023, including the percentage of exposures for which, in the absence of an EPC label for the collateral, they are providing estimates."*

What approximate percentage of your organisation's mortgage financed buildings do you have either EPCs or equivalent real energy data (excluding proxies and estimates) ?

0% 50% (half) 100%

18. In 2022, the Energy Efficiency Financial Institutions Group (EEFIG) published a report that looked at the statistical relationship between the energy performance of buildings, credit risk and asset values. It concluded that green property was more valuable as collateral, and that mortgage loans to energy efficient properties were less likely to be in default or arrears.

Can you rank the following renovation drivers for your organisation to promote client building renovation ? (1st=highest=most important driver, and check N/A if you think that driver is not applicable for your organisation).

⠿	⬍	Reducing Climate Risks ☐ N/A
⠿	⬍	Earning Structuring and Distribution fees ☐ N/A
⠿	⬍	Improving Credit Risks and Reducing Defaults & Arrears ☐ N/A
⠿	⬍	Improving the value of the underlying building ☐ N/A
⠿	⬍	"Greening" the outstanding mortgage ☐ N/A
⠿	⬍	Improving the Green Asset Ratio (GAR) or EU Taxonomy portfolio alignment ☐ N/A
⠿	⬍	Delivering Climate/ESG/Sustainability Targets ☐ N/A
⠿	⬍	Meeting regulatory targets ☐ N/A
⠿	⬍	Improved risk-capital regulatory treatment ☐ N/A

19. To implement a Mortgage Portfolio Standard you need sufficient energy performance of financed buildings data. This may be also combined with proxies and estimates of the energy and climate performance of the current financed buildings portfolio.

Can you rank the following data sources in terms of their importance to your organisation as a data source to implement MPS (1st=highest=most important).

⠿	⬍	Energy Performance Certificate
⠿	⬍	Real-time data from Smart Meters
⠿	⬍	Energy data provided by a utility/ energy supplier
⠿	⬍	Proxies created from real data taken from Land Registry (or local equivalent)
⠿	⬍	Proxies built from 3D-modelling and AI/Machine Learning & multiple sources
⠿	⬍	Basic estimates based upon age of build and structural considerations
⠿	⬍	Data provided by a technical assessor or building inspector

20. To deliver your MPS-target pathway, your borrower clients will need to renovate their properties. While as a financier you can offer them attractive finance, and massively simplify this process, you cannot force your clients to renovate or save energy.

Can you rank the following renovation drivers for your clients in terms of their importance for you to deliver on-track MPS ? (1st=highest=most important).

	Improved Energy Performance Certificates
	Upgraded real-time data from Smart Meters
	Improved AI/ Machine Learning techniques (for customers)
	Minimum Energy Performance Standards (hitting min-EPC levels by sector by year)
	Upgrading the "worst 15%" energy performing buildings in each sector
	Improved buildings passports, logbooks and other digital tools
	An EU Renovation loan offering most attractive funding available
	Green mortgages
	Tax deductibility of deep renovation works
	Resolving owner-tenant interest miss-alignment

21. Do you think that the implementation of a Mortgage Portfolio Standard might prejudice or limit the opportunities of any of the vulnerable or energy poor communities to access mortgages, renovation finance, public grants or other energy efficiency support ?

- ◯ No
- ◯ Yes

Please explain the reason for your answer here and let us know if safeguards are important to prevent this:

22. Please provide any further explanation or thinking that relates to the answers on this section of the survey on "Enabling framework for MPS" here:

Uncovering the Potential for an EU Renovation Loan

An EU Renovation Loan ("ERL") is an EU-backed, privately contracted, collateralised loan that is designed to provide all homeowners fair and equal access to long-term financing for the deep renovation of their home.

Experts think that the right kind of public-private blended renovation loans can cost-effectively unlock over 10 trillion of euros of stored home equity and offer up to 50 million homeowners the necessary funds for a deep renovation. Deep-renovation finance could be offered on a zero-coupon basis with repayment of principal and accrued interest at EU-borrowing costs upon the earlier of transfer, sale or its 30 year maturity. Here is a 2-minute summary video of the EU Renovation Loan concept.

This page contains questions designed to better understand your views and opinions on the design of a public-private EU Renovation Loan to support customer uptake of Taxonomy-compliant renovation in Member States.

23. How many years (roughly) has your organisation been proactively offering financing products for building renovation at scale ? (Meaning trying to market energy renovation, as opposed to reacting to customer requests within the scope of existing solutions)

We didn't start | 5 years | Over 10 years

24. There are as many reasons to renovate as there are homeowners, and driving customer demand for energy renovation is a principal concern of financial institutions already offering some form of renovation finance.

Based upon your experience of your customers and clients can you rank the following drivers as to "why" buildings owners would borrow money to renovate their home/ building ? (1st=strongest driver=highest - please check N/A if you think that "driver" is really not applicable.)

	Cost savings from lower energy use	☐ N/A
	Improved comfort of home	☐ N/A
	Improved accessibility (when linked to energy renovation)	☐ N/A
	Higher value of building (due to EE)	☐ N/A
	Green label for building	☐ N/A
	Being seen to be environmentally aware	☐ N/A
	To reduce personal impact on climate change	☐ N/A
	Modernising home (as a component of deep renovation)	☐ N/A
	Compliance with national standards (and future MEPS)	☐ N/A
	Not falling below minimum energy performance to rent	☐ N/A
	Health benefits	☐ N/A
	Future-proofing home (within existing renovation)	☐ N/A
	Protecting against high energy prices (aka resilience)	☐ N/A

25. Article 15 (4) of the EU Parliament's amended recast EPBD asks the EU Commission and the EIB to develop an EU Renovation Loan or EU guarantee fund for building renovations.

Prior to this survey, were you aware of any EU Renovation Loan proposal?

- ◯ Yes
- ◯ Yes, but I didn't give it that name
- ◯ No

Please elaborate if you wish:

26. There are hundreds of financial instruments which have been developed and launched to finance energy efficiency in buildings, industry, SMEs, transport and infrastructure. The main ones were reviewed and documented by the EEFIG and presented at COP26 in a full report on the status quo.

One of the conclusions from consultations with financial institutions is that there is a need for more blended public and private sourced funding and finance to address communities with less access to traditional financing and to optimise the delivery of the societal and private multiple benefits of energy and resource efficiency projects.

Can you rank the following energy renovation products from the perspective of "ease of operation" (i.e. lower transaction costs and most efficient from an operational execution perspective). Note 1st=highest=easiest to distribute - please check N/A if you have no experience of any instrument type).

Renovation Loans (benefitting from a public guarantee)	☐	N/A
Soft loans issued by a public bank (but distributed via retail)	☐	N/A
Green mortgages	☐	N/A
Traditional mortgages (just covering EE works as well)	☐	N/A
Grant + traditional private loan	☐	N/A
EIB designed product like PF4EE	☐	N/A
Regular consumer loans (just for renovation purpose)	☐	N/A

27. Article (46a) of the EU Parliament's amended recast EPBD asks Member States to provide guarantees to financial institutions to promote buildings renovation and introduces a "special renovation instrument" at Union Level which it defines as the "EU Renovation Loan".

Which instruments referenced in the recast EPBD has your organisation considered (or used) for renovations ? (Check all relevant)

- ☐ Guarantees
- ☐ Targeted renovation loans
- ☐ Grants for renovation
- ☐ Cash-back for certain efficient equipment purchase
- ☐ Soft loans for vulnerable households
- ☐ First-loss facilities
- ☐ Other - please elaborate if you wish:
- ☐ Green or energy efficient mortgages
- ☐ Energy performance contracts
- ☐ Refinancing ESCOs
- ☐ On-bill recovery schemes (PACE or OBR)
- ☐ Specialist energy efficiency funds

28. Several components have been proposed in the design of an EU Renovation Loan which include: Zero-coupon structure (paying compound interest at maturity), EU guarantee, Interest rate struck at EU borrowing costs for 30 years, and having an ECB TLTRO liquidity facility among them.

Can you rank the following components of the EU Renovation Loan by their importance to three ERL stakeholders: 1) the customer (building owner); 2) the originator (lender); and 3) the Government (EU and/or Member State) ?

	For Customer	For Originator	For Government (EU/ MS)
Zero-coupon structure (paying compound interest at maturity)			
EU Guarantee			
Ultra-low interest rate (same for all building owners)			
30 year maturity			
ECB TLTRO liquidity facility eligibility			
Fixed distribution fees			
Only available for deep renovations (saving >50% energy)			
Offered through an accredited contractor			

Please provide any extra thoughts here:

29. What magnitude of distribution fees do you think are reasonable for a retail operator selling renovation loans (that are between Euro 10-30,000 and mainly destined to energy renovation plus associated upgrade or modernisation works) ? (Assume these fees need to cover 100% of transaction costs and profits, and there is no extra IR-margin, i.e. the interest rate is a "pass through" from funding costs)

30. There are many types of building and segments of buildings owners. The EU Renovation Loan is designed to apply to the broadest possible set of owners and buildings providing fair and equitable access to affordable finance for all. Nevertheless, there are certain underserved communities of building owner who struggle for access to finance, and these include vulnerable communities, the energy poor, the elderly and young working but indebted families.

Can you provide an assessment of the EU Renovation Loan's applicability by "best fit" against the following types of building owner (rows) and building types (columns). Just provide a rough opinion using the drop-down choices.

	Detached (or semi-detached) Single Family Home	Multi-family apartment block (eg. co-op)	Commercial Building
Elderly (60+ years)			
Young indebted couple			
Single employed			
Single unemployed			
Average family			
Energy poor household (>10% income on energy)			
Tenant			
Fund or asset manager			
Bank			
Social housing landlord			
Private landlord			
Government/ Housing Authority			

Please provide any extra thoughts here:

31. Some financial institutions see energy efficiency and home renovation as complex, time intensive, technical and therefore "risky". Notwithstanding proxies, AI, simplification, technical assistance, training, Government intervention, customer benefits, better data, trained contractor networks and other innovation, this "negative image" of renovation can linger.

Can you rank the following risks to the originator of the EU Renovation Loan in order from most serious to least. Note 1st=highest risk=riskiest to offer - please check N/A if you think that "risk" is really non-existent or not applicable.

	Reputation risk with customer	☐ N/A
	Risk of not delivering energy savings	☐ N/A
	Technical risk of poor quality works	☐ N/A
	Increased indebtedness of customer	☐ N/A
	Customer possibility to default	☐ N/A
	Greenwashing risk	☐ N/A
	Risk of loss-making operation (low demand/ low profit)	☐ N/A
	High costs to promote and execute	☐ N/A
	Administrative risk (internal controls)	☐ N/A
	Risk of higher capital costs	☐ N/A
	Risk of excluding vulnerable communities	☐ N/A

32. If there was a EU Renovation Loan (in a perfect world) designed to your specifications (based upon the criteria discussed here), what would be the single biggest barrier to its successful operation. (You can just select one choice, and it's just your best guess based upon everything you know).

- ◯ Lack of demand for renovation from customers
- ◯ Shortage of trustworthy project managers who can deliver quality renovations
- ◯ Lack of access to accurate EPC data and energy databases
- ◯ Creditworthiness of homeowners
- ◯ Lack of Government attention on renovation
- ◯ Lack of grants for renovation
- ◯ Lack of energy renovation skills inside financial institutions
- ◯ Lack of evidence of increased property value due to EE

Please explain your choice here:

33. Do you think that the existence of an EU Renovation Loan might prejudice or limit the opportunities of any of the vulnerable or energy poor communities to access public grants or other energy efficiency support ?

- ◯ No
- ◯ Yes

Please explain the reason for your answer here:

34. Please provide any further explanation or thinking that relates to the answers on this section of the survey on "Potential for an EU Renovation Loan" here:

Sustainable Finance for Buildings 2023 Expert Survey

Best Practices for Highlight in 2023 Progress Report

At the end of 2023, we will provide an update on the 2022 report introducing the EU Renovation Loan. We would be keen to include new case studies and areas of best practice which we can use to highlight and share together with the results of this survey and further analysis.

Please see this section as fully voluntary and "extra" and just fill the text fields with links and references to any work which you know or your organisation is undertaking which you think we need to reference or consider as a case study for the report.

35. Article 11a of the EPBD recast requires Member States to upgrade and improve the accuracy, ease of useand methods/ data for Energy Performance Certificates.

Can you pick a country whose data sources, EPC register and practices well enable and facilitate you access to the data which is required to implement a Mortgage Portfolio Standard (with references or links where relevant):

	Country of mortgage operation	State of EPC Register in selected country
Select Country		

Please explain further your answer here:

36. 'Renovation Passports' and 'Digital logbooks' are referenced in the EPBD as examples of data-rich tools which can support and source the required data for mortgage lenders. Renovation passports are designed to offer a clear roadmap for staged deep renovation and help owners and investors plan the best timing and scope for interventions.

Digital building logbooks are defined as *"a common repository for all relevant building data, including data related to energy performance such as energy performance certificates, renovation passports and smart readiness indicators, as well as on the life-cycle GWP and indoor environmental quality"*.

Some Member States have tools available including: Renovation passports (P2E, iSFP, EPC+), Digital logbooks (E.g. Madaster, Eigenheim Manager, GebäudePass), Advanced EPCs (E.g. Portuguese EPC, Danish EPC, Estonian EPC), and other Initiatives under development (E.g. Electronic building ID, Le carnet numérique du logement, Brussels BRP, Wikihabitat).

Can you pick a country in which your organisation works and describe any "best in class" tool which you use as a reliable data source for energy performance and renovation activity:

	Country of mortgage operation	Tool type and name
Select Country		

Please use this space to briefly explain further your "best in class" experience:

37. Many financiers feel that EU renovation work needs to be carried out or managed by a properly trained and accredited network of trustworthy project managers to operate at scale.

In Germany, the energy agency (DENA) and public bank (KfW) together manage a national network of 13,000 energy efficiency experts who provide high-quality renovation and co-sign renovation loans providing confidence and traceability for project management.

The UK Government licences the TrustMark expert network of 25 operators working with over 15,000 local businesses, since 2005. The TrustMark Scheme Providers commit to meeting specified Operating Requirements and ensuring their registered businesses maintain required standards of technical competence, customer service and trading practices.

Please pick a country in which your organisation works and describe any "best in class" tool which you use as a reliable data source for energy performance and renovation activity:

	Country of renovation network	Pick one key element for this example
Select Country		

Please use this space to briefly explain further your "best in class" example for renovation project management:

38. If you can provide any further references, links or text which describes a "best practice" or further detail which you think should be highlight in the 2023 CS Reports on these subject, please use this space to let us know:

Sustainable Finance for Buildings 2023 Expert Survey

THANK YOU !

Thank you very much for your time and input.

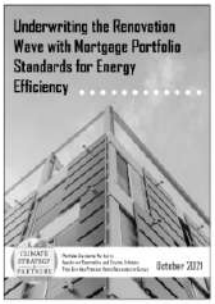
You can review your answers and check back your scores/ add or change anything

you see fit before submitting your survey by pressing the "DONE" button below.

Also if there are others whose opinion you'd like to capture please feel free to share the link: https://www.surveymonkey.com/r/buildingsfinance

Thank you again and we look forwards to reviewing the results of this survey.

We hope to share the results when written-up and can send you a copy of the report (4Q2023) when launched if you let us know by sending an email to info@climatestrategy.com



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